

Towards a new climate regime?

*Views of China, India, Japan, Russia and
the United States on the road to Copenhagen*

Anna Korppoo, Linda Jakobson, Johannes Urpelainen, Antto Vihma,
Alex Luta



Towards a new climate regime?

Views of China, India, Japan, Russia and the United States on the road to Copenhagen

Editors: Anna Korppoo & Alex Luta

Contributors: Anna Korppoo, Linda Jakobson, Johannes Urpelainen, Antto Vihma

The Finnish Institute of International Affairs

The International Politics of Natural Resources and the Environment Programme

Towards a new climate regime?

*Views of China, India, Japan, Russia and the United States
on the road to Copenhagen*

FIIA REPORT 2009 19

Reports can be ordered from the
Finnish Institute of International Affairs
+358 20 6111 707
erja.kangas@upi-fiia.fi
FIIA reports are also available on our website at
www.upi-fiia.fi

Language editing: Lynn Nikkanen
Graphic design: Nordenswan & Siirilä Oy
Layout: Mari Pakarinen/Juvenes Print
Printed by: Tampereen Yliopistopaino Oy –
Juvenes Print, Tampere 2009

The Finnish Institute of International Affairs
Ulkopoliittinen instituutti
PL 400
00161 Helsinki
Finland
www.upi-fiia.fi
firstname.lastname@upi-fiia.fi

ISBN 978-951-769-222-9
ISSN 1458-994X

Contents

Acknowledgements	6
Contributors and editors	7
Executive summary	9
1. Introduction	16
1. Towards Copenhagen	16
2. The EU position as a basis for the Copenhagen negotiations	17
2. China	22
1. Negotiating position	22
2. National conditions	32
3. Conclusion	45
3. India	47
1. Negotiation position	47
2. National conditions	54
3. Conclusion	64
4. Japan	66
1. Negotiation position	66
2. National conditions	70
3. Conclusion	80
5. Russia	81
1. Negotiation position	81
2. National conditions	85
3. Conclusion	98
6. The United States of America	100
1. Negotiation position	100
2. National conditions	108
3. Conclusion	116

7. Comparing the EU position to the positions of other major emitters	118
7.1 EU - China	118
7.2 EU - India	119
7.3 EU - Japan	120
7.4 EU - Russia	121
7.5. EU - US	121
7.6 Concluding table	123
Graphs and tables	127
Abbreviations	129

Acknowledgements

The project team would like to express their gratitude to the Finnish Ministry of the Environment and the Finnish Ministry for Foreign Affairs for funding this project.

We would also like to thank all the national experts who shared their expertise with us. Thanks also go to the FIIA team, especially to Tapani Vaahtoranta, Mari Luomi and Tuuli Mäkelä, who provided us with support.

Contributors and editors

Linda Jakobson: *Until 1 March 2009 Beijing-based Senior Researcher, International Politics of Natural Resources and the Environment Research Programme, FIIA.* In 1990, Ms Jakobson was a Fellow at the Kennedy School of Government at Harvard University. A Mandarin speaker, she has published six books on Chinese and East Asian society, and written extensively about the Taiwan Straits, China's foreign policy, energy security, science and technology policies and high-tech ambitions, as well as its grassroots political reform. She presently works as a Senior Researcher for the Stockholm International Peace Research Institute (SIPRI).

Anna Korppoo: *Acting Director, International Politics of Natural Resources and the Environment Research Programme, FIIA.* Dr. Korppoo specializes in Russian and Eastern European climate politics as well as international climate regimes. She has followed the Kyoto process for almost a decade and published mainly policy-advice-oriented studies. She has also studied the Kyoto mechanisms and their success in Russia and Eastern Europe.

Alexandru Luta: *Research Assistant, International Politics of Natural Resources and the Environment Research Programme, FIIA.* Mr. Luta's primary area of expertise is Japanese domestic politics. He also holds Japanese climate change policies as an additional area of interest.

Johannes Urpelainen: *Department of Political Science, University of Michigan.* Dr. Urpelainen specializes in international cooperation and institutions, with a particular interest in the global environment. His dissertation examines inefficient compromises in international negotiations on climate change and other global issues. Having completed his doctoral studies, he will join the Department of Political Science at Columbia University as an Assistant Professor in July 2009.

Antto Vihma: *Project Researcher, Doctoral Candidate, Finland Futures Research Centre.* Antto Vihma specializes in global climate governance and questions of effectiveness and legitimacy. He has a special interest in the UNFCCC negotiations, which he follows closely. Mr. Vihma has, alongside his research activities, participated in development projects as a technician in Ghana and Madagascar.

Executive summary

The fifteenth Conference of Parties to be held in Copenhagen in December 2009 has been set as the political deadline for establishing a comprehensive regime to address the dramatic threat of climate change and follow up the Kyoto Protocol. The EU has a convening role in the position formation for the negotiations as the newly elected presidential administration of the US will need all the time available to establish its position for Copenhagen.

The main themes of the Copenhagen negotiations will include the burden sharing between developed countries, the involvement of the countries currently outside the developed country group Annex I, financing of mitigation and adaptation actions in developing countries, and an international emissions trading scheme. This report outlines the backgrounds of five major emitters: China, India, Japan, Russia and the United States and their views on the post-2012 pact, and contemplates these views in light of the EU position.

China

China's emissions are growing fast. As the country's rapid economic growth is expected to continue, the government's measures to significantly increase energy efficiency, clean energy and forestation will – even if implemented fully – merely slow down the rate of increase in emissions, and not lead to absolute reductions. The EIA and IEA forecast that in 2030 China's emissions will be around 400% above 1990 levels.

China emphasizes the principle of common but differentiated responsibilities between developed and developing countries as key to the post-2012 regime. China will not budge from its overriding goal of continued economic development and is unlikely to agree to national emission reduction targets. China will bring its stringent energy efficiency and clean energy policies to Copenhagen as proof that it is seriously tackling climate change and could possibly, under pressure, agree to sectoral targets. China's ultimate position in Copenhagen will be determined by the position of the US.

China's leaders are pursuing a delicate balancing act. They do not want to jeopardize ongoing economic development, deemed essential to keep the Communist Party in power, but at the same time they are keen to portray China as a responsible global power. Complicating China's position is the suspicion of Chinese bureaucrats and in several segments of society that the West wants to impede China's transformation into a strong nation. International efforts to persuade China to commit to binding emissions reduction targets are often viewed through this lens.

China's goal in Copenhagen will be to minimize damage to its own economic development. China can be expected to be a tough negotiator to ensure its national interests are considered, but ultimately the country will not stand alone nor jeopardize the birth of a post-2012 international agreement.

India

Twenty-first century India is a country that is on a mission to develop. India is looking to grow its GDP at an annual rate of 8% to eradicate mass poverty in the country. The economic growth will also lead to massive expansion of energy consumption and GHG emissions – although in per capita terms the emissions will remain small compared to the developed countries.

The Indian position in the post-2012 negotiations is that all Annex I parties should commit to deep GHG reductions, leading to a sharp decline in total emissions (more than 25-40% by 2020). As for the non-Annex I parties, economic development and poverty eradication are the first and overriding priorities, as in Article 4.7 of the Convention, and the mitigation actions must be covered by measurable, reportable and verifiable financing of full incremental costs. The developed countries are obliged to provide new and additional financing and green technologies to developing country parties.

India is coming to Copenhagen to defend its hard-line interpretation of the common but differentiated responsibilities principle. The elite ideologies or general awareness concerning climate change policies have not changed significantly in spite of the somewhat increased

public deliberation and recent high level political attention by the Prime Minister's Council on Climate Change. Indian incentives to join the post-2012 agreement arise from its huge energy needs and considerations of energy security, which both drive national policies towards decarbonization, as well as the prospect of increased international financing and technology transfer. The EU should prioritize working towards a consensus on early action in practical terms over winning a fundamental debate on future commitments. Managing the politics of governance structure of the multilateral funding is also a key issue in working towards productive negotiations with India.

Japan

The Japanese commitment under the Kyoto Protocol is challenging; energy efficiency improvements gained prior to the base year 1990 are not reflected in the Kyoto target as early action. As a result, the Kyoto burden sharing is seen as unfair by Japan. The economy started growing after the 1990s stagnation, and since then the emissions have been increasing steadily.

Japanese emissions have already exceeded the Kyoto target significantly. Domestic policies and measures are mostly based on a voluntary approach as well as carbon sinks and external offsets purchased through the Kyoto mechanisms. Some of these policies have not delivered the expected emission cuts and there is a consensus on the difficulty of further domestic emission cuts, which could be challenged. Due to an accident, a significant share of nuclear power in the energy balance has been replaced by coal since 2007 and thus further growth of emissions is expected beyond the currently available 2006 emission data.

The main outcome Japan is expecting from the post-2012 regime is a fairer division of responsibilities from its perspective. The sectoral approach could help to establish the background for such a burden sharing along with a new division of countries into more detailed groups than Annex I and non-Annex I. Japan has also been active in technology transfer towards developing countries and is suggesting the sectoral approach be used as a tool for focusing further

cooperation. This is motivated by the urge to gain a level playing field for various export industries in terms of establishing a price for carbon also in the emerging economies.

The main incentives for Japan to join a post-2012 pact include public support for climate policies, responsibility as an emitter, and international competitiveness. Commercial opportunities for clean technology exports are also relevant. The EU should recognize the serious Japanese concern about the fairness of burden sharing, but also encourage Japan to explore the potential to further reduce emissions domestically.

Russia

Due to the recession related to the regime change, the Russian economy and its GHG emissions declined dramatically in the 1990s, and they remain significantly below the Kyoto base year 1990. Emissions have been growing steadily since the late 1990s due to economic growth, yet both the collapse of the oil price and the global economic downturn are likely to lead to curbing emissions.

Various dynamics are driving the growth of emissions in Russia. However, several policies, especially those linked to energy efficiency improvements, energy pricing and renewable energy, are also likely to generate emission reductions, and the energy intensity of the economy is decreasing fast due to economic restructuring. Thus, the Russian argument on emission reduction commitments harming economic growth can be challenged; efficiency improvements in the economy could contribute to the competitiveness of the Russian industry.

Even though its negotiation position remains undefined at the time of writing, Russia is likely to focus on securing its economic growth, which leads to questioning the feasibility of the country accepting emission reduction commitments under the post-2012 pact. An economic growth-related increase in emissions is seen as a natural path, and therefore, should the country groups be reformed, the Russian position is to redefine the country as an emerging economy under the climate regime. Banking the surplus allowances to offset future emissions could provide a buffer, thereby enabling Russia to accept an emission reduction target.

Russia is likely to be a reluctant negotiation partner in Copenhagen due to its economic arguments and the lack of environmental concern about climate change and because the post-2012 pact is likely to be much less favourable for Russia than the Kyoto Protocol. However, Russia is keen on adopting an important international role and the negotiations could provide a forum for this. Peer pressure by the G8 as well as a high level dialogue, especially with the US but also with the EU, could also encourage Russia to join. The EU should facilitate a dialogue between the US and Russia in order to draw US attention to supporting Russian participation in the post-2012 pact.

The US

Without climate policies, US greenhouse gas emissions will continue to grow slowly as rapid economic and population growth will offset the effect of improved energy efficiency. Per capita emissions in the United States are among the highest in the world, hence significant emission reductions are needed to mitigate global warming.

President Barack Obama's administration emphasizes broad participation in a post-2012 agreement, particularly by such rapidly industrializing countries as China and India. The domestic political debate on appropriate climate policies is at an early stage, so the United States will have to strike a delicate balance between international and domestic demands. The United States is also hesitant to enact policies that reduce economic growth or to provide large amounts of aid to developing countries for mitigation and adaptation policies.

Successful climate negotiations would provide significant benefits for the United States. The American public and key policymakers now support climate policies. The Obama administration is committed to cooperative foreign policy, and therefore assigns high priority to finding a solution which such key partners as the European Union and China could accept. American policymakers also understand that if they refuse to participate, other countries will not undertake ambitious commitments.

Other major emitters, the European Union in particular, will facilitate US participation most effectively if they accommodate the US domestic political interests by giving President Obama enough

time and leeway to find a solution acceptable to the US Congress and pivotal constituencies.

Comparison of positions

The main misalignment of the Chinese position with the EU stems from China's reluctance to accept internationally agreed-upon commitments which the 15-30% deviation from business-as-usual emissions by 2020 would be. While agreeing on the need for financial assistance from developed countries in order to make mitigation possible in developing countries, views differ on the governance of these financial flows. China is keen to authorize the COP to manage these funds, while the EU is suggesting that the GEF should take this role. The EU suggestion that developing countries should report on their domestic actions and emissions is also a sensitive issue for China.

India may be the major emitter that is least in line with the EU position, as the country is calling for deeper emission reductions by developed countries, pushing for the convergence to equal per capita emissions, and thus opposing commitments to deviate future emissions from business-as-usual, as well as opposing the involvement of the GEF in the financial mechanism of the Convention. Indeed, the EU and India can find little to agree on at this stage.

In many ways, the Japanese position is fairly close to that of the EU as there is common ground on the method of burden sharing to be based on indicators, and the need for the major emerging economies to accept some type of commitments. Both countries recognize their responsibility as providers of financial assistance to mitigation actions in developing countries and would also like to involve commercial actors. Their approach to the governance of this financing is also similar. However, the EU is expecting Japan to agree on emission cuts which seem too deep to be politically acceptable for Japan, at least at the time of writing.

The same applies to Russia: the depth of emission reductions suggested by the EU may be politically unacceptable as the country's main priority is economic growth; some even argue that Russia should establish domestic targets instead of international ones.

However, the EU approach to expanding Annex I is similar to that of Russia as already outlined in the Russian Proposal, and there is also common ground on the importance of the participation of the major emerging economies. There seems to be no obvious conflict between the countries on the banking of the surpluses either at this stage.

The US position is not developed enough to be meaningfully compared to that of the EU. However, common ideas on the importance of the participation of the emerging economies and establishing an international emissions trading scheme seem obvious. Yet the economic crisis may limit any possibility the US has to finance mitigation actions in developing countries, which is one of the main thrusts of the EU position.

All the positions outlined in the report will develop further in the run-up to Copenhagen and during the negotiations. This study illustrates that the expectations by the major emitters on the future climate regime differ significantly. As a result, the negotiations in Copenhagen in December 2009 can be expected to be complex, and thus, challenging.

February 2009

1. Introduction

1. Towards Copenhagen

The latest findings of the Intergovernmental Panel on Climate Change (IPCC) urge humankind to take more radical action to address global warming. In order to limit temperature increases to 2.0–2.4 degrees, a reduction of 50–85% from the year 2000 emissions is required by 2050.¹ The Kyoto Protocol (KP) to the United Nations Framework Convention on Climate Change (UNFCCC) has established binding targets for emission reduction and stabilization for the industrialized country group Annex I until 2012, but further action is needed. Both wider participation, including the US and the key emerging economies, and deeper total cuts are required in order to establish a meaningful and effective regime that will bring about emission levels mandated by the IPCC science. The fifteenth Conference of Parties (COP), to be held in Copenhagen in December 2009, has been set as the political deadline for establishing a comprehensive regime to respond to the dramatic threat of climate change.

The major emitters have very different approaches to global climate governance as a result of their varying levels of development and divergent views concerning the dynamics of economic growth. The views on the historic responsibilities as well as the interpretation of the ‘common but differentiated responsibilities’ principle have traditionally driven a wedge between the industrialized countries and the developing ones. In effect, this constricts the diplomatic timeline to Copenhagen.

In order to facilitate common understanding between the parties, this report outlines the backgrounds of the five major emitters – China, India, Japan, Russia and the United States (US) – and their views on the post-2012 pact. These findings are also compared with the emerging EU position presented in the conclusions of the Council of the European Union on 2 March 2009.

¹ IPCC, “Climate Change 2007: Synthesis Report. Summary for Policy Makers”, 2007.

2. *The EU position as a basis for the Copenhagen negotiations*

2.1 **The facilitating role of the EU**

The EU took a leading role in international climate politics in 2001 when the newly elected president, George W. Bush, withdrew the US from the Kyoto Protocol² and declared the pact dead. The EU's domestic climate policies and measures, including the EU Emissions Trading Scheme, have served to develop the international climate domain further. Even though the current US president, Barack Obama, has made it clear that the US is intending to re-engage in the international climate regime beyond 2012, the EU still has a convening role in the position formation for the COP-15 as the US will need all the time available to establish its position for Copenhagen. Various other important issues, not least the financial crisis and the Iraq war, are preoccupying the Obama administration. In addition, the domestic preparation for the climate talks is of particular importance in the US because the institutional system was established to review international pacts thoroughly before ratification. In the case of the Kyoto Protocol, President Clinton signed up to commitments at the international level, but as the Congress disagreed with this, the pact was not ratified. This is also linked to the US tradition of unilateral policy-making; the country has stayed outside several other international agreements, including various environmental pacts.

The EU has been publicizing its position to provide both an example and a starting point for other actors to prepare for Copenhagen. However, at the time of writing (March 2009), few countries have come up with clear positions and, as a result, the EU is still out on a limb somewhat. This, coupled with the financial crisis and more general internal differences and bureaucracy, may delay the formation of the EU negotiation position. The plan was to finalize the position by 19 March, but as various ministerial groups, including the finance ministers, could not agree on committing to a particular amount of

² The Senate had already refused to ratify the Kyoto Protocol after President Clinton signed the pact in 1997.

financial assistance for the developing countries, the finalization of the full EU position was postponed until June 2009.

However, the EU has already defined the essential principles of its position³ and explored various approaches to the future regime, analyzing their implications for the major emitters⁴. The key challenges identified include: 1) targets and actions; 2) financing; and 3) building an effective global carbon market.⁵ These challenges were further broken down as follows:

- Comparability of individual greenhouse gas (GHG) emission reduction targets by developed countries
- Land use, land-use change and forestry (LULUCF) accounting rules
- Surpluses of Assigned Amount Units from the first commitment period and their implications for future targets
- Appropriate action to be undertaken by developed countries to achieve their target and by developing countries to deviate substantially from baseline
- Global carbon market
- Reduction in emissions from deforestation and forest degradation in developing countries (REDD)
- Addressing international maritime transport and aviation

³ The Council of the European Union. Council Conclusions on the further development of the EU position on a comprehensive post-2012 climate agreement (Contribution to the Spring European Council), 2928th Environment Council meeting, Brussels, 2 March 2009.

⁴ Commission of the European Communities. Commissions Staff Working Document (draft – provisional-22/12/2008). Towards a comprehensive climate change agreement in Copenhagen.

⁵ Commission of the European Communities. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Towards a comprehensive climate change agreement in Copenhagen. Informal advance version, COM (2009) 39/3, Brussels.

- Assistance for appropriate mitigation and adaptation by developing countries through finance and technology.⁶

In addition to outlining the directions and backgrounds of the positions of the five major emitters, the aim of this report is to compare the EU approaches to the views of these countries. As many of the major emitters have not presented detailed positions on the LULUCF and REDD nor on international maritime transport and aviation at the time of writing, the EU positions on these issues are not discussed further. The rest of the issues are briefly covered, and compared to the views of the major emitters in Chapter 7.

2.2 Targets and actions

The Council of the European Union (2 March 2009, henceforth: the Council) argues that developed countries should collectively reduce their GHG emissions by 25–40% by 2020 compared to 1990 levels, and by 80–95% by 2050 compared to 1990. Targets should be binding and quantified at least for parties listed in Annex I, all current EU member states, candidate and potential candidate countries, and the OECD member countries as well as non-Annex I countries with a similar standard of living. Additionally, the importance of the comparability and fairness of individual GHG emission reduction targets by developed countries is addressed by suggesting four indicators, namely capability to pay, GHG emission reduction potential, domestic early action and population trends. The Commission Staff Working Document (22 December 2008, henceforth: the Commission) presents some figures based on this approach; according to the GEM E3 model, the target for the EU in 2020 compared to 2005 level would be -24% while the comparable figures for the US, Japan and the Commonwealth of Independent States would be -34%, -29% and -12% respectively. Furthermore, a gradual convergence to equal per capita emissions between developed and developing countries is regarded as necessary in the long term.

The Council is also calling for appropriate action to be taken by developing countries, especially the most advanced ones, to achieve a substantial and quantifiable deviation below the currently predicted

⁶ Commission of the European Communities. Commissions Staff Working Document.

emission growth rate. An adequate deviation is defined as 15-30% below the predicted business-as-usual level by 2020.

Surpluses of Assigned Amount Units from the first commitment period and their implications for future targets were discussed by the Commission, which envisages banking the surpluses for compliance purposes as established in the Kyoto Protocol. Concerns have been raised about the impact of the surpluses on the environmental integrity of the suggested commitments.

2.3 Financing

The Council recognizes the EU's role as the provider of a fair share of adequate, predictable and timely financial assistance required for appropriate mitigation and adaptation by developing countries. The Council stresses that the financial architecture should be governed by the principles of effectiveness, efficiency, equity, transparency, accountability, coherence, predictability and sound financial management. The Global Environmental Facility (GEF) is seen as having a key role in the implementation of the Copenhagen agreement even though it would need reforming.

Low carbon development strategies and plans covering all key emitting sectors, and plans to update them as soon as possible, are also called for. The Commission Communication even outlined such strategies and plans as a prerequisite for access to international support for mitigation action.⁷ These plans should differentiate between actions which can be undertaken autonomously and those requiring external support. The Council suggests that a more robust and transparent measurement, reporting and verification of mitigation and actions is necessary, and that developing countries should start providing annual emission inventories which cover at least the key emitting sectors starting from 2011 at the latest.

The overall level of financial support is seen to be based on a contributory approach and a market-based proportion from an international auctioning arrangement of the Assigned Amount Units (AAUs) allocated to the parties, while private investment also plays a

⁷ Commission of the European Communities. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Towards a comprehensive climate change agreement in Copenhagen. Informal advance version, COM (2009) 39/3, Brussels.

major role. A regular review of funding availability and expenditure as well as the performance of the financial architecture has also been brought up.

In December 2008 the Commission brought up the possibility of ensuring compliance with funding commitments by withholding emission rights as a penalty. However, this approach no longer appeared in the March 2009 Council conclusions.

2.4 Building an effective global carbon market

The Council is suggesting building an OECD-wide carbon market through linking of national / regional cap-and-trade systems by 2015, and extending this system to economically more advanced developing countries by 2020. This system could be linked to sectoral crediting and trading mechanisms, and include no-lose or binding targets.

The Council also envisages a new sectoral crediting and trading mechanism to enable developing countries to strengthen their mitigation contributions and access the carbon market. It has been suggested that the Clean Development Mechanism and Joint Implementation should be revised in the first instance, and then phased out in favour of the sectoral crediting and trading mechanism (which is not further defined in the document⁸).

⁸ The discussions in the PointCarbon Carbon Market Insights conference held in Copenhagen 17-18 March 2009 illustrated that, at the time of writing, the EU has yet to define further details of the suggested new mechanism, and was asking for stakeholder comments.

2. China

Author: Linda Jakobson

1. *Negotiating position*

China⁹ expects the post-2012 negotiations to be extremely difficult. China's initial position will be that developing countries cannot commit to binding national emissions reduction targets while developed countries must commit to drastically curb their emissions levels.

1.1 The background to the Chinese position

China is aware that it faces multiple and substantial challenges at the post-2012 negotiations.¹⁰ While the Chinese Communist Party leadership's foremost goals are to ensure rising living standards and social stability, China's leaders simultaneously strive to portray themselves as a government willing to shoulder international responsibilities in line with China's status as a rising great power. This is necessary not only to meet the demands of the international community, especially of industrialized nations, but also to satisfy various segments of the Chinese population who are sensitive to China's reputation abroad and wish to see China either respected as an equal or admired as a great power. The Chinese government is therefore pursuing a delicate balancing act. On the one hand, it holds steadfastly that combating climate change must not deter economic development; while on the other hand, it wants to bring to the post-2012 negotiations sufficient evidence to prove that it is indeed contributing to curbing its GHG emissions.

The Chinese government acknowledges the severity of climate change and the country's top leadership has said that it is important

⁹ In this report dealing with China's climate change outlook, "China" and "the Chinese government" refer to the Beijing government's official position as it has been made public by China's primary climate change spokespersons Yu Qingtai and Su Wei.

¹⁰ See Tang Xuepeng, "后京都议定书的中国路线" ["China's post-Kyoto roadmap"], 21世纪经济报道 [21st Century Business Herald], 6 November 2008, available at: <http://www.nanfang-daily.com.cn/epaper/21cn/content/20081106/ArticleJ02007FM.htm>.

to enhance China's capacity to tackle climate change. China's White Paper "China's policies and actions on climate change" outlines a wide range of measures that the government is implementing to address both mitigation and adaptation concerns.¹¹

The official line of the Chinese government is that it takes climate change very seriously and has adopted many policy measures in response to climate change.¹² However, China is considered as a victim of climate change because uncontrolled GHG emissions by developed countries have caused climate change and thus it is their responsibility to cut emissions. Chinese officials constantly put forward that China has the same right to develop as did the industrialized nations and point to China's relatively low per capita emissions level. China would also lose its competitive advantage as a low-cost export base if more expensive clean energy is forced upon manufacturers with the intent of reducing GHG emissions in China.¹³ Moreover, China stresses that a sizeable portion of its emissions – up to one-third in 2005 – originate from commodities produced in China which are exported to the rest of the world.¹⁴

This does not mean that China is a passive bystander in the realm of climate change. On the contrary, China has *de facto* adopted a serious climate change agenda. It has enacted a wide range of energy efficiency and clean energy policies as well as clean energy legislation.

¹¹ "White Paper: China's policies and actions on climate change", State Council Information Office, Government of the People's Republic of China, section II, available at: http://www.china.org.cn/government/news/2008-10/29/content_16681689.htm.

¹² Yu Qingtai, "Tackling Climate Change – China in Action", Beijing: *Foreign Affairs Journal*, no. 88, 2008, p.38.

¹³ "节能减排政策对我国经济的影响" ["Energy saving and GHG emission cutting policies and the influences on the Chinese economy"], 第一财经日报[China Business News], 20 June 2008, available at http://cs.xinhuanet.com/pl/02/200806/t20080620_1499909.htm; Liang Da, "多管齐下让中小企业尽快走出困境" ["To use different approaches to save medium-small companies"], 中国证券网 [cnstock.com], 29 September 2008, available at: http://opinion.cnstock.com/2008-09/27/content_3744720.htm.

¹⁴ "中国三分之一温室气体排放与出口有关" ["One third of Chinese GHG is related to exports"], 财经 [Caijing], 7 August 2008, available on http://industry.tech110.net/html/article_382692.html; "33% of China's carbon footprint blamed on exports", *New Scientist*, 28 July 2008, available at <http://www.newscientist.com/article/dn14412-33-of-chinas-carbon-footprint-blamed-on-exports>.

Because China is acutely aware of the pressure it faces to commit to binding emissions reductions at the post-2012 negotiations, these efforts are pointedly referred to by Chinese officials as proof of China's substantial commitment to combating climate change.

China is preparing for a face-off with the advanced industrialized nations in Copenhagen. It is one of the leading voices representing both the G-5 and the G-77 groupings.¹⁵ Both groups can be expected to remain committed to three fundamental positions at the negotiations: First, countries should be held responsible for their cumulative historic emissions, not just their current levels of emissions. Second, per capita emissions, not only total national emissions must also be taken into consideration when judging a country's international responsibility. Third, all international climate change agreements must recognize that industrialized nations have already surpassed the high emissions stage of their development while developing countries also have the right to experience this stage. Developed countries are considered to be in a far more advantageous position compared to developing countries to acquire and adopt high technology when transforming to a low-carbon economy.

1.2 Key elements of the post-2012 regime

China views the principle of "common but differentiated responsibilities" between developed and developing countries as key to the post-2012 regime. China will not budge from its overriding goal of continued economic development and is unlikely to accept an internationally imposed emission reduction commitment. At the same time, China acknowledges the severity of climate change and the risks it poses not only to mankind at large but directly to the Chinese economy and the well-being of the Chinese population. Therefore, China can be expected to continue to make concerted efforts to curb its GHG emissions and, under severe pressure, will not be the sole major emitter to refrain from committing to a reduction target for

¹⁵ The G-5 consists of Brazil, China, India, Mexico and South Africa. The Group of 77 (G-77) was established on 15 June 1964 by seventy-seven developing countries signatories of the "Joint Declaration of the Seventy-Seven Countries" issued at the end of the first session of the United Nations Conference on Trade and Development in Geneva. Although the members of the G-77 have increased to 130 countries, the original name was retained because of its historic significance. See: <http://www.g77.org/doc/>.

2050. China can be expected to nimbly play the role of developing nation, garnering the support of other poorer developing nations to strengthen the common stance of developing countries against that of the developed nations, as it has in many other international forums. China views any sub-categorization of developing countries as weakening its position and therefore opposes it.

At the G-5 summit in Hokkaido (held on the sidelines of the G-8 Summit in July 2008) China, together with Brazil, India, Mexico and South Africa (G-5), declared that historical responsibility and respective capabilities must be the guide in order to establish an equitable burden sharing paradigm. Developed countries should take the lead by reducing emissions by at least 25-40% below 1990 levels by 2020, and by between 80 and 95% by 2050. In that case the G-5 would commit to increasing the depth and range of nationally appropriate mitigation and adaptation actions supported and enabled by financing, technology and capacity-building with an aim of achieving a deviation from business-as-usual. Competitiveness and trade protection measures were deemed by the G-5 as inappropriate topics for climate talks.¹⁶ It is evident that China was the driving force behind this declaration.

The G-5 Hokkaido declaration fuelled speculation both within and outside China that China had indicated a willingness to agree to national emissions reduction targets in the event that developed nations commit to stringent and binding national targets.¹⁷ In February 2009 Premier Wen Jiabao added to this speculation by not out rightly rejecting national emissions reduction targets but rather stating that “it is difficult” for China to accept them.¹⁸ On the basis of

¹⁶ G5 Statement, Hokkaido Toyako Summit, 8 July 2008, available at: <http://www.g7.utoronto.ca/summit/2008hokkaido/2008-g5.html>.

¹⁷ “洞谷湖畔观云涌 南北对话写新篇” [South-North discussion beside Lake Toya], 人民日报 [People’s Daily], 11 July 2008, available at http://news.xinhuanet.com/world/2008-07/11/content_8526091.htm. See also “Climate: G8 and G5 leaders issue different climate messages”, Third World Network, 14 July 2008, available at: <http://www.twinside.org.sg/title2/climate/info.service/climate.change.20080702.htm>; Ng Tze-wei, “China’s voice loud and clear at new ‘G5’ bloc”, *South China Morning Post*, 10 July 2008, available at: http://www.yorku.ca/year/Publications/Members/Chin_10_July.pdf.

¹⁸ Wen Jiabao’s in-depth interview with the *Financial Times*, 2 February 2009, available at: <http://www.ft.com/cms/s/0/795d2bca-f0fe-11dd-8790-0000779fd2ac.html>.

research interviews with Chinese climate change specialists in Beijing in early 2009 it is nevertheless presumptuous to conclude that either the G-5 declaration or Wen's statement was a clear indication of a change in China's position. Much will depend on the commitments that the industrialized nations, especially the United States, are prepared to make in Copenhagen.

As for the financing of technology transfer and/or collaborative research efforts, China demands that the post-2012 regime include firm commitments from developed countries to pay for these. There are, however, several interpretations as to what China really wants when it insists on technology transfer and thus China's climate change negotiators do not have a list of China's technological needs.

In September 2008 China submitted a statement to the UNFCCC which contained its proposal for technology development and transfer within the post-2012 agreement. The basic idea of the Multilateral Technology Acquisition Fund (MTAF) is to develop public private partnership by linking public finance with carbon markets, capital markets and technology markets and, leveraging larger amounts of private finance by smaller amount of public finance mainly from developed countries, including regular fiscal budget for research and development (R&D), fiscal revenues from taxation on carbon transaction and/or auction of emission permit in carbon market, as well as fiscal revenues from energy or environmental taxation.”¹⁹

To what degree China is willing to itself invest in collaborative international research efforts is open to debate within policy circles in China. According to one view, the availability of funding depends on political will. Following the Beijing Olympics a Chinese political scientist said that Chinese should be aware that foreigners who had watched the successful Olympics would be hard to convince that China is a developing country in need of financial assistance.²⁰ However, this a minority view and China can be expected to

¹⁹ “China's views on enabling the full, effective and sustained implementation of the convention through long-term cooperation now, up to and beyond 2012”, p. 5, available at: http://unfccc.int/files/kyoto_protocol/application/pdf/china_bap_280908.pdf.

²⁰ US China Ten Year Framework on Energy and Environment Second Roundtable, Qinghua University, Beijing, 10 October 2008.

emphasize its “relatively low level of economic development”²¹ in post-2012 negotiations.

China has proposed that each developed country should contribute one percent of its gross domestic product (GDP) to help developing countries combat climate change. The stipulated percentage amount should not be taken at face value; even Su Wei, deputy head of the Chinese delegation to the Poznan talks, belittled it in his remarks in December 2008, stating that “half a percent, three-quarters of a percent, one percent, this is all open to negotiation, the point is that China wants to see a financial commitment from developed countries to contribute to efforts made by developing countries to deal with climate change challenges.”²²

1.3 Domestic debate on commitments

In the last months of 2008 it became evident that expert groups within China were encouraging the government to agree to either voluntary or binding emissions reduction targets in a few selected sectors, for example power production, and the cement and iron/steel industries.²³ Several energy experts said in off-the-record discussions that existing energy efficiency targets in the above-mentioned industrial sectors would automatically result in a substantial emission reduction and that these select industries would not have any difficulty in meeting a sector emission reduction target. Therefore, China can be expected to push for acceptance of policy-based commitments and possibly also sector-based commitments as part of the post-2012 agreement.

²¹ “White Paper: China’s policies and actions on climate change”, State Council Information Office of PRC, p. 1, available at:

http://www.china.org.cn/government/news/2008-10/29/content_16681689.htm.

²² Remarks by Su Wei in response to a question at “High-Level Conference on Climate Change: Technology Development and Technology Transfer”, organized by the Chinese government and United Nations in Beijing, 7–8 November 2008.

²³ The author conducted off-the-record research interviews in Beijing 6.10.2008–20.1.2009 with Chinese government officials and researchers working in fields related to climate change. If not otherwise specified, all other references to off-the-record research interviews and discussions in this report refer to that time period.

A small minority of Chinese climate change experts have gone further and publicly advocated China taking on national emissions reduction targets. Hu Angang, who has promoted the concept of “green-GDP” in China, states that it is China’s own national interest to “dramatically” curb emissions and commit to binding national targets.²⁴ Climate change scholar Pan Jiahua has suggested that China conditionally accept voluntary emissions reduction targets and cut so-called luxurious emissions, especially if this would be backed by financial and technical support. Pan says voluntary targets are important from a moral perspective and to meet Chinese own sustainable development strategy.²⁵

As of early 2009 there were two conflicting schools of thought among Chinese involved with foreign policy and climate change policies with regard to the question whether China would ultimately accept a binding national target to reduce its emissions. One group presumed that, if the United States accepts a stringent and binding emissions reduction target, China would not be the only major emitter to stand alone, and under strong international pressure would accept at a minimum a voluntary national emissions reduction target. According to this view China has previously made compromises on seemingly staunch positions when faced with international isolation and would ultimately avoid the reputation of obstruc-ter of a global pact. Those holding this view did, however, voice strong scepticism about China’s ability or even political will to actually fulfil its promises – even if Beijing committed to voluntary national emissions reductions. They put forward that China will use every possible excuse to justify not meeting the target. This group expected China to insist that 2005 be used as a baseline year as that would be more advantageous for China.

²⁴ Chris Buckley, “Chinese government advisor urges greenhouse gas cuts”, Reuters 8 September 2008; Hu Angang and Guan Qingyong, “应对全球气候变化，中国做出贡献” [“Fighting climate change: China’s contribution”] 当代亚太 [Journal of Contemporary Asia-Pacific Studies], vol. 4, 20 August 2008.

²⁵ Pan Jiahua, “后京都国际气候协定的谈判趋势与对策思考” [“Roadmap to post-Kyoto climate agreements and policy choices by China”], commissioned paper by China Meteorological Administration, 5 August 2005, available at: <http://www.rcsd.org.cn/NewsCenter/NewsFile/Attach-20050929130515.pdf>.

The second group cited three reasons for why they do not believe that China will agree to voluntary or binding national emissions targets. First, the Communist Party's legitimacy is dependent on the government's ability to ensure continued economic growth and China simply cannot afford to implement the policies required to meet emissions reduction targets. As economic gloom spread to China in early 2009 this stance became predominant. Second, the top leadership must take into account an increasingly mainstream view among government officials and several segments of society that the aim of the West, and the United States in particular, is to prevent China from becoming a wealthy and strong world power.²⁶ This deeply-rooted suspicion toward the intentions of Western countries is not evident when reading Chinese official foreign policy documents promoting cooperation and understanding between China and the West. Third, the Beijing leadership has previously been reluctant to agree to international legal obligations if there is any fear that it would not be able to meet them (taking into account China's primary goal of economic development). Therefore, one can expect China to formally agree to only what it can deliver with certainty.

1.4 China and the United States before the Copenhagen summit

The position taken by the United States will shape China's final approach to the post-2012 regime. Before the election of Barack Obama China fended off criticism of its opposition to binding emissions reduction targets by pointing to the unwillingness of the world's most wealthy country to take responsibility for global warming. Obama's pledge to put climate change at the forefront of his administration's agenda as well as his emphasis on reaching a global agreement including China and India places China (and India) in an awkward position. Chinese commentators have noted that China will

²⁶ Chai Shangjin, "国际政治博弈中的气候变化问题" ["Climate change issue in international political game"], 当代世界 [The contemporary world], June 2007; "气候变化牵动国际关系变化" ["Climate change causes international relations change"], 浙江日报 [Zhejiang Daily], 7 August 2008, available at: http://www.china.com.cn/environment/2007-08/07/content_8640695.htm. See also Kenneth Lieberthal and David Sandalow, *Overcoming Obstacles to US-China Cooperation on Climate Change*, The Brookings Institution, January 2008, p. 2.

be under increased pressure if Obama makes good on his campaign promises.²⁷

If Obama succeeds in persuading Congress to approve a stringent climate change agenda for the US before Copenhagen China will be under strong pressure to, at a minimum, commit to voluntary national reduction targets in Copenhagen. In early January, however, House Speaker Nancy Pelosi said it was doubtful that Obama's initial intention to push a carbon cap and trade bill through Congress would materialize in 2009.²⁸ Before knowing with certainty what the US's ultimate stance will be and taking into consideration the current economic pressures in the US it is difficult to speculate what precisely China could commit to.

Two initiatives on ways to strengthen US-China cooperation on climate change were prepared by prominent American China specialists for the Obama administration and the Chinese leadership.²⁹ Both initiatives advocate high level political commitment to establish a bilateral strategic partnership to develop low carbon economies and reduce GHG emissions in the world's two largest emitters. The first step in this direction was taken in February 2009 when dialogue on climate change between the two countries was elevated to a new level and included in the US-China Strategic Economic Dialogue. The focus of this dialogue will be on energy efficiency, financing and technology transfer.

The Brookings Institution Initiative focuses on practical ways to overcome the obstacles to bilateral cooperation on climate change, taking into account the "considerable suspicion" and "mutual distrust" in both countries toward each other. The report's emphasis

27 Yu Hongyuan, "气候问题有望成奥巴马外交的重头戏" ["Climate issue will become important part of Obama diplomacy"], 东方早报 [Oriental Morning Post], 27 December 2008, available at: <http://opinion.hexun.com/2008-12-27/112836322.html>; "奥巴马时代的是美关系面临气候考验" ["Sino-US relations in Obama era is tested by climate issue"], 财经 [Caijing], 6 November 2008, available at: <http://www.caijing.com.cn/2008-11-06/110026599.html>.

28 "Other Obama goals delayed by economy", *International Herald Tribune*, 12 January 2008.

29 Kenneth Lieberthal and David Sandalow, *Overcoming Obstacles to US-China Cooperation on Climate Change*, The Brookings Institution, January 2008; *Common Challenge, Collaborative Response; A Roadmap for US-China Cooperation on Energy and Climate Change*, Asia Society on US-China Relations and Pew Center for Global Climate Change

is on the political dimension of many of the major issues that the US and China need to collaborate on to jointly work toward reducing GHG emissions. This report includes recommendations that China and the US would acknowledge the legitimacy of each other's perspectives to the climate issue, seek common ground before Copenhagen, pursue the co-development of clean energy technology as well as initiate a high-level climate dialogue at a US-China Summit.³⁰

Neither the Brookings initiative nor the other initiative that is compiled by the Asia Society and Pew Center envisions strengthened bilateral cooperation on climate change as a substitute for active participation in a multilateral agreement under the UNFCCC. Rather, both initiatives stress that substantially strengthened bilateral cooperation between the US and China would promote a multilateral agreement and is imperative to speedily move the two countries on a trajectory to reduce GHG emissions. Moreover, both reports evaluate clean energy and climate change to be possible catalysts for improving and deepening complex US-China ties.

The initiatives are in line with the views that Obama has made public on the subject of climate change. As to Beijing's reactions, there is no indication that Chinese leaders have shown a willingness to make financial commitments to far-reaching bilateral clean energy collaboration. Though President Hu Jintao already spoke of the need for China to develop a low carbon economy in 2007³¹ the Beijing government was clearly re-prioritizing economic development as China started to feel the effects of the global financial meltdown in early 2009.

³⁰ Kenneth Lieberthal and David Sandalow, *Overcoming Obstacles to US-China Cooperation on Climate Change*, The Brookings Institution, January 2008.

³¹ "Hu Jintao expounds China's view on climate change at APEC meeting", Xinhua, 8 September 2007, available at: http://news.xinhuanet.com/english/2007-09/08/content_6687377.htm; "Challenges in building a low-carbon economy", *China Daily*, 7 January 2009, available at: <http://www.ccchina.gov.cn/en/NewsInfo.asp?NewsId=16033>.

2. *National conditions*

2.1 Economic conditions

2.1.1 *Background and dynamics of the economy*

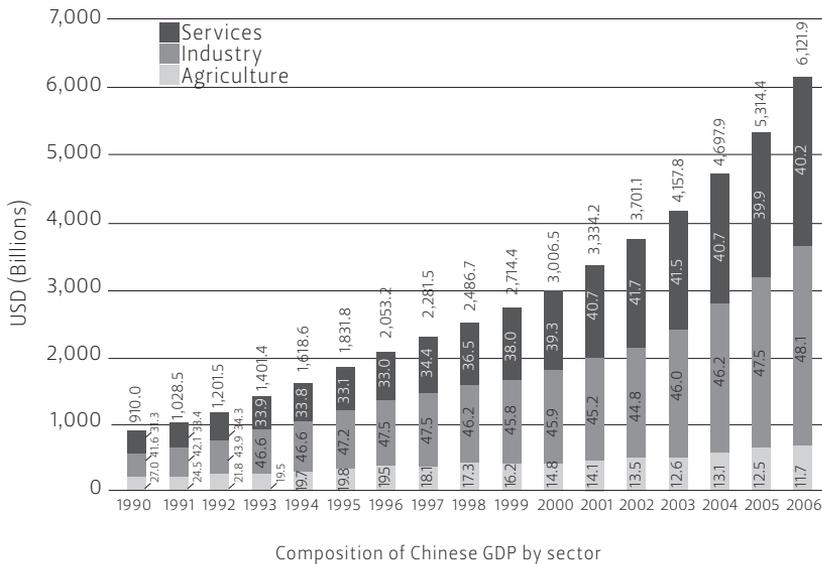
Eight percent economic growth has for some time been touted publicly in China as the base line for maintaining a manageable level of unemployment, and as a result imperative for social stability.³² During 1990–2006 the annual growth of the Chinese economy has been on average approximately 10%.³³ As the effects of the global economic crisis started to be felt in China, economic growth was predicted to fall well below 8% in 2009 (despite the government’s assurances that 8% was its goal for 2009), thus weakening the voices of those promoting more comprehensive measures to mitigate GHG emissions.

Despite the rapid increase in Chinese living standards over the past three decades, China is still – when looked at as a whole – a developing country, a point that outsiders constantly hear from Chinese officials. Over 400 million people now enjoy living standards that are comparable to those in poorer European countries while over 800 million people still live in developing country conditions. For the most part rural residents live in an entirely different situation from urban dwellers. The huge disparity in living conditions affects every aspect of economic, social and political life – a fact China’s top leaders have to take into consideration.

China’s claim to developing country status is nevertheless controversial because the structure of its economy changed dramatically during 1990–2006 as the importance of the service and industrial sectors grew while that of agriculture diminished. So, while China can in some ways claim it is still a developing country, its industrial economy is much larger than that of many developed

³² Zhang Xiuqi, “就业压力倒逼GDP 底线为8%” [“8% is the bottom-line of GDP growth for employment”], 南方都市报 [Nandu Daily], 7 November 2008, available at: <http://finance.jrj.com.cn/2008/11/0710302633710.shtml>.

³³ Because of the uncertainty about the reliability of Chinese economic data there is considerable controversy regarding China’s economic growth rate. Nevertheless, mainstream Western economists refer to an average 10% growth rate for the years mentioned.



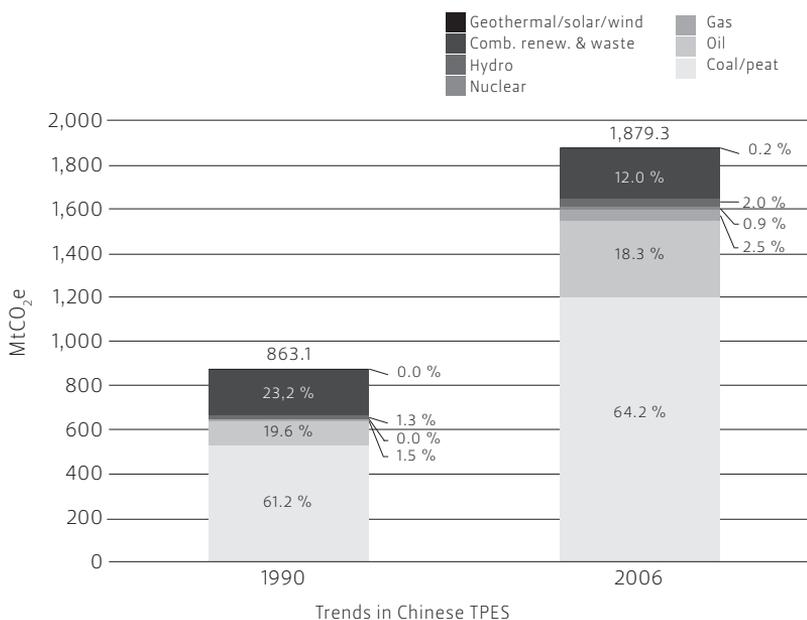
Graph 2.1. Breakdown of the Chinese gross domestic product by economic sectors
 Source: IMF (GDP), World Bank (Breakdown by sector).

countries and belies the point that China should be treated only as a developing country.

China's exports have transformed from being dominated by textiles and shoes to more sophisticated items such as electronics, household appliances, vehicles and engines. Because exports generate about one third of the China's emissions one of China's arguments at the climate change negotiations is that the countries that are on the receiving end of Chinese exports should bear some responsibility for the growing emissions. Moreover, they oppose attaching a price to carbon as this would weaken the competitiveness of Chinese products abroad.

2.1.2 Energy sector

China is the world's second largest consumer of oil, but coal is what the nation relies on and will continue to rely on in its modernization drive. There is plenty of coal in China. An eighth of the world's recoverable coal reserves are within its borders while it has only one percent of the world's known oil and gas reserves. To quote Xavier



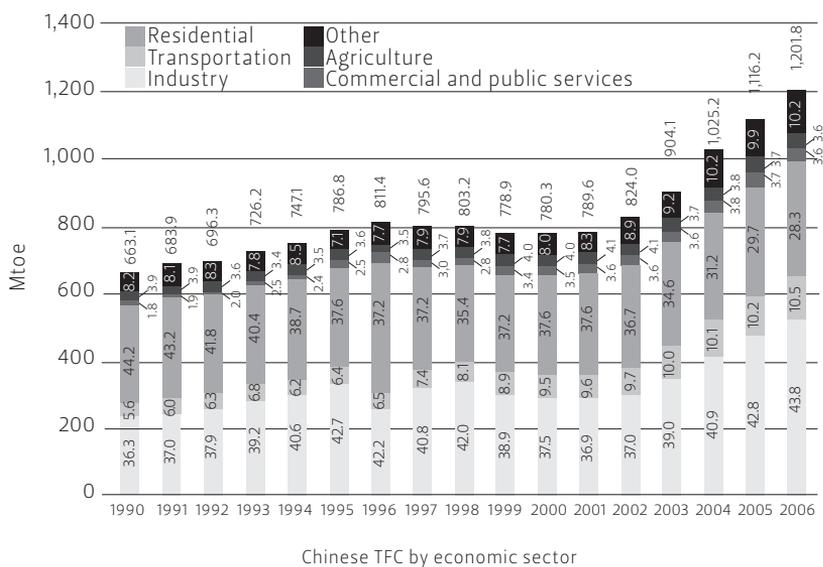
Graph 2.2. Changes in the composition of the Chinese total primary energy supply
 Source: IEA.

Chen, China’s “energy security is not only about oil... Long-term coal supply security is vital for countries like China.”³⁴ China met 64% of its primary energy needs with coal in 2006, nearly 19% with oil (of which about half was imported), just 3% with gas, 2% with hydro-power, 12% with biomass and waste, and 1% with nuclear.³⁵

A popular misconception related to China’s use of energy is that it is the rapid rise in private vehicles and household consumption that is spurring China’s increase in energy consumption. This is the probable scenario in the future, but it is not the case at present. Energy-intensive heavy industry is clearly behind China’s surge in energy consumption and decline in energy intensity. Industry

³⁴ Xavier Chen, “Sino-US Energy Security: taking out the emotion”, talk at seminar “Competition or Cooperation for Energy: China and the North American Response”, Wilson Center, Washington DC, 29 March 2006.

³⁵ Figures from International Energy Agency’s World Energy Outlook 2008, p. 530.



Graph 2.3. Trends in the composition of Chinese total final energy consumption by economic sectors

NOTE: Excludes electricity trade. Source: IEA

accounts for 43% of China's energy consumption, which is high by both developed and developing country standards. The transportation sector accounts for a mere 10.5%, while "living" consumption and trade and services account for some 28 and 3.5%, respectively.³⁶

In 2008 China increased its power capacity by 75 Giga-watts (GW). New capacity in 2008 was still overwhelmingly coal-fired (68%). The share of renewables-based capacity is slowly rising. Hydro accounted for 26% of new capacity in 2008 and now accounts for 22% of installed capacity. Wind generation capacity more than doubled, but at 9 GW still represents just 1.1% of total capacity.³⁷

China is currently implementing a wide range of energy and industrial policies that it expects will contribute to slow the growth of China's GHG emissions. These measures were not necessarily

³⁶ Cf. IEA, Energy Balances of Non-OECD Countries (2008 Edition), p. II-92.

³⁷ "Dragon Week" 12 Jan 09, Gavekal Dragonomics, Hong Kong: Dragonomics Advisory Services, p. 2.

initially instigated by climate change concerns. Rather they were enacted to reduce China's energy consumption for three principle reasons. First, decreasing the country's reliance on imported oil will improve the country's overall energy security. Second, more stringent use of energy will bring down the costs of Chinese products and enhance Chinese companies' competitiveness. Third, curbing energy consumption will reduce China's severe air pollution and pollution-induced health problems. Coal-fired plants generate roughly 80% of China's electricity and are the largest single source of China's carbon dioxide (CO₂) and sulphur oxides (SO_x) emissions.

The energy sector in China is plagued by weak coordination. There are several government agencies overseeing energy policies that are not subordinate to each other in terms of political power but have overlapping areas of authority, which has led to intense rivalry and ineffective management. There is no single government entity that would command the authority over all stakeholders.³⁸

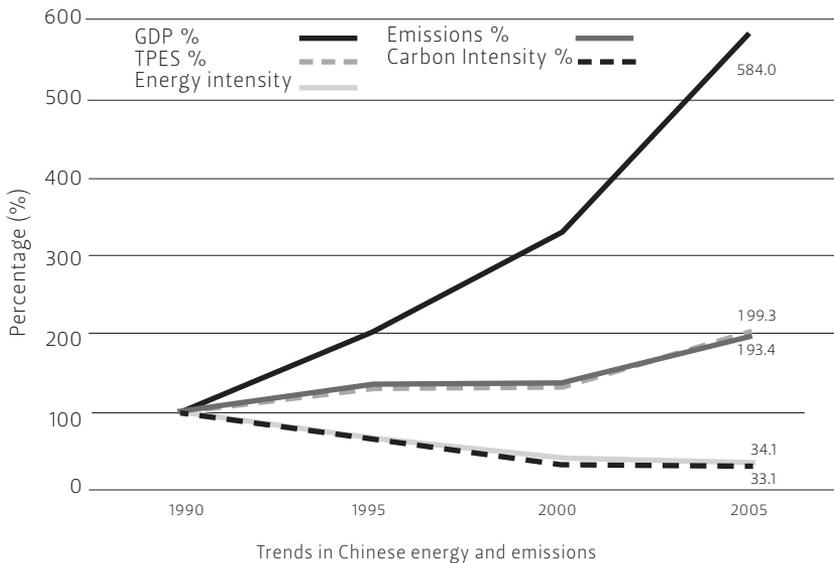
2.1.3 Emission trends

Though China (as of 1 March 2009) has not officially acknowledged that it has surpassed the United States as the largest emitter of greenhouse gases (according to figures published by the Netherlands Environmental Assessment Agency in June 2008³⁹), China does not deny that its phenomenal economic growth during the past 30 years has resulted in a drastic increase in its GHG emissions.⁴⁰ While China has managed to decrease the carbon intensity of its economy during

³⁸ Linda Jakobson, "Does China have an energy diplomacy? Reflections on China's energy security and its international dimensions" in Antonio Marquina (ed.) *Energy Security. Visions from Asia and Europe*, Palgrave Macmillan, 2008, p. 124.

³⁹ The Netherlands Environmental Assessment Agency, *Global CO₂ Emissions: Increase Continued in 2007*, 13 June 2008, available at: <http://www.mnp.nl/en/publications/2008/GlobalCO2emissionsthrough2007.html>; Ross Garnaut, *The Garnaut Climate Change Review: Final Report* (Cambridge: Cambridge University Press, 2008), available at: <http://www.garnautreview.org.au/CA25734E0016A131/pages/draft-report>.

⁴⁰ "中国温室气体排放总量大但人均水平较低" ["China's GHG emissions are high, but per capita level is still low"], 新华网 [Xinhua], 30 October 2008, available at: http://news.xinhuanet.com/newscenter/2008-10/30/content_10281754.htm.



Graph 2.4. Trends in Chinese energy and emissions figures relative to 1990 (100%)
 Source: IEA (GDP, TPES, emissions levels).

1990–2006,⁴¹ the absolute growth of its economy has increased its total emissions.

A major problem in evaluating China's emissions trends is the lack of reliable data. The Chinese government has not made its emissions data public since 2004, which explains the fluctuations in both Chinese and outsiders' estimates of emissions projections.

One Chinese expert estimate is that under the business as usual (BAU) scenario (annual economic growth rate of 6.4% from 2000 to 2050), China's energy consumption will be 4.5 billion tonnes of coal equivalent (tce) in 2020, 5.36 billion tce in 2030, and 6.3 billion tce in 2050. The annual increase rate from 2000 to 2030 in this estimate is 3.6%. Coal will still in 2030 be the primary source of energy, accounting for 58% (2.9 billion tonnes) of overall energy consumption, and 46% (2.92 billion tonnes) in 2050. Reliance on

⁴¹ International Energy Agency, Beyond 20/20 Database.

gas will increase sharply from 4% in 2000 to 12% in 2030. Based on this data, CO₂ emissions will be 9.9 Giga-tons (Gt) in 2020, 11.5 Gt in 2030 and 12.4 Gt in 2050. If the government's policies are implemented successfully, overall energy demand in 2030 will be 4.2 billion tce, a decrease by 21% compared with BAU. CO₂ emission would decrease by 30.8%. In 2050, the energy demand will be 4.8 billion tce. Correspondingly, CO₂ emissions will decrease by 35.5% compared with BAU.⁴²

A more pessimistic evaluation was published in October 2008 report by researchers at the Chinese Academy of Sciences who used US data. In their projection, by 2020 China's burning of fossil fuels could annually emit CO₂ equal to 9.2 to 10.6 Gt. By 2030, those annual emissions may reach 11.4 Gt and could even amount to 14.7 Gt.⁴³

Under a BAU scenario studied by German researchers China's emissions will grow by 3.3% annually between 2005 and 2020.⁴⁴ In 2000 most of China's emissions resulted from power production, agriculture and industry (31%, 25%, and 23% respectively). Under the BAU scenario, this trend is projected to be more or less similar, although the importance of power production will increase slightly, while the share of agriculture will decrease. Under the ambitious scenario overall emission reductions could be 32% below BAU (1% above 2005 emissions).

Regardless of the accuracy of the data, the trends are clear and China's emissions are growing fast. Because China's economy is growing more rapidly than in developed countries, the government's

⁴² Figures for CO₂ calculated from data in Jiang Kejun, Hu Xiulian, Zhuang Xin, Liu Qiang and Zhu Songli, "中国2050年的能源需求与CO₂排放情景研究" ["China's energy demand and GHG emission scenarios in 2050"], 气候变化研究进展 [Advances in Climate Change Research], vol.4, no.5, September 2008, pp. 296-302; and "2030年, 中国仍可支付减排成本" ["In 2030, China still could pay the cost of GHG reduction"], 科学时报 [Scientific Times], 23 November 2008, available at: <http://www.sciencenet.cn/sbhtmlnews/2008/11/213103.html>.

⁴³ Chris Buckley, "China report warns of greenhouse gas leap", Reuters, 22 October 2008, available at: <http://www.reuters.com/article/environmentNews/idUSTRE49L0Z920081022?feedType=RSS&feedName=environmentNews&pageNumber=1&virtualBrandChannel=0>.

⁴⁴ Niklas Höhne et al., "Proposals for contributions for emerging economies to the climate change regime under the UNFCCC post 2012", Federal Environmental Agency of Germany, Research Report 200836401003, 16 July 2008, pp. 76-77, available at: <http://www.umwelt-daten.de/publikationen/fpdf-1/3658.pdf>.

measures to significantly increase energy efficiency, clean energy and deforestation will – even if implemented fully – merely slow down the rate of increase in emissions, not lead to absolute reductions. The Energy Information Administration (EIA) and the International Energy Agency (IEA) have projected that in 2030 China’s emissions will be around 400% above 1990 levels. China’s per-capita energy consumption and GHG emissions are presently about one-fifth of US levels and one-third Europe’s levels.

2.2 Domestic policies and measures

Climate change policies are driven in China by the central government. Because industry accounts for about 44% of total final energy consumption the majority of climate change policies are geared toward industry.⁴⁵ The China Climate Change Programme (2007) spells out several ambitious mitigation actions on energy efficiency, renewable energy, and deforestation, as does also the Five-year Plan for 2005–2010. China’s main climate change actions and measures include:

- Energy intensity targets: China has declared an ambitious goal of reducing energy intensity (energy consumption/GDP), or improving overall energy efficiency, by 20% below 2005 levels by 2010. The energy efficiency target has been added to the list of indicators by which the performance of local officials is evaluated. After the energy efficiency targets were not met in the first year, the National Development and Reform Commission of China (NDRC) stipulated individual energy efficiency targets for 1000 of China’s largest enterprises in 2006. The revised Top 1000 Enterprise Program met its targets in 2007.⁴⁶ Moreover, each province has been given a quota to shut down inefficient industrial plants.⁴⁷

⁴⁵ Deborah Seligsohn, “Climate change policy. Doing more than you think”, *China Economic Quarterly*, September 2008, p. 23.

⁴⁶ Ibid.

⁴⁷ “我国将关停超5000万千瓦小机组 确保节能减排目标” [“To ensure the aim of energy saving and GHG emission reduction, China will close 50gw power generating sets”], 新华网 [Xinhua], 29 January 2007, available at: http://news.xinhuanet.com/fortune/2007-01/29/content_5670863.htm; “国家发展改革委办公厅关于做好淘汰落后水泥生产能力有关工作的通知” [“NDRC’s notice about exclusion of the undeveloped cement production”], National Development and Reform Commission NDRC, 18 February 2007, available at: <http://www.>

The 20% energy efficiency improvement target is unlikely to be reached by 2010; 15 or 16% is probably a more realistic estimate.

- Energy diversification targets: China aims to increase production of primary energy from renewable sources from 5% in 2005 to 15% by 2020. The targets are to increase wind power to 30 GW, biomass power to 30 GW, hydropower to 300 GW, solar power to 1.8 GW⁴⁸ and nuclear power to 70 GW⁴⁹. In China nuclear power is considered as a renewable energy source.
- Forest sinks: China's ongoing five-year plan has a target of reaching 20% forest coverage by 2010. China already increased forest coverage from 14 to 18% in the time period 1990–2005.
- Vehicle standards: China's fuel standards are more stringent than in the US, Canada and Australia but behind the EU and Japan.
- Industrial and fiscal policies: Since 2007 foreign investment in so-called clean industries have been granted incentives; foreign investment has been banned or restricted in many highly energy consuming industries. Since 2006 China has levied export taxes on energy-intensive products (whereas previously China subsidized these exports). As of January 2009 the sales tax on fuel-efficient cars started to progressively decrease, while the sales tax on fuel-inefficient vehicles started to increase as of August 2008. After years of heated debate, China finally imposed a fuel tax as of 1 January 2009. The new levy on sales of petrol and diesel is a strong

chinacement.com/news/2007/2-27/CI54437705.htm.

⁴⁸ “可再生能源中长期发展规划” [“Mid-to-long term Development Plan for Renewable Energy”], 中华人民共和国国务院发改委网站 [NDRC website], August 2007, available at: <http://www.ndrc.gov.cn/zcfb/zcfbtz/2007tongzhi/W020070904607346044110.pdf>.

⁴⁹ “能源局称核电装机容量计划将调至7000万千瓦” [“Bureau of energy of NDRC says Chinese nuclear power will reach to 70gw”], 新华网 [Xinhua], 6 November 2008, available at: <http://www.china5e.com/power/powernews.aspx?newsid=c74e8d57-ce75-412c-8363-d587669fb97a&classid=%u7535%u529b>.

signal that Beijing will reform energy prices with the intention of reducing use of fuel.⁵⁰

- Technology R&D investment: China's National Medium- and Long-term S&T Development Plan (2006-2020), published in early 2006 by the State Council, sets specific targets for energy technology development, such as breakthroughs in energy conservation in industry, clean coal development and utilization, liquefaction and polygeneration. Advanced energy technologies such as hydrogen technology and fuel cells, distributed energy supply technology, fast breeder reactor and nuclear fusion were also chosen as focus areas.⁵¹

The CDM (Clean Development Mechanism): China has been an active and dominant participant in the Kyoto Protocol's CDM. Beijing has developed a strong national framework for the CDM, encouraging private entrepreneurship, and will draw on these experiences in the run-up to Copenhagen. At the end of 2008 there were nearly 400 CDM projects with both Chinese and United Nations approval, with more being added each month. China accounts for 29% of all registered CDM projects.⁵²

2.3 Domestic debates

2.3.1 Technology

Among Chinese climate change officials who are not closely involved with technology issues a recurring complaint in recent years is that Western nations have not been forthcoming in technology transfer of environmentally friendly technology. For example, when still

⁵⁰ Arthur Kroeber, "Taxing times for fuel", China Economic Quarterly on FT.com, 9 January 2009, available at: <http://www.ft.com/cms/s/0/89e4c9d4-d61c-11dd-8372-000077b07658.html>

⁵¹ State Council of the PRC, "国家中长期科学和技术发展规划纲要" ["Outline of National Medium and Long-term S&T Development Plan (2006-2020)"], 9 February 2006, available at: http://www.gov.cn/jrzq/2006-02/09/content_183787.htm.

⁵² United Nations Framework Convention on Climate Change, CDM Registry, available at: <http://cdm.unfccc.int/Statistics/Registration/NumOfRegisteredProjByHostPartiesPieChart.html>.

head of the National Development and Reform Commission, Ma Kai said that developed countries have “said a lot, but done little” in technology transfer.⁵³ Among officials and researchers with an intimate knowledge of China’s technological needs this approach is viewed as a tactical one. In reality, these technology savvy officials said in off-the-record discussions during autumn 2008, there is no consensus among Chinese climate change experts with regard to precisely what technology China needs.

According to several Chinese technology experts China has access to (and in many cases can indigenously produce) the vast majority of technology needed to produce clean energy. For example in the area of Clean Coal Technology and in the case of Integrated Gasification Combined Cycle (IGCC), Chinese manufacturers now domestically produce most of the parts for IGCC, though they still lag behind in mastering the integration process and compilation of the most advanced parts.⁵⁴

Several Chinese officials, especially those working with technology issues who were interviewed for this report, advocated the establishment of Chinese-international research teams to probe new cutting-edge technology which would enable China to leapfrog to new generation, presently nonexistent technology needed for a low-carbon economy. These technologically savvy officials said that there has been a disconnect between the Chinese climate change negotiators who approach the post-2012 regime from a political standpoint and the technology specialist community that knows what is needed and what is feasible for China. One can surmise that this disconnect will to a certain degree be dealt with before Copenhagen. Hence, collaborative Chinese-international research efforts are what China can be expected to demand as a key element of the post-2012 regime. China will also demand that developing countries, with China in the lead, stipulate what specific technology any collaborative research project should focus on.

⁵³ Jane Wu, “Cutting China’s carbon cost”, Science and Development Network, 29 June 2007.

⁵⁴ Jiang Kejun, “Energy Technology Research in China” in Linda Jakobson (ed.) *Innovation with Chinese Characteristics. High tech research in China*, Palgrave Macmillan 2007, pp. 120-121.

2.3.2 *Policy implementation*

A major challenge for the central government is persuading the local governments to enforce implementation of policies aimed at reducing GHG emissions. Central-local power relations is an issue dealt with in most analysis about problems confronting China's modernization efforts, from curbing corruption and indiscriminate use of power to enforcing product safety regulations and preventing coal mine disasters. Economic reform has led to decentralization, which in practice means that the local governments (provincial, municipal and in the case of climate change even county governments) have significant power to implement central government policies in a manner they view as appropriate to local conditions. Hence, in the absence of rule of law there is no system of checks-and-balances in China to monitor conflicting interests between local Communist Party officials and local enterprises. This leaves ample room to manoeuvre and innumerable loopholes. Consequently, many policies and regulations are ignored or only partially heeded. Throughout the reform period, policies have usually first been experimented with, then adopted province-by-province, and finally implemented step-by-step on a national level.

For local officials, ensuring continued economic growth is the primary objective. Even though environmental indicators have been introduced as one measure to evaluate the performance of local officials (important for promotion and bonuses) guaranteeing economic growth that creates employment is still the overriding factor. Allowing local officials to explore ways to economically develop their own area has after all been paramount for China's economic success story over the past 30 years, leading to entrepreneurial creativity and dynamism. The central government needs to not only significantly change the rewards system of local officials, but also find the means to oversee implementation of energy efficiency and clean energy policies – a tall order in times of economic downturn, especially as this requires political reform as well.

In addition to the tension in central-local power relations, there is strong rivalry and poor communication between central government entities in China. The so-called 'stovepipe syndrome' has its roots in

the centrally planned economy. But in part it also derives from the present, top-down one-party political system as well as from fierce competition for government funding, talented people, and ultimately, power within the system.⁵⁵ In the case of climate change, weak linkages are accentuated because tackling climate change requires collaboration across a broad spectrum of government organizations, including research institutes. When dealing with climate change domestically, the NDRC has the leading role, but with regard to the international climate change negotiations the Ministry of Foreign Affairs is the entity in charge. This has created a situation that was described in an off-the-record interview with a Chinese official as a continuous tug-of-war and turf battle over what China's national interests are in reality. The Ministry of Environmental Protection that until 2008 had a lower status as a "state agency" continues to lack political clout as well as financial and human resources. The same applies to the National Energy Administration, also established in 2008 as an attempt to improve coordination and implementation in the energy sector.

2.4 Foreign policy considerations

The increasingly mainstream view among government officials that the aim of the West is to prevent China from becoming a strong world power has already been mentioned. Obviously this is a foreign policy consideration when contemplating China's role in the post-2012 negotiations. In this conjunction the issue of nationalism cannot be sidelined. Besides ensuring continued economic growth and stability, the Chinese Communist Party derives its legitimacy from emphasizing the great strides that China has made domestically and internationally as a result of the Party's leadership. Most Chinese are – with good reason – very proud of China's achievements over the past three decades. At the same time the Chinese Communist Party has not stopped constantly reminding Chinese citizens of the humiliations forced upon China in the 19th and 20th centuries by Westerners and Japanese. Chinese scholar Jing Men has aptly written: "China has a dual identity: a strange combination of self-superiority

⁵⁵ Linda Jakobson, "China aims high in science and technology", in Jakobson (ed.) *Innovation with Chinese Characteristics. High tech research in China*, Palgrave Macmillan 2007, pp. 22-25.

and self-inferiority.”⁵⁶ Nationalism today manifests itself in a wide range of emotions, from healthy patriotism to ugly outbursts of anti-foreignism. In the post-2012 negotiations Chinese leaders are walking a tightrope with regard to nationalism. They want Chinese citizens to view their actions as ones that are praised in the international community, while at the same time they do not want to be perceived as being bullied by industrialized nations. Especially pressure from Japan is viewed as inflammatory from Beijing’s perspective, one of the reasons why there are underlying tensions in climate change cooperative efforts between China and Japan.

Other foreign policy considerations include China’s concerns regarding its food security. In July 2008 China made new and specific suggestions on food security, naming food security a priority in resolving other global problems like climate change. In his speech to the G5 leaders in July 2008, President Hu Jintao called for the setting up of a UN-led international cooperation mechanism and a global food-security safeguard system as well as strengthening co-operation in grain reserves, a proven process in China but not recommended by the UN Food and Agriculture Organisation. Hu also said that rich countries had to do more to remove barriers to farm trade, blaming such restrictions for the global food crisis.⁵⁷

3. Conclusion

China is keen to portray itself as a responsible rising major power that takes its international obligations seriously; China sees its role in negotiating a post-2012 agreement as part of this image-building process. In addition, the country’s top leadership knows that massive restructuring is needed in the energy field to ensure energy security and long-term continued economic growth. The need to fulfil international obligations is a useful driving force to spur on these restructuring efforts, just as World Trade Organization (WTO) membership in 2001 was used by the senior leadership (especially

⁵⁶ Jing Men, “China’s Peaceful Rise?” *Studia Diplomatica*, vol. 56, no. 6, 2003, p.17.

⁵⁷ Ng Tze-wei, “China’s voice loud and clear at new ‘G5’ bloc”, *South China Morning Post*, 10 July 2008, available at: http://www.yorku.ca/year/Publications/Members/Chin_10_July.pdf.

former Premier Zhu Rongji) to push the reluctant Chinese bureaucracy to accept and implement several necessary economic reforms. Moreover, health problems related to severe pollution have increased environmental awareness among the Chinese population. There is growing pressure on the authorities from grassroots level society to protect citizens from environmentally damaging practices. Hence, stipulating stringent measures to curb CO₂ emissions by reducing the use of fossil fuels, saving energy, and combating deforestation fits in well with the Chinese government's overall environmental efforts. Lastly, China hopes the post-2012 agreement will help the country gain needed technology and/or ensure that it is a forerunner in discovering new technology. This in turn will be beneficial to China in its attempt to transform its economy to a high-tech and information-based economy.

China's goal in Copenhagen will be to minimize damage to its own economic development. China can be expected to be a tough negotiator to ensure its national interests are considered but ultimately China will not stand alone nor jeopardize the birth of a post-2012 international agreement.

3. India

1. *Negotiation position*⁵⁸

India has undergone a transformation from an underdeveloped, closed agricultural economy into an important player in the global economy and an assertive member of the global elite. The country has experienced rapid industrialization and high economic growth since the economic liberalization of the early 1990s, and its GHG emissions have been steadily increasing as a result. However, in many ways, the Indian views on post-2012 climate governance echo the argumentation that was advanced in the 1970s, particularly by Prime Minister (PM) Indira Gandhi in her famous address to the 1972 UN Conference on Human Environment in Stockholm, in which she stated “we do not wish to impoverish the environment any further and yet we cannot for a moment forget the grim poverty of large numbers of people. Are not poverty and need the greatest polluters?”⁵⁹ The quotation describes the tradition in Indian environmental policy in the international arena that frames environmental stewardship and socio-economic development as contrasting priorities.

Economic development – and, within its framework, poverty eradication, energy security and electricity access – is the central and enduring preoccupation of the Indian government. Furthermore,

⁵⁸ This chapter has benefited from interviews with P. Ghosh, delegate, Member of PM’s Council on Climate Change; L. Rajamani, Associate Professor, Center for Policy Research; R. R. Rashmi, delegate, Joint Secretary, Ministry of Environment and Forests; N. K. Dubash, Associate Professor, Jawaharlal Nehru University; R. Ramchandran, Science Editor, Member of PM’s Council on Climate Change; S. Krishnavamy, Political Advisor, Greenpeace India; N. Sethi, Special Correspondent, Times of India; V. Kumar, Research Director, The Energy and Resources Institute; S. Sinha, Head of Climate and Energy Program, WWF India; J. Sachin, Deputy Director, Confederation of Indian Industries; M. K. Sinha, Director, Indian Society of International Law; R. R. Choudry, Jt. Director, Federation of Indian Chambers of Commerce and Industry; S. Vashist, Coordinator, Climate Action Network; T. Mandal, Associate Fellow, Center for Trade and Development; P. Bhat, Program Director, German Aid Agency (GTZ); M. Khor, Director, Third World Network. The text and the conclusions drawn are the sole responsibility of the author.

⁵⁹ Indira Gandhi, “Man and Environment”, Plenary Session of UNCHE, 14 July 1972.

most global environmental problems such as climate change are seen as problems caused by the North, which should therefore be solved by the North. The developed countries are called upon to change their unsustainable production and consumption patterns while providing developing countries with environmentally sound technologies and financial assistance. The anti-North streak in Mrs Gandhi's Stockholm speech also captured a historical perspective towards the colonial past.⁶⁰ Among the newly industrialized large economies, India is the most vocal advocate of the "traditional developing country position" on global climate governance. Several others including South Africa and Mexico, and to a lesser extent Brazil and China, have expressed their willingness to commit to GHG reductions at home, and even, perhaps, to some internationally negotiated targets for particular critical sectors. India, contrastingly, has up to now maintained a confrontational and defensive position in the UNFCCC negotiations.

1.1 The key elements of the post-2012 agreement⁶¹

The Indian National Environmental Policy lists the key elements of India's response to climate change as a) the principle of common but differentiated responsibilities (CBDR); b) reliance on multilateral approaches; c) equal per capita entitlements to global natural resources; d) overriding priority of the right to development; and e) identifying key vulnerabilities of India to climate change.⁶²

⁶⁰ Mrs Gandhi's Stockholm Address continued: "Many of the advanced countries of today have reached their present affluence by their domination over other races and countries, the exploitation of their own masses and their own natural resources. They got a head start through sheer ruthlessness, undisturbed by feelings of compassion or by abstract theories of freedom, equality or justice."

⁶¹ This chapter is based on Indian submissions to the UNFCCC, as well as observations in recent UNFCCC meetings, including the author's near transcript quality notes from the Vienna Climate Talks (27-31 September 2007), the Bali Conference of Parties (COP 13, 3-14 December 2007), the Bonn Climate Talks (2-13 June 2008) and the Poznan Conference of Parties (COP 14, 1-12 December 2008).

⁶² National Environmental Policy, p. 43, available at: <http://envfor.nic.in/nep/nep2006e.pdf>.

1.1.1 Equity in the Indian interpretation

India has frequently emphasized that equity is the way forward in the climate negotiations. Maintaining the burden sharing structure of the Convention and the Indian interpretation on CBDR are seen as key building blocks for an equitable outcome. India's view is that the "shared vision" of the Bali Action Plan is already written in the Convention (mainly in Articles 2 and 4)⁶³, and that the post-2012 negotiations should be revolving around the question of how the implementation of the Convention could be enhanced.⁶⁴

Another important aspect for the Indian equity perspective is advocating per capita rights to global environmental resources. The Indian delegation wishes to keep this topic on the table, although a per capita system is politically out of reach and will not be operationalized in the post-2012 agreement.⁶⁵ Indian delegates seemingly apply the 1970's-style hard rhetoric and anti-colonial discourse in pressing this case.⁶⁶ Lastly, an equity issue that India has been defending vocally is linking developing country actions and reporting to Northern financing. The argument is based on the so-called "linking clause" of the Convention (Article 4.7). In the Bali COP-13 the Indian delegation played a key role in defending this linkage, which was somewhat reinforced in the Bali Action Plan (Article 1 b ii).⁶⁷

⁶³ Bali COP13, AWG, 10 December 2007; also Indian submission on Shared Vision, available at: http://unfccc.int/files/kyoto_protocol/application/pdf/indiasharedvisionv2.pdf.

⁶⁴ R.R. Rashmi, personal interview 11 September 2008.

⁶⁵ Indian submission on Shared Vision, available at: http://unfccc.int/files/kyoto_protocol/application/pdf/indiasharedvisionv2.pdf.

⁶⁶ Quoting Prodipto Ghosh, delegate and member of PM's Council on Climate Change: "If the West thinks that India will subscribe to any long-term solution that is not based on per capita emissions then it is very misguided. This [Global warming] is a challenge for the West. Those countries have been at a tremendous party since the nineteenth century and now the party has to come to an end. It is the West that has to get serious about this problem. India will not accept an endgame where Western people continue to pollute the earth in perpetuity at three or four times the rate of people in this country." See: <http://www.telegraph.co.uk/earth/earthnews/3297214/India-snubs-West-on-climate-change.html>.

⁶⁷ The Bali Action Plan, available at: http://unfccc.int/files/meetings/cop_13/application/pdf/cp_bali_action.pdf.

1.1.2 The right to development

India has been building its national and international climate policies on the “development first” views previously articulated by Indira Gandhi.⁶⁸ Rapid development is not only an economic and social imperative, but also an essential requirement for building up a coping capacity against the adverse impacts of climate change.⁶⁹ So far, in the negotiations for the post-2012 climate agreement, India has only been open to implementing those policy measures that are aligned with its own developmental priorities. The position has two major indications: first, if resources used to combat climate change are framed as money *not* spent on poverty eradication, it is evident that mitigation activities should be financed by the North. Second, the actions taken by developing countries should be development actions with climate co-benefits, not vice versa. Indian negotiators have also presented an interesting variation on the development vs. environmental stewardship argument – that is, unless the current government sustains the highest possible economic growth, future generations will inherit an earth that is highly vulnerable to climate change.⁷⁰

1.1.3 International funding and technology transfer

India continuously reminds the international community that the pledges made in the Rio Earth Summit (1992) on additional funding and technology transfer remain unfulfilled. In COP-14 in Poznan, India once again outlined that Annex I Parties were obliged to provide for new, additional, adequate and predictable financing to developing country parties to implement the proposals for mitigation and adaptation. Environmental Secretary Vijai Sharma stated that India “had decided to make it clear that the proposed funding sources cannot be voluntary as it would be unpredictable and not binding”, and proposed “at least \$60-80 billion” that should be under the

⁶⁸ National Action Plan on Climate Change, p. 18. , available at: <http://pmindia.nic.in/Pg01-52.pdf>.

⁶⁹ Indian submission on Shared Vision, available at: http://unfccc.int/files/kyoto_protocol/application/pdf/indiasharedvisionv2.pdf.

⁷⁰ India’s country presentation, Vienna Climate Change Talks, Dialogue workshop, 29 August 2007.

governance of the COP to “ensure that it is stable”.⁷¹ The funding should be managed through a new and enhanced financial mechanism with equal importance to both adaptation and mitigation activities.

The Bali COP13 saw the issue of technology transfer gaining heightened attention, as it was moved to the Subsidiary Body on Implementation from the Subsidiary Body on Scientific and Technological Advice, where it had long been housed. The move signalled a united intention from the developing countries (particularly China and India) to elevate commitments in this area. After Bali, India proposed setting up a Multilateral Technology Acquisition Fund that would be financed by Annex I parties and function under the governance of the COP.⁷² The Indian submission also presents a more comprehensive suggestion for an enhanced institutional mechanism that “addresses all aspects of technology transfer”⁷³ including a new subsidiary body under the COP entitled Executive Body on Technology.

1.1.4 A multilateral approach to funding

The G77 countries have compiled principles for financial flows in a joint statement. The mechanism should operate fully under the guidance of the COP, have equitable and balanced representation in governance, enable direct access to funding, and have recipient country involvement during all stages.⁷⁴ India has been one of the opinion leaders in raising concerns about the Global Environmental Facility, which has garnered support from other G77 member states.⁷⁵ The recent refusal by the Indian Ministry of Environment and Forests (MoEF) to participate in the implementation of a Climate Investment Fund under the World Bank⁷⁶ is probably a negotiation tactic, but it shows that India feels that there are serious problems with multilateral

⁷¹ “India to Pitch for More Funds to Combat Climate Change”, *Financial Express*, 26 November 2008.

⁷² Indian submission on Technology Transfer, available at: http://unfccc.int/files/kyoto_protocol/application/pdf/indiatechtransfer171008.pdf.

⁷³ *Ibid.*

⁷⁴ Bonn Climate Talks, AWG-LCA workshop on tech transfer and finance, 5 June 2008.

⁷⁵ Tirthankar Mandal, personal interview 6 June 2008.

⁷⁶ “India Refuses World Bank Aid to Fight Climate Change”, *Times of India*, 10 October 2008.

funding through a governance mechanism with “conditionalities” and a Northern dominance. Technology transfer and finance which is not under the authority and guidance of the UNFCCC should not be counted as fulfilment of commitments of developed countries in the Convention (Article 4.3).⁷⁷

1.1.5 Adaptation

Since COP-6 in Delhi, India has argued that the political commitment to adaptation in the UNFCCC process needs to receive the same level of attention as that paid to mitigation.⁷⁸ In the context of adaptation needs, Indian deliberations use rather strong language on climate change impacts. According to a submission, enhancing the implementation of adaptation is “a priority for India, given our high vulnerability to climate change” and the fact that climate change impacts can pose “a significant risk to economic and social development and poverty alleviation efforts”.⁷⁹ India notes that there are similarities between adaptation interventions and development actions – but the difference is that climate change poses “a large additional burden”.⁸⁰ In a recent submission, India also suggested some new institutional arrangements for an adaptation mechanism under the Convention.⁸¹

1.2 What could India commit to in the post-2012 agreement?

India has resolutely refused to make binding commitments to reduce its GHG emissions, or other commitments such as targets for energy intensity or share of renewables. Indian delegates have argued that taking on such mitigation commitments could “keep developing countries poor for another three generations”.⁸²

⁷⁷ Indian submission on Technology Transfer, available at: http://unfccc.int/files/kyoto_protocol/application/pdf/indiatechtransfer171008.pdf.

⁷⁸ A recent example is the Indian submission on Adaptation, available at: http://unfccc.int/files/kyoto_protocol/application/pdf/indiaadaptation171008.pdf.

⁷⁹ Ibid.

⁸⁰ Bonn Climate Talks, AWG-LCA, 2 June 2008.

⁸¹ Ibid.

⁸² India’s country presentation, Vienna Climate Change Talks, Dialogue workshop, 29 August 2007.

Softer forms of international governance, such as standards, sectoral intensity targets or sectoral benchmarking, have met with aggressive resistance. India is also sensitive about reporting on its activities, stating that developing countries face no review requirements in the Convention and this position is not to be changed.⁸³ According to the Indian delegation, universal standards or best practices could hurt developing countries, as already noted in the Rio Declaration.⁸⁴ In the Poznan COP-14, India referred to sectoral approaches as a “smokescreen” for the North to open up and take over markets in the South.⁸⁵ The sectoral approach aims at addressing the issues of carbon leakage and competitiveness, while India is quick to reiterate that there is no reference to maintaining “a level playing field” of competitiveness in the Convention text. In the Indian interpretation, the UNFCCC was itself designed to address a grossly unlevel playing field and the sectoral approach is seen as an attempt to “overturn this equity principle”.⁸⁶ If a climate regime means changes in global competitiveness due to, say, carbon prices in Annex I countries, India sees this as a justified phenomenon that warrants no international interference.

In the UNFCCC meetings of 2007 and 2008, India manifested its defensive position via narrow and legalistic interpretations of the mandates of different working groups. On the defensive front, India has also often joined forces with the slightly more moderate G77 leader, China. Some recent examples include opposing discussion on climate change at the UN Security Council⁸⁷, and stalling talks at the meeting to release the IPCC Working Group III Report⁸⁸, as well as stalling talks on part of the Fourth Assessment Report.⁸⁹

⁸³ Bonn Climate Talks, AWG-LCA, 9 June 2008.

⁸⁴ Bonn Climate Talks, AWG-LCA, 9 June 2008.

⁸⁵ Poznan COP 14, AWG-KP, 4 December 2008.

⁸⁶ Shyam Saram, Special Envoy of Prime Minister on Climate Change, available at: <http://meaindia.nic.in/indiaperspective/2008/062008.pdf>.

⁸⁷ “Climate Change: India, China, Pak Join Forces”, *Times of India*, 20 April 2007.

⁸⁸ Lavanya Rajamani (2008). *The Indian Way: Exploring the Synergies between Development, Energy and Climate Goals*, in *Beyond the Carbon Economy*. Oxford / Oxford University Press, p. 422.

⁸⁹ “India, China Hold up Climate Talks”, *Times of India*, 3 May 2007.

PM Manmohan Singh did, however, give a political assurance at the G8 Summit of Heiligendamm that while India's carbon emissions will inevitably rise in the short and medium term, India would ensure that at no time would its per capita emissions exceed the average of the developed countries' per capita emissions.⁹⁰ This pledge was repeated in the National Action Plan on Climate Change (NAPCC) and India's recent submissions to the UNFCCC.⁹¹

2. National conditions

2.1 Economic conditions

2.1.1 Economic development

The magnitude of the Indian economy is remarkable. With a GDP of US\$4,159 billion in PPP terms in 2006, India is the fourth-largest economy in the world, after the United States, China and Japan. At market exchange rates, GDP stood at \$887 billion, making it the thirteenth-largest in the world, after China, Brazil, Russia and nine OECD countries.⁹²

However, the cornerstone of India's international position on the climate change problem is the mass poverty within the country. India is currently placed 128th in the Human Development Index (HDI), with an estimated 34.3% of the population living on less than US\$1 per day, and a staggering 80.4% on less than US\$2 per day.⁹³ Up to 44%⁹⁴ of the total population and well over 50%⁹⁵ of the rural population

⁹⁰ Ibid.

⁹¹ Indian submission on Shared Vision, available at: http://unfccc.int/files/kyoto_protocol/application/pdf/indiasharedvisionv2.pdf.

⁹² World Energy Outlook 2007. China and India Insights. International Energy Agency, p. 427. , available at: <http://www.worldenergyoutlook.org/2007.asp>.

⁹³ Human Development Report 2007/2008, p. 239. The below poverty lines data is from 1990–2005. See: www.hdr.undp.org.

⁹⁴ National Electricity Policy, Article 1.3., available at: http://www.powermin.nic.in/indian_electricity_scenario/national_electricity_policy.htm.

⁹⁵ *Mitigation options for India – the role of the international community*. Paper presented at the Poznan COP 14. The Energy and Resources Institute, p. 5.

do not have access to electricity. There is a strong correlation between per capita energy consumption and the HDI – poverty eradication demands energy services, and the Indian government has recognized electricity access as a key factor in sustained growth, global competitiveness and rural development.⁹⁶

India *needs* to sustain high economic growth. According to official estimates, Indian GDP would have to grow by 8-10% annually over the next 25 years to eradicate poverty.⁹⁷ The scenarios in the Integrated Energy Policy and more recently in a publication by The Energy and Resource Institute (TERI)⁹⁸ are built on 8% yearly growth, a figure that currently seems optimistic in the face of a global recession, noting from Graph 3.1 that India managed to maintain 7% growth in the favourable period of 2000-2008.⁹⁹ The service sector saw the biggest gains in productivity and output in the 1990s, but as Graph 3.1 below illustrates, recently the industry has experienced faster gains and has been the main reason for higher growth rates since 2003, contrary to the conventional wisdom that India's economic growth is largely services-led.¹⁰⁰

Exports have grown significantly since the economic liberalization of the early 1990s and currently play a significant role in the Indian economy. The share of international trade is still relatively small compared to some major exporters – the share in GDP of international trade in goods was 28% in 2005, compared with 64% in China.¹⁰¹ Many of the largest export producers are heavy industrial sectors such as minerals, iron and steel, and chemicals. Indian exports are somewhat more carbon intensive than, say, China's and even the EU's due to the specialization in primary production and raw materials.

⁹⁶ Integrated Energy Policy, pp. 2-3, available at: http://planningcommission.nic.in/reports/genrep/rep_intengy.pdf.

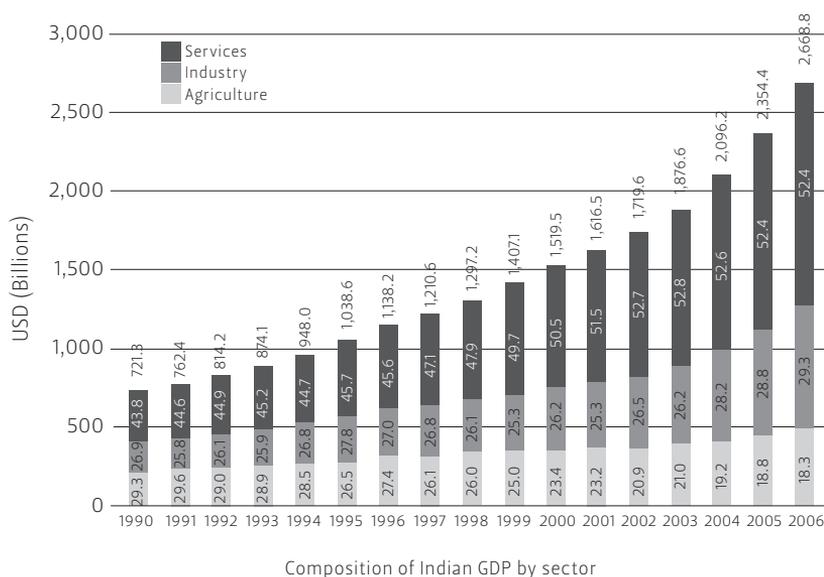
⁹⁷ Integrated Energy Policy, p. xiii.

⁹⁸ *Mitigation options for India – the role of the international community*. Paper presented at the Poznan COP 14. The Energy and Resources Institute.

⁹⁹ World Energy Outlook 2007. China and India Insights, p. 425.

¹⁰⁰ World Energy Outlook 2007, p. 432.

¹⁰¹ World Energy Outlook 2007, p. 434.



Graph 3.1. Breakdown of Indian gross domestic product by economic sector

Source: IMF (GDP), World Bank (Sectoral breakdown).

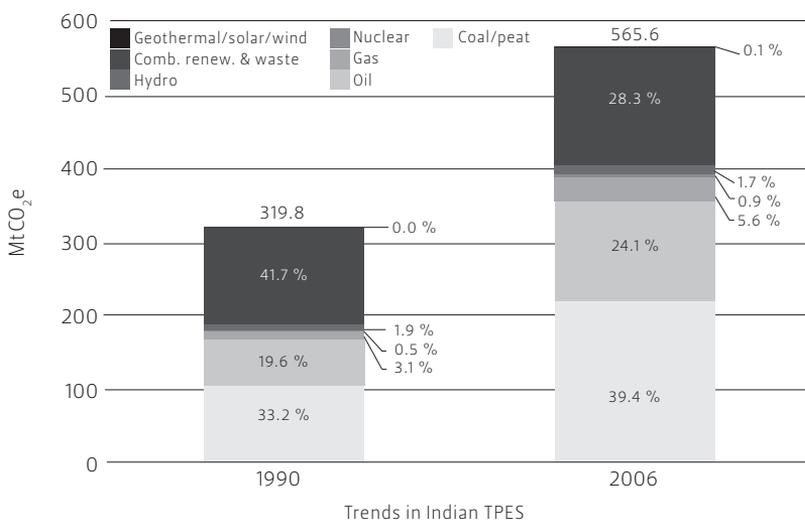
2.1.2 Energy policy

The Indian potential for energy demand growth is enormous. To deliver the 8% GDP growth, India needs to increase its primary energy production three- to fourfold and electricity generation capacity five- to sixfold by 2031-32 from the 2003-04 levels.¹⁰² This would also mean, in the official scenario, the expansion of coal consumption by over 2 billion tonnes per year since coal continues to dominate the Indian energy mix (Graph 3.3). In 2006, fossil fuels had a leading share in the primary energy production, with coal accounting for 39%, oil for about 25%, and natural gas 5%. The electricity production is firmly coal-based, as coal accounts for nearly 70% of the electricity output. The question of energy security and the vision of “energy independency” of the Integrated Energy Policy are understandable priorities against this backdrop of growing needs and limited indigenous reserves. The domestic oil, gas and coal reserves

¹⁰² Integrated Energy Policy, p. xiii.

are in short supply and the need for imports is growing. In 2005, India imported 70% of its oil requirements, 17% of total gas demand and 12% of total coal demand.¹⁰³

Promoting renewable energy sources is nothing new for India, a country which established a Ministry of Non-Conventional Energy Sources back in 1992.¹⁰⁴ As seen in Graph 3.3, the current share of renewables in the Indian energy mix is high, estimated to be 32%¹⁰⁵ or even 36%¹⁰⁶, but this is due to poverty levels and limited electricity access, which lead to the usage of traditional fuels such as wood and cow dung in cooking. Graph 3.2 shows that the share of traditional fuels is declining sharply. Excluding traditional fuels and large-scale hydro, the so-called “modern renewables” account for only 2% of the total.¹⁰⁷



Graph 3.2. Changes in the composition of the Indian total primary energy supply
NOTE: Excludes electricity trade. Source: IEA.

¹⁰³ World Energy Outlook 2007, p. 445.

¹⁰⁴ Renamed “Ministry of New and Renewable Energy” in 2006. See: <http://mnes.nic.in/>.

¹⁰⁵ Integrated Energy Policy, p. 89.

¹⁰⁶ National Environmental Policy, p. 42.

¹⁰⁷ Integrated Energy Policy, p. 89.

India already suffers from power shortages and blackouts that hinder the economy as well as the everyday life of people. The gap between demand and maximum supply nationwide reached 14% in 2006 during peak periods.¹⁰⁸ The shortages are linked to unreliable supply, losses due to theft and the shortcomings of the national network, rather than insufficient primary production alone. Indian energy markets are largely under the control of the public sector. Energy planning is constructed in the name of poverty alleviation and rural development, but critics claim that energy projects are focused on meeting the needs of the urban rich.¹⁰⁹ India's oil and gas prices are subsidized by the state and the energy sector is heavily influenced by state-owned companies. For example, Coal India produces 84% of domestic coal and employs some 450,000 workers – making it currently the second largest national employer after the Indian Railways.¹¹⁰

2.1.3 Emissions trends

India is currently the world's fourth largest emitter, with GHG emissions constituting some 5.5% of the global emissions.¹¹¹ India's CO₂ emissions are currently only about one fifth of those of the US or China, but the growth forecasts for both the economy and the emissions make India a more significant party to the future climate agreement than its current emissions would entail. India's GHG emissions are expected to grow to such an extent in the next 25 years that they will exceed half of the whole OECD's.¹¹²

Indian GHG emissions are not growing as sharply as GDP, as seen in Graph 3.3. The nationwide energy intensity has been declining since the 1980s, and India is proud to state that its energy intensity compares favourably with the least energy-intensive developed

¹⁰⁸ World Energy Outlook 2007, p. 449.

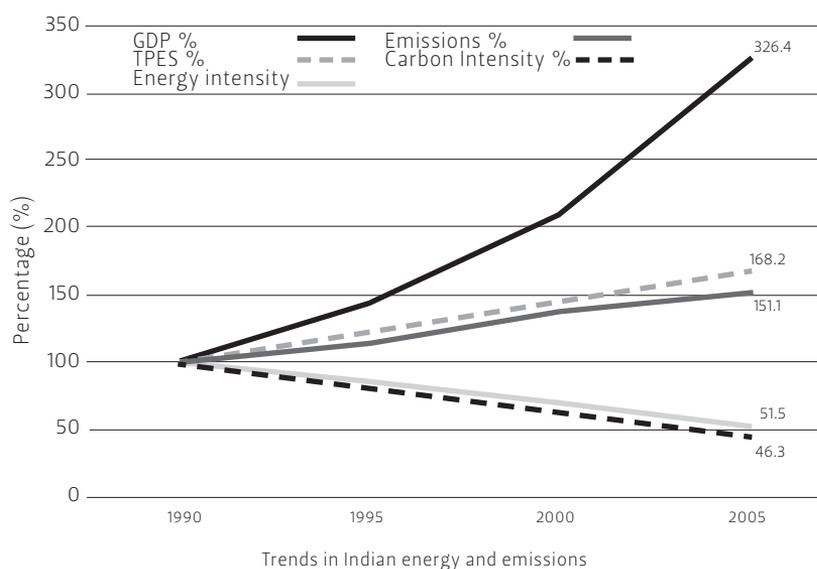
¹⁰⁹ The Indian Approach to Climate and Energy, Bulletin of the Atomic Scientists 3 July 2008, p. 3, available at: <http://www.thebulletin.org/web-edition/features/the-indian-approach-to-climate-and-energy-policy>.

¹¹⁰ World Energy Outlook 2007, p. 448.

¹¹¹ IEA Beyond 2020 Database.

¹¹² "China speeds towards 'biggest greenhouse gas producer' title", *The Guardian*, 24 April 2007, available at: <http://www.guardian.co.uk/environment/2007/apr/24/china.climatechange>.

countries.¹¹³ Energy intensity is expected to decline further as a result of high GDP growth, a continuation of a shift towards services, and the development of the “lighter” industrial sector.¹¹⁴ However, the power station efficiency is low by international standards. This, together with a high share of coal in the fuel mix, makes India’s power sector one of the most CO₂-intensive in the world.¹¹⁵



Graph 3.3. Trends in Indian energy and emissions figures relative to 1990 (100%)
Source: IEA (GDP, TPES, emissions levels).

2.2 Domestic policies and measures

Indian negotiators have repeatedly stated that although international pressure to mitigate climate change must be resisted at all cost, it is

¹¹³ National Action Plan on Climate Change, p. 14.

¹¹⁴ World Energy Outlook 2007, p. 463.

¹¹⁵ World Energy Outlook 2007, p. 488.

in India's national interest to decarbonize the economy in the long term.

2.2.1 National Action Plan on Climate Change

The NAPCC was created by the Prime Minister's Council on Climate Change, a high-level working group chaired by the PM, which was set up in June 2007 to coordinate India's national climate change action. The official members of the group are the relevant ministers together with senior civil servant experts from key ministries. The non-official members include several representatives from TERI, two journalists and one campaigner from an environmental non-governmental organization (NGO). In many ways, the NAPCC reflected India's existing international stand on climate change and existing national policies, and was not applauded by international environmental NGOs or Northern countries seeking more concrete commitments. The framing of the issue had not changed to any great extent, and the lack of details and numerical targets aroused doubt in the minds of some critical readers when it came to the actual implementability of the plan.

The NAPCC acknowledges climate change as a serious threat – although the prevailing perception is that India is being asked to solve a problem it did not create.¹¹⁶ Emphasizing the overriding priority of maintaining high economic growth to raise living standards, the plan “identifies measures that promote our development objectives while also yielding co-benefits for addressing climate change effectively.”¹¹⁷ Many experts¹¹⁸ adopted a wait and see approach towards their implementation; it remains unclear how effective the missions will be domestically as they are currently regarded as a very broad blueprint only.¹¹⁹

2.2.2 The Clean Development Mechanism

The most significant directly climate policy-related work in India has been undertaken with the Clean Development Mechanism. Although

¹¹⁶ National Action Plan on Climate Change, pp. 1–2.

¹¹⁷ National Action Plan on Climate Change, p 2.

¹¹⁸ Lavanya Rajamani, Navros K. Dubash, R. Ramchandran, Tirthankar Mandal, Nitin Sethi, Sanjay Vashist, personal interviews.

¹¹⁹ Lavanya Rajamani, personal interview, 23 October 2008.

India was sceptical towards Annex I flexibility mechanisms in the Kyoto negotiations, it has since become the second biggest source of CDM credits (13%), hosting the largest number of projects (29%).¹²⁰

Although the CDM in India is a relative success story numberwise, some doubts have arisen over the quality of Indian projects and the role of the Indian Designated National Authority, which has been very business-friendly. For the most part, Indian CDM projects have come under criticism due to the challenges in proving additionality in the projects. A recent study illustrated how two case studies – JSW Steel and Bajaj Auto – were clearly non-additional, but only the latter was rejected by the CDM Executive Board, as the project developer himself praised the project’s attractiveness in the absence of the CDM.¹²¹ A total of 50% of projects rejected worldwide have been Indian (7/14).¹²² A unique characteristic of the CDM in India has been that 65% of the CDM credits have been created on a unilateral basis – meaning that only one third of the credits produced have had a foreign investor or a ready foreign buyer.

The mushrooming of CDM projects in India may well have influenced the Indian position on post-2012 to become more carbon market-friendly.¹²³ The big and influential industrial powerhouses such as Tata have shown interest in the emerging business opportunities of the carbon market.¹²⁴ In the negotiations, the Indian delegation has frequently emphasized scaling up the project-based CDM, but developing the CDM tool towards a sectoral CDM has met sharp resistance.¹²⁵

2.3 Internal debate and links to foreign policy

India’s foreign environmental policy has traditionally been in the hands of a small group of people. The key organizations have been the

¹²⁰ CDM statistics. See: <http://cdm.unfccc.int/>.

¹²¹ Michaelowa, Alex and Purohit Pallaw, *Additionality Determination of Indian CDM projects*, available at: http://medias.lemonde.fr/mmpub/edt/doc/20070608/920594_additionality_determination_of_indian_cdm_projects.pdf.

¹²² Benecke, Gudrun, *Varieties of Carbon Governance – Taking stock of the Local Carbon Market in India*. Presented at Poznan COP 14 side event 5 December 2008, p. 5.

¹²³ Lavanya Rajamani, Associate Professor, personal interview, 2008.

¹²⁴ “Corporate Biggies Warm up to Carbon Credit Trade”, *Economic Times*, 30 August 2006.

¹²⁵ Poznan COP 14, AWG-KP, 4 December 2008.

MoEF and the Ministry of External Affairs, and the leading experts and ideologists in the Indian delegations to multilateral fora have been senior civil servants of these ministries.¹²⁶ The composition of the Indian delegation to the UNFCCC has remained very stable over the years.¹²⁷ Political parties in India have primarily focused on domestic issues and development policies in their campaigns and statements – very rarely has a foreign policy environmental issue become a subject for debate in parliament. In 2008 there was one formal discussion on climate change in parliament, but it was “held under conditionality that it was a generic discussion only”, so it did not lead to “any constructive arguments or policy-making”.¹²⁸

There has also been very little public debate on foreign environmental policy in India.¹²⁹ This has secured the autonomy of key ministries in policy-making. Although there has been growing awareness of, and interest in, climate change impacts in the Indian media in recent years, the debate is on a small scale compared to hot political issue areas such as poverty, development or national security. According to one expert, climate change impacts have “not by any means reached the level of popular consciousness, even in elite circles”.¹³⁰ The root of the problem is the short time horizon – or in economic terms a high time discount rate – of the public discussion and politics, caused by mass poverty in the country. The slow, insidious changes climate change will bring over the coming decades are not yet “on the radar of everyday people, or even policymakers”.¹³¹ However, major climate events such as the yearly COPs of the UNFCCC, the publication of IPCC reports in 2007, the visit of Nicholas Stern to India in 2007, and the publication of the NAPCC in 2008, did make considerable headlines in the Indian

¹²⁶ Rajan, Mukund Govind, *Global Environmental Politics: India and the North-South Politics of Global Environmental Issues*, Delhi: Oxford University Press, pp. 19–25.

¹²⁷ Tirthankar Mandal, personal interview 6 June 2008.

¹²⁸ Nitin Sethi, personal interview 26 September 2008.

¹²⁹ Rajan, Mukund Govind, *Global Environmental Politics: India and the North-South Politics of Global Environmental Issues*, Delhi: Oxford University Press, p. 11.

¹³⁰ Navros K. Dubash, personal interview 24 October 2008.

¹³¹ Preeti Bhandari, Director, TERI, 31 August 2006, available at: <http://www.scidev.net/en/opinions/indias-pragmatic-approach-to-climate-change.html>.

media, which is a relatively new phenomenon.¹³² The growth figures of articles on climate change in recent years in the major English language newspapers have been verified by a recent media study.¹³³

The Indian environmental NGOs and other civil society actors have mostly supported India's defensive stance in the climate negotiations.¹³⁴ This reflects the broad consensus in the Indian elite on several issues concerning global climate policy debates, such as i) refusing to be labelled a major emitter due to low per capita emission levels and limited cumulative emissions, ii) charges of hypocrisy for Annex I countries with growing emissions, and iii) a fear that India will not be "treated fairly" if it engages more deeply in the process.¹³⁵ Furthermore, Indian negotiators claim that the burden-sharing architecture of the convention, in particular the language around the CBDR and Article 4.7, was heavily influenced by Indian diplomats.¹³⁶ In the final moments of the Bali COP-13, India played a key role in formulating Article 1 b (ii) of the Bali Action Plan, which links developing country actions to measurable, reportable and verifiable (MRV) financing.¹³⁷ These achievements are something India will willingly defend in the coming negotiations on the post-2012 agreement.

India has frequently been singled out as one of the countries most vulnerable to climate change.¹³⁸ This is due to the "low adaptive capacity" of the masses of rural and urban poor, whose subsistence is dictated by daily challenges and who are thus unable to prepare for future risks. Further domestic recognition of climate change impacts would probably increase India's motivation to participate

¹³² Ibid.

¹³³ Billett, Simon, *Dividing climate change: Global warming in the Indian mass media*. Paper presented at the University of Glasgow, 19/9/2008.

¹³⁴ For some critical voices see Greenpeace India and the report "Hiding behind the Poor", available at <http://www.greenpeace.org/india/news/hiding-behind-the-poor>, and Center for Social Markets and their assessment of the NAPCC, < http://www.csmworld.org/public/pdf/CCI-NAPCC_statement_final.pdf.

¹³⁵ Navros K. Dubash, personal interview 24 October 2008.

¹³⁶ Lavanya Rajamani, personal interview 23 October 2008.

¹³⁷ Bali Climate Conference, COP final plenary, 15 December 2007.

¹³⁸ Stern Review on the Economics of Climate Change, executive summary, pp. vi-viii, available at: http://news.bbc.co.uk/2/shared/bsp/hi/pdfs/30_10_06_exec_sum.pdf.

constructively in global climate governance via increased ownership of the climate change problem. The NAPCC recognizes climate change impacts on India, but in a fairly toned down way. On the important issue of the Himalayan glacier melt, the Action Plan asserts that “[...] the recession of some glaciers has occurred in some Himalayan regions in recent years, the trend is not consistent [...] it is too early to establish long-term trends, or their causation, in respect of which there are several hypotheses”.¹³⁹ In other words, the NAPCC seems to suggest that the reasons for the rapid melting of the Himalayan glaciers are somewhat unknown, and may not have anything to do with climate change. This rhetoric reflects the fact that the PM’s Council on Climate Change has not fully internalized the Indian vulnerability to climate impacts in spite of the clear scientific message, and the fact that one Council member, Dr. Pachauri, is the current IPCC head.

3. Conclusion

Many Indian international as well as national policy documents have outlined that decarbonization is an important policy objective. Decarbonization measures include enhanced energy efficiency, a shift in primary energy use from fossil fuels to renewables and nuclear energy, and changes in production and consumption patterns.¹⁴⁰ These policy objectives in India are mainly motivated by energy security and the need to provide inputs to fuel economic growth. Environmental concerns currently provide very limited incentives in spite of Indian vulnerability to significant climate impacts.

The decarbonization objectives can be linked to emission reductions and consequently to the post-2012 agreement on climate change. Multilateral financing especially via the carbon market provides additional incentives. Internationally financed sustainable development policies could force the Indian bureaucracy to further internalize climate objectives, and could further empower domestic advocates to push for more climate co-benefits and early action.

¹³⁹ National Action Plan on Climate Change, p. 15.

¹⁴⁰ *Dealing with Climate Change*, Indian Country Paper, the Gleneagles Summit 2005.

However defensive India seems to be towards international pressure for mitigation, the internationally financed climate co-benefits through policies aimed at enhancing energy efficiency, energy security and air pollution provide a powerful logic which is gaining credence in India.

Secondly, strong Annex I commitments and implementation are a necessity for the credibility of the agreement. From an Indian perspective, Annex I must take the lead, and relating to the first point, the future funding via the carbon market relies on Annex I commitments.

Thirdly, right from the 1970s, Indian views have reflected concerns felt more broadly by other developing countries¹⁴¹, while in the post-2012 negotiations India has again sought to occupy the moral high ground as the defender of the rights of poor countries. An important symbolic victory for India could concern, for example, the governance arrangements of the multilateral funds being created for the post-2012 agreement.

¹⁴¹ Rajan, Mukund Govind, *Global Environmental Politics: India and the North-South Politics of Global Environmental Issues*, Delhi: Oxford University Press, p. 5.

4. Japan

Author: Anna Korppoo

1. Negotiation position

1.1 Key elements of the post-2012 pact

According to the Japanese view, the global cap should be defined by IPCC science, and a 50% reduction in global emissions by 2050 should be the shared vision under the UNFCCC by all Parties. The Japanese regard deep emission cuts as an unreasonable request, as it would be almost impossible, and in any case very expensive, for Japan to further reduce emissions. The G8 announcement of a 50% global reduction by 2050 (but without a base year) is the only figure Japan has been officially associated with so far. Prime Minister Fukuda did announce prior to the G8 meeting held in Japan in 2008 that Japan would reduce its emissions by 60-80% by 2050.¹⁴² However, this has not been adopted as an official target. Industry opposes deep cuts, and it was argued in interviews that the -30% target would lead to industry leaving the country. A 14% reduction of the 2005 level by 2020 is expected to be close to the mid-term target, which is to be announced in June 2009.¹⁴³ Even though there is a national consensus that Japan can do little to reduce emissions domestically, this view could be challenged as many of the current policies and measures (PAMs) are weak.

Japan expects a fairer division of burdens under the post-2012 pact than under the Kyoto Protocol, which was seen as an unfair deal for Japan. The pre-calculated possible Kyoto commitment for Japan was a reduction of 2.5% of the 1990 level, including carbon sinks, but due to the reluctance to let the meeting hosted by Japan fail, the country accepted a reduction of 6% of the 1990 level against the original calculations. Moreover, utilization of a part of the carbon

¹⁴² USA Today, 9 June 2008, Japan PM targets carbon, cut by 60-80% by 2050. Accessed 23 January 2009.

¹⁴³ PointCarbon, 2 February 2009, Japan to set 2020 climate target by June. Accessed 2 February 2009.

sinks factored in by Japan was not adopted under the Kyoto Protocol, which made the Japanese position even less favourable. The hard feelings are linked to the high level of energy efficiency Japan already achieved prior to the Kyoto base year 1990, which are seen as going unrecognized under the pact. In comparison, it is also argued in Japan that 1990 is a favourable base year for the EU due to the UK dash for gas as well as the merger of Germany and the economic restructuring of the new member states. 2000 or 2005 would be more acceptable base years for Japan, and a selection of base years combined with absolute targets defined as levels of emissions has been suggested as a solution. Due to its experience with the Kyoto burden sharing, the Japanese government is calling for a more scientific way of burden sharing, and there is opposition in Japan against hosting another COP. This is one of the reasons why Tokyo is pushing for a sectoral approach.

Japan is not comfortable with the Annex I and non-Annex I division of the Kyoto Protocol to be used for the post-2012 pact, and refers to the developed and developing countries division used in the Bali Action Plan. Japan suggests that developed countries should be defined as follows instead: 1) Annex I, 2) OECD members, 3) non-OECD members with OECD-level economic development, and 4) other countries which would like to join voluntarily. Various indicators were suggested to evaluate the level of development of non-OECD economies including GDP/capita, GHG emissions/capita and HDI. Commitments should be expressed as reduction rates from the number of base years (plural base year) and total volume of GHG emissions. It was suggested that developing countries should be divided as follows: 1) developing countries to take mitigation actions; 2) vulnerable developing countries with small emissions; and 3) other developing countries. The division should be based on similar criteria to the aforementioned level of economic development of non-OECD countries. All developing countries should submit voluntary action plans including PAMs, and the first group should also adopt binding energy or carbon intensity targets and establish national measurement systems. Based on their economic development, countries would graduate to upper groups.¹⁴⁴ Japan may accept the surplus allowances from the Kyoto Protocol to be banked for the post-2012 pact.

¹⁴⁴ Japan's proposal for AWG-LCA: For preparation of Chair's document for COP 14.

Japan could commit to financing emission reduction actions in other countries. A sectoral crediting mechanism to assist the mitigation actions by developing countries was called for. However, China's idea of allocating 0.5-1% of GDP to an adaptation fund is not acceptable as the total contribution would be too large an amount. Technology has to be shared on a commercial basis, although it can be subsidized. Under the Nuclear Technology Acquisition Fund, it is unclear what is meant by IPR as a patent on the climate-friendly technology (in October 2008), and Japan does not support this idea. However, it would be possible to discuss using public financing as seed money to support companies to get in the market to transfer technologies. When it comes to technology transfer, Japan could export power plants, steel plants, cement and paper plants to China, for instance. The New Energy and Industrial Technology Development Organisation (NEDO) advertises Japanese technology to be used for climate change mitigation.¹⁴⁵

Japan (like many other countries) requires the participation of the US. The EU should accept that the US is likely to sign up to significant abatement only in the longer term, and not demand too much as this may put the US off. China is a very important actor for Japan, and its participation is required. However, voluntary actions by China may also be acceptable. It would be important to help China to improve the efficiency of its coal power plants in order to show that a concrete partnership can be established. Intensity targets and applying the sectoral approach should be seen as a favourable commitment by China. Now that the US is likely to re-engage, it would be important for developed countries to come together in order to present a united front to the developing countries. Reduction commitments are regarded as easier for the EU than for Japan due to the 27 member states. The EU is also viewed as being too soft on developing countries because it is argued that -50% by 2050 would be impossible to achieve without them.

1.2 The sectoral approach

The sectoral approach is one of the cornerstones of Japanese post-2012 climate politics. The definition of this approach has remained unclear

145 NEDO publication on JP technology export.

as it has been suggested that it should be applied to various purposes. The main approaches by the Japanese government include:

Providing an objective and transparent basis for equitable burden sharing between developed countries by identifying comparable reduction potentials;

Developing sectoral efficiency indicators to establish sector-specific transfer of technologies to major developing countries.¹⁴⁶

The Japanese have regarded the Kyoto burden sharing based on political negotiation rather than comparative data between countries as unfair to Japan. However, it is well understood that there is a need to 'fill in the gap between scientific reality and societal and economic reality' by negotiation. When choosing between marginal cost (Equal Effort) and the total cost of a nation (Equal End Point) as an equity indicator, the Japanese would rather use the latter. Establishing technological and financial assistance through the sectoral approach is especially important in the case of China, and it is argued that the approach would not necessarily lead to binding commitments in developing countries. The Japan Business Federation Keidanren and the Ministry of Economy, Trade and Industry (METI) are keen on the sectoral approach as they argue that Japanese industry is already very energy efficient and thus should not have to commit to further emission reductions. The Japanese suggestion of a common global efficiency benchmark which would also apply to developing countries is regarded by some Japanese analysts as a negotiation tactic which could be relaxed by promising Japan an easier target than the rest of the developed countries. Some Japanese experts are even questioning whether domestic emission reduction targets should be discussed at the international level at all, beyond agreeing on a global cap. Such an approach would be unlikely to facilitate achieving the set global emission target. However, the official line is that the sectoral approach would not replace national emission reduction targets.¹⁴⁷

¹⁴⁶ Japan's proposal for AWG-LCA: For preparation of Chair's document for COP 14.

¹⁴⁷ Arima, Jun. Japan's View on Sectoral Approach. Presentation.

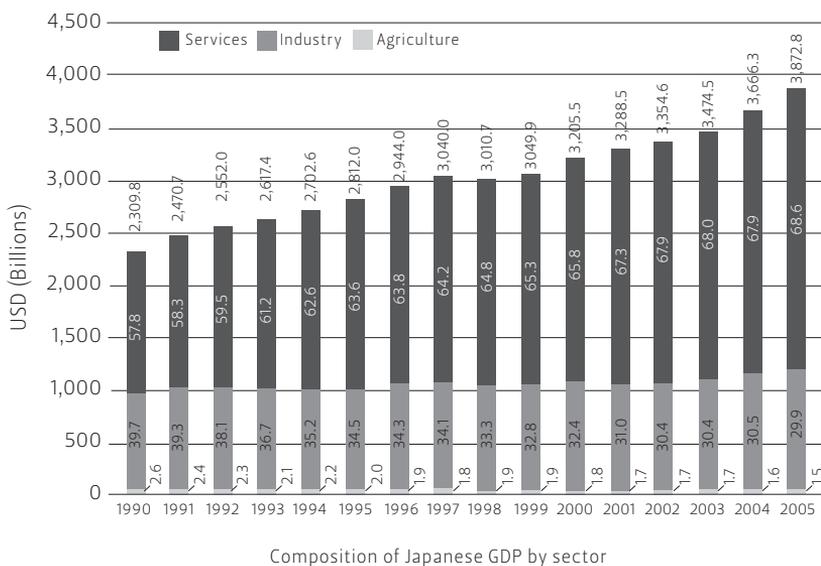
2. National conditions

2.1 Economic conditions

2.1.1 Background and dynamic of the economy

Japan was regarded as an economic miracle in the 1950s–1970s. But after the 1980’s economic ‘bubble’ burst, the Japanese economy stagnated in the 1990s for almost a decade, descending into low and even negative GDP growth with private consumption also taking a battering, until growth picked up somewhat during the 2000s. In light of the fact that exports account for a large share of Japanese GDP, the current financial crisis, especially the slowing down of US demand, is likely to have a negative impact on the Japanese economy.¹⁴⁸

The structure of the Japanese economy has been changing since 1990 as industry’s share of GDP has shrunk from almost 40% down to just below 30%. The service sector’s share has skyrocketed from some 58% up to 68%. This indicates that the Japanese economy is becoming less carbon intensive. However, the manufacturing industry remains an important sector of the economy.



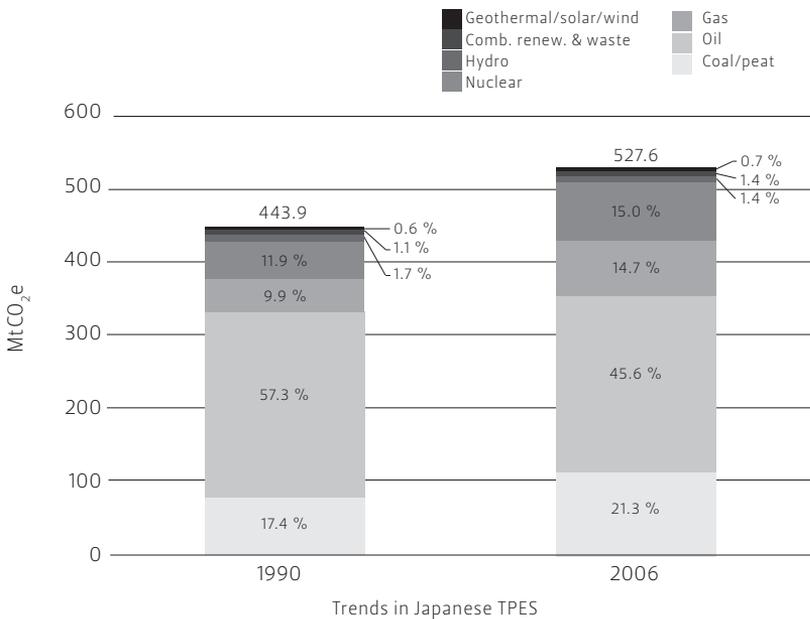
Graph 4.1. Breakdown of Japanese gross domestic product by economic sector

Source: IMF (GDP), World Bank (Sectoral breakdown).

¹⁴⁸ The Economist Intelligence Unit, Japan Country Profile 2008.

2.1.2 Energy sector

Japan is very dependent on energy imports as the domestic energy resources are extremely limited. The country has developed an extensive nuclear energy programme as a response to this scarcity.



Graph 4.2. Changes in the composition of the Japanese total primary energy supply
Source: IEA.

Even though the shares of both nuclear power and natural gas have somewhat replaced oil and gas during 1990–2006, their share remains dominant. The share of renewables on the other hand is meagre. Even though the carbon intensity of the Japanese energy balance remains high, it has become less carbon intensive during the period as illustrated in Graph 4.2.

Building new nuclear capacity is slow and problematic in Japan. Permission is required from the government as well as the local community, where opposition is common, partly due to the accidents

during the last decade. As a result of both the Tokaimura accident in 1999 and the accident at Kashiwazaki-Kariwa, the world's largest nuclear power station, caused by an earthquake in 2007, public opinion on nuclear power has been less positive. The owner of the latter installation failed to provide clear and accurate information on the safety of the plant after the earthquake; this attracted a lot of media attention as the company had already previously experienced a scandal related to a cover-up.¹⁴⁹ The fact that the Kashiwazaki-Kariwa plant still remains offline has led to additional demand for coal and gas-fired power and contributed to emission increases in Japan.

The New National Energy Strategy was formulated in 2006. Its key aim is to reduce dependence on imported energy. However, Japan's domestic energy choices are limited. Nuclear power provides an important share of the total primary energy supply (TPES). For the same reason, energy efficiency improvements have been a cornerstone of the Japanese energy policy since the time of the oil shocks of the 1970s, and the Japanese energy intensity (TPES/GDP) is the lowest among OECD countries. Even though this trend has levelled off somewhat since the mid-1980s, the current aim is to further reduce the final energy consumption per unit of GDP by 30% during 2003-2030. The industrial sector in particular has improved its performance dramatically. Further energy efficiency improvement potentials remain in the commercial and household sectors. The major trend in these and the transport sector is that the number and size of appliances offsets the energy saving achieved by energy efficiency improvements.¹⁵⁰ However, due to the long economic stagnation, Japanese companies have had less money to invest in energy efficiency, and this may have led to energy efficiency not improving as much as it could have done, or in some cases even declining.

The electricity sector is deregulated for large customers only, while the market for small customers remains regulated. Electricity prices and related profits are very transparent to the wholesale buyers of electricity. The electricity market is dominated by a few large actors; the Keidanren opposes deregulating the electricity market. The government puts pressure on power producers to keep electricity

¹⁴⁹ The Independent, 21 July 2007, Fear and fury in shadow of Japan's damaged nuclear giant.

¹⁵⁰ IEA, 2007. pp.53-58.

prices low in order to boost GDP and private consumption. The power producers are allowed to increase electricity prices of small customers only if the fuel cost increases by 30%.

A Renewable Standard Portfolio requires power producers to cover a certain percentage of output with renewables (existing large-scale hydro is not eligible). This had led to the building of some new wind power capacity by the large power producers, while others purchase certificates. Further, the government is setting targets to increase renewables, focusing especially on solar power. METI's target for the industry and power sectors was to use 3.4% renewables in 2008, and the suggestion is that this figure should increase to 12%. Discussion on a feeding tariff for renewables is ongoing. Power producers complain that while requiring electricity prices to remain low, the government is requesting that more of the expensive renewables be introduced. The IEA argues that the government should establish more ambitious longer-term renewable targets.¹⁵¹

2.1.3 GHG emissions

The Japanese commitment under the Kyoto Protocol is a 6% reduction of the 1990 level. Japanese emissions have increased significantly, and exceeded the 1990 level by 5.3% in 2006.¹⁵² The main growth sectors are buildings, households and transport, while industrial emissions have declined somewhat (2005 figures).¹⁵³ However, the emission factor of electricity is increasing, as the deficit stemming from the closure of a nuclear plant has been replaced by substituting more coal, and thus emissions have increased, even though electricity consumption remains stable. The economic recovery, expanded floor space of office buildings as well as an increasing number of electrical appliances in use have been reported as contributing factors in the increasing trend of emissions.¹⁵⁴

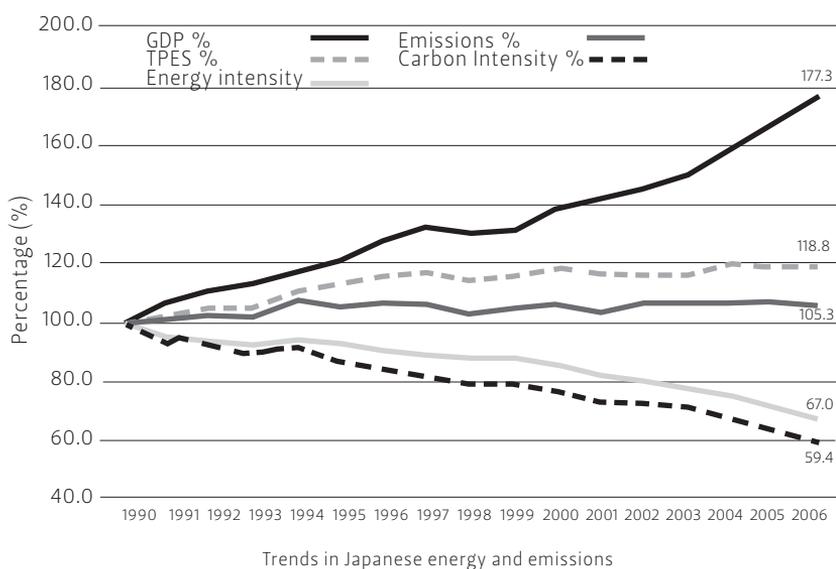
Graph 4.3 illustrates the dynamics of the Japanese total emissions as well as the falling energy and carbon intensities of the Japanese economy.

¹⁵¹ IEA, 2007, p. 158.

¹⁵² Based on the latest inventory submitted to the UNFCCC.

¹⁵³ Muramatsu, Hidehiro (2007). *Climate Change Policy in Japan*, April 2007.

¹⁵⁴ Ogawa, Junko (2008). *Revised Kyoto Protocol Target Achievement Plan – Overview and History of Revision*. The Institute of Energy Economics of Japan, July 2008.



Graph 4.3. Trends in Japanese energy and emissions figures relative to 1990 (100%)

Source: IEA (GDP, TPES), UNFCCC (emissions levels)

With the current PAMs, the emissions were forecast to exceed the 1990 level by 6% by 2010, and to decline 0.5% below the 1990 level with additional measures.¹⁵⁵ In reality, the emissions had already increased close to the 6% figure by 2006, and as further dynamics pushing emissions up have taken place since, these forecasts are likely to require revision. The Japanese plan is to cover 3.9% of its Kyoto commitment with sinks, and 1.6% through the Kyoto mechanisms.

2.2 Political conditions

2.2.1 Domestic policies and measures

Japan has developed a wide range of detailed domestic policies and measures to achieve the Kyoto goal. The Kyoto Protocol Target Achievement Plan was launched in 2005, but updated in 2007 as it was estimated that Japan would fall short of its Kyoto target by some

¹⁵⁵ The fourth national communication of Japan, p.162.

20–34 Mega-tons (Mt) of carbon dioxide equivalent (CO₂e). A further assessment of the progress is expected in 2009.¹⁵⁶

This report only covers the most important PAMs in terms of emission reductions. The most important categories of the domestic emission reduction plan include forest sinks, new energy, voluntary action plans by industry, the Top Runner programme as well as additional nuclear capacity.¹⁵⁷ The Japanese PAMs have been criticized for focusing on voluntary measures, and not providing strong market signals for GHGs.¹⁵⁸

- Voluntary targets by industry: Large industrial actors adopted voluntary targets as early as the 1990s, and the Japanese government has also created some incentives for small and medium-size enterprises to adopt such targets. Many of the voluntary targets are intensity-based, and thus companies can still comply with them even though emissions grow due to increasing activities. Various domestic emissions trading schemes are facilitating these voluntary targets as well as linking them to the Kyoto mechanisms and each other. None of the domestic trading schemes are based on the cap-and-trade idea, and thus, remain frameworks rather than incentives to reduce emissions. The majority of the Japanese actors are not interested in linking the domestic trading schemes to the EU Emission Trading Scheme as the Japanese believe that as their economy is more efficient, they would end up buying allowances.
- Standards: Japan adopted the first energy efficiency standards as far back as 1979. The Top Runner programme introduced in 1998 establishes standards for vehicles and appliances. Over time the range of products has been expanded and the standards toughened,¹⁵⁹ and these targets have been consistently met or

¹⁵⁶ Ogawa, Junko (2008). Revised Kyoto Protocol Target Achievement Plan – Overview and History of Revision. The Institute of Energy Economics of Japan, July 2008.

¹⁵⁷ Additional nuclear capacity and renewable energy-related policies were discussed in section 2.1.2.

¹⁵⁸ IEA, 2007, pp. 41–42.

¹⁵⁹ The fourth national communication of Japan, p.123. IEA, 2007, p.63.

even exceeded. The successful Top Runner programme has been especially important in the transport sector.

- Forest sinks: Japan is planning to use as much of its 3.4 allocation of sinks as possible to cover reductions of 3.9% of the 1990 level, accounting for some 47.7 Mt. However, the evaluation of this policy in 2007 showed that the forestry PAMs only reduced 2.8% of the 1990 level. Thus, it is questionable whether Japan can expect to succeed in utilizing its full sinks capacity as a compliance measure.¹⁶⁰
- Awareness-raising: Information-based policies are a part of the Japanese government climate policy which is very visible to the public. The outcomes of the CoolEarth initiatives as well as the dress code-based measures WarmBiz and CoolBiz remain unclear as the policies are based on the adjustment of people's daily lifestyle. Such changes are typically challenging to maintain over time, and the majority of Japanese experts as well as the Kyoto Protocol Target Achievement commenting round¹⁶¹ questioned the effectiveness of these policies as a source of emission reductions.
- The Kyoto mechanisms: The Kyoto mechanisms form an essential part of the Japanese climate policy and they are likely to gain importance as other policies have not delivered the deep emission cuts they had originally projected. The Japanese government has planned to offset 1.6% of emissions through the Kyoto mechanisms in order to achieve the required 6% reduction.¹⁶² As a result, according to the 1990 emissions, some 100 Mt of credits are required during the first commitment period in order to be in compliance. Up to the end of 2006, the government of Japan had purchased some 23 Mt CO₂e which may not be enough given the growing emission trends outside the industrial sector and other failing policies such as the forest sinks. The Keidanren reports that some of the business federations and associations in its composition have

¹⁶⁰ Ibid.

¹⁶¹ Ogawa, Junko (2008). Revised Kyoto Protocol Target Achievement Plan – Overview and History of Revision. The Institute of Energy Economics of Japan, July 2008.

¹⁶² The fourth national communication of Japan, p. 139.

announced CDM projects that would earn up to 294 Mt CO₂e by the end of the first commitment period.

NEDO is the Japanese governmental Joint Implementation (JI) and CDM purchasing agency which bids for projects. The minimum purchase by NEDO is 0.5 Mt. The relevant ministries also approve each project to ensure government integrity on environmental and development issues. The Kyoto mechanisms create a considerable business opportunity in Japan due to the significant domestic demand; the need to offset has also increased due to the increase in industrial emissions caused by activity increases as well as the replacement of the closed nuclear power station by coal. Project implementation is seen as complicated, risky and slow by both the Japanese government¹⁶³ and project developers, and it has also been argued that nuclear power should be permitted in the mechanisms.

2.2.2 *Further reduction potential*

The Japanese emission reduction potential is claimed to be small, and deep emission cuts are seen as socially harmful. Generating further emission reductions by fuel choices and demand side management could be seen as a challenge for Japan due to the following reasons:

- the heavy bureaucracy and democratic elements in the decision-making on building new nuclear power plants; it is a lengthy and unpredictable process for the private sector to focus on this;
- the electricity demand is not expected to grow significantly, which halts investments in nuclear capacity;
- the electricity market remains regulated and dominated by large actors, and thus there is little demand for small-scale renewable energy sources;
- carbon capture and storage is not a significant option for Japan as the country has no suitable geological formations which would provide potential for CO₂ storage;

¹⁶³ The fourth national communication of Japan, p. 135.

- further energy efficiency improvements will be costly;
- most electricity companies are unwilling to invest in small renewable sources in their portfolios; and
- demand on the household sector is difficult to control, especially without market-based mechanisms to incentivize energy savings.

Thus, purchasing external Kyoto credits has been the easiest and the most popular option. However, there is further potential to improve energy efficiency in the household and commercial sectors even though a consensus prevails on the impossibility of further domestic reductions in Japan.

2.2.3 Domestic debate

The Japanese society and economy have traditionally been industry-oriented, especially where the manufacturing industry is concerned. As a consequence, large industrial actors and Keidanren are influential in the domestic debate and decision-making. In practice, the views of industry influence the limitations of domestic PAMs; for instance, the opposition shown by industry to carbon tax has deferred its introduction, and the focus of the government climate policies has shifted to voluntary and information-based approaches.

The frequent changes of government since 2006 have led to difficulties in terms of a consistent definition and implementation of climate policies in Japan. Some of the recent prime ministers (both Fukuda and Abe) have initiated their own policies and goals, which have since been sidelined.

The division of the public administration also remains an issue. The politically strong METI and the less powerful Ministry of Environment (MOE) continue to disagree on various issues relevant to climate policy. METI is backed by the heavy-weight industry while most of MOE's support comes from NGOs. The Ministry of Foreign Affairs also participates in international negotiations together with METI and MOE.

The environmental NGO sector remains relatively weak compared to the EU, for instance. As NGOs often follow European views, they are seen as advocates of the EU viewpoint in the climate policy debate.

Awareness of increasing household emissions is boosted by education in schools and the media. However, following the government lifestyle campaigns is not regarded as very trendy by the public, and the contribution to emission reductions remains low. Addressing climate policy through the market mechanism, either in the case of industry or the public, is not part of the Japanese tradition. As the government is encouraging energy prices to be kept low, it may be that the public lacks experience in reflecting policy choices through the price signal. However, it could be argued that the impacts of the peak oil price provided households with such experience.

2.2.4 Foreign policy aspects

Relations with China are very important to Japan as the country is a large market for Japanese products. Competitiveness is a linked key issue, as regulating the Annex I industrial emissions while non-Annex I (including China) remain unregulated is seen as unfair. Japan is trying to enhance the competitiveness of its industry by promoting a sectoral approach in non-Annex I countries. China is also much more politically important for Japan than for Annex I on average. Japan's influence on China in the post-2012 negotiations is dependent on the development of Japan-China relations, which deteriorated during Prime Minister Koizumi's administration.

Japan is also keen on assuming an international role in the field of climate change. It is actively promoting its own views on the post-2012 pact when it comes to such matters as the sectoral approach, for instance. In the past, Japan has also gained publicity by hosting high profile climate change conferences, namely COP-3 in Kyoto in 1997 and the G8 meeting in 2008.

Japan is very advanced in terms of technology development and production, and it has been suggested that this may also serve as a Japanese contribution to solving global warming. The country is, for example, the world's largest producer of solar panels.¹⁶⁴ Japan is eager to transfer technology on a commercial basis, and could gain climate-related markets for its products. Developing countries can expect help from Japan also on a less commercial basis. However, official development aid (ODA) from Japan to China was discontinued

¹⁶⁴ IEA, 2007, p. 157.

recently as the level of Chinese economic development was considered to be sufficiently high not to warrant further ODA.

Japan would also like to use international climate politics as a vehicle for improving resource efficiency in the world due to the limited availability of resources.

3. Conclusion

Various foreign policy issues constitute an incentive for Japan to join the post-2012 pact. Japan is a global political, economic and technology leader, and the latter in particular presents Japan with a responsibility to promote high energy efficiency in the world by sharing technology and ideas. Some also argue that should nuclear energy be accepted under the post-2012 regime as a climate-friendly technology, Japan could export it.

It is understood in Japan that global warming is a serious environmental problem threatening global security and prosperity, and that as an industrialized country Japan has a duty to tackle it. There is public support for efforts to try to solve this problem, as well as support for joining an international pact. Some experts argue that the impacts of climate change in Japan may drive action, while others disagree. However, health issues in the southern parts of the country may arise as new diseases are emerging due to climate change. The Japanese health sector has neither experience nor expertise in these types of disease.

International competitiveness and the impacts of carbon regulation certainly provide an incentive for Japan to influence the future climate regime. The Japanese government also wants to avoid another unfavourable climate deal which may harm the Japanese economy, and is therefore keen to influence the outcome of the current negotiation position.

5. Russia

Author: Anna Korppoo

1. Negotiation position

The Russian position on the post-2012 pact is not fully formed, and it is likely to remain somewhat unclear until Copenhagen as the Russian government wants to keep its views out of the public discussion in order to keep tactical options open for negotiating a favourable deal in December 2009. The absence of the US position further contributes to this reluctance.

1.1 Position for Poznan

In the recent submission to the UNFCCC for the Poznan COP in December 2008, the Russian negotiation position was outlined in some detail for the first time. Based on this submission, it seems obvious that, officially at least, the Russian administration is reluctant to accept emission reduction commitments; the G8 goal of 50% global emission reduction by 2050 is labelled as ‘aspirational’, and even the collective goal of a 25–40% reduction from the 1990 level by 2020 is deemed ‘unreasonable’.

The concept of ‘legally binding’ commitments is redefined as non-enforceable, non-punitive as well as flexible since it is argued that it should be possible to adjust the commitments during implementation. All this flies in the face of what is generally understood by the concept of ‘legally binding’.

Russia also shares common ground with many other major actors on some issues. The participation of all major economies is called for, and it is suggested that country groupings under the post-2012 pact should be revised, based on indicators which reflect national conditions and the ‘real’ potential of countries to act. Russia is also supporting a sectoral approach to national commitments.¹⁶⁵

¹⁶⁵ Submission by the Russian Federation to the UNFCCC under the AWG-LCA, 30 September 2008.

Incentives to reward emission reductions are also requested; this is in keeping with the Russian approach to international climate politics under the Kyoto Protocol. However, using market mechanisms as climate policies is challenged. Given the very positive approach to the Kyoto mechanisms by Russia in the past and the surplus allowances Russia received under Kyoto, it would seem unlikely that Russia would oppose market mechanisms under the post-2012 pact. The position paper may reflect the lack of coordination in the Russian administration, and may have been drafted by agencies which have no stake in implementing the Kyoto mechanisms.

The Russian position paper for COP-14 in Poznan was awkward; some of the positions seemed to be against the interest of the country. This position had already evolved during the Poznan meeting, and it could be partly explained by the institutional change of placing the previously independent leading agency Roshydromet under the Ministry of Natural Resources. Due to the lack of expertise by the new relevant authority that had to approve the document, many issues raised by the expert ministries were not included in the view. The position paper certainly leaves a lot of room for interpretation, and thus for negotiation tactics.

The Deputy Minister of Natural Resources announced in his speech in Poznan that Russia is planning to adopt a domestic emission reduction target. Other sources suggested that this domestic target could replace an international commitment, and consequently Russia may choose not to join the post-2012 pact.¹⁶⁶ The goal to reduce energy intensity by 45% during 2007-2020 was flagged as the basis of this target. Moreover, the impact of the economic crisis was put forward as a potential reason to explain why the Russian emissions may not grow as fast as predicted prior to the crisis.

In the AWG-KP workshop on future commitments in December 2008, the Russian delegation referred to various factors to be taken into account when deciding on the possible Russian emission reduction target. The factors include the severe climate, the high number of heating degree days and the long distances between the main cities compared to the other G8 countries, the importance of exports of energy resources and energy-intensive industrial products,

¹⁶⁶ Pankin, Alexander, "Russia may not join global deal on climate change", *Reuters*, 12 December 2008.

and various social development plans such as an expected increase in energy demand and coal consumption in particular. The theory of the gradual development of economies and their resultant need to emit GHGs was brought up to argue that Russia is an emerging economy rather than a fully developed one.¹⁶⁷

1.2 Key elements of the post-2012 pact

The Russian position emphasizes the recognition of national conditions. In practice, this refers to the growing emission trends and their aforementioned inevitable nature, as Russia has not reached its peak of emissions as yet and thus needs to develop further. This view would not support the acceptance of emission reduction commitments as emission growth is seen as inevitable. A negative attitude can also be observed in the public opinion, as 45% of the public do not agree with spending government money on cutting emissions, while 28% believe that only limited resources should be used for tackling global warming.¹⁶⁸

A domestically set emission reduction target has been mentioned by the Russian Deputy Minister of Natural Resources Mr Stanislav Ananiev¹⁶⁹ and Alexander Pankin of the Russian Ministry of Foreign Affairs. According to Pankin, Russia would aim at stabilizing its GHG emissions to 30% below the 1990 level and then at reducing emissions by 2020. A numerical target has not yet been released, however.¹⁷⁰ A simple estimate of a target Russia could readily comply with by 2020 is a 15% reduction of the 1990 level. However, some experts argue that Russia is aiming at the minimum commitment under the post-2012 pact. 1990 is a favourable base year for the country.

For Russia, it would be important for the country groupings to be revised to provide a more specific division of countries than that of

¹⁶⁷ Tulinov, Sergey, Presentation by the Russian Federation on Mitigation Potentials, 3 December 2008, Poznan.

¹⁶⁸ Всероссийский центр изучения общественного мнения, глобальное потепление: миф или реальность?, Press release, 4 April 2007. Available at <http://wciom.ru/novosti/press-vypuski/press-vypusk/single/4339.html> (accessed 13 November 2008).

¹⁶⁹ Official statement in the COP-14 meeting in Poznan, 12 December 2008.

¹⁷⁰ Pankin, Alexander, "Russia may not join global deal on climate change", *Reuters*, 12 December 2008.

Annex I and non-Annex I; this was already suggested in the Russian proposal focusing on voluntary targets in 2007 (and more recently constantly referred to).¹⁷¹ Should these country groups remain the same, Russia would be likely to remain in the Annex I country group. However, under a new division of country groups, some Russian experts argue that the country should fall into the group of emerging economies.¹⁷² The burden sharing between the new country groups is expected to be conducted based on comparable indicators such as GDP/capita even though it is recognized that various indicators will be required in order to take account of 'national conditions'.

The participation of other key emitters is of paramount importance from the Russian point of view. The basic argument against the Kyoto Protocol in Russia was its inefficiency, mostly due to the limited coverage of only industrialized countries compared to the total global emissions. The participation of the major developing countries, or emerging economies, is therefore crucial. The participation of the US is also very important; in addition to the significance of the US as an emitter, for historical reasons Russia regards the country as a key partner and of comparable importance to Russia itself. Even though this claim may no longer be valid, it is nevertheless relevant as it is likely to guide the Russian policy process. Some Russian experts regard international climate policy as a beneficial issue for the EU as it goes hand in hand with the energy security of the Union. In comparison, due to the domestic energy resources, the energy security argument does not apply to the Russian climate policy as an incentive.

Russia is only expecting to benefit from forest sinks under the post-2012 regime, and this may emerge as an important issue in Copenhagen.

1.3 The issue of surplus allowances

The issue of how to deal with the surplus allowances ('hot air') Russia gained under the Kyoto Protocol, and which still remain unused, is likely to emerge as an important topic in Copenhagen. The surplus would be straightforward to bank for the second commitment period

¹⁷¹ Korppoo, Anna, "Workshop report: Russian Voluntary Targets Proposal", *Climate Strategies*, May 2007.

¹⁷² "Kak vybrasyvali, tak ivybrasyvaem", *Novie Izvestija*, 11 December 2008.

of the Kyoto Protocol but, due to the US reluctance to join this pact, it remains unclear what role the protocol may play in the future. Should a legally novel protocol be agreed on, issues established in the Kyoto Protocol may be reopened. Russia may still have some 3,330–4,600 Mt of surplus allowances available during the first commitment period¹⁷³ to bank should none of them be sold. In addition, the Russian sinks allocation under Annex Z to Article 3.4 of the Kyoto Protocol provides another 600 Mt of allowances during the first commitment period, and could in theory be used to offset domestic emissions in order to create even more surplus Assigned Amount Units to bank.

The Russian approach to transferring the surplus between pacts is likely to assume that this would happen automatically rather than be subject to negotiation. In Poznan, the African group suggested that the surplus would not be used, and this was rapidly opposed by both Russia and Ukraine. What is more, various Russian experts and officials expect no problems with banking the Russian surplus to ‘cushion’ an emission reduction target under the post-2012 pact.¹⁷⁴ It is important to address this issue or at least be prepared to negotiate on it in Copenhagen.

2. National conditions

2.1 Economic conditions

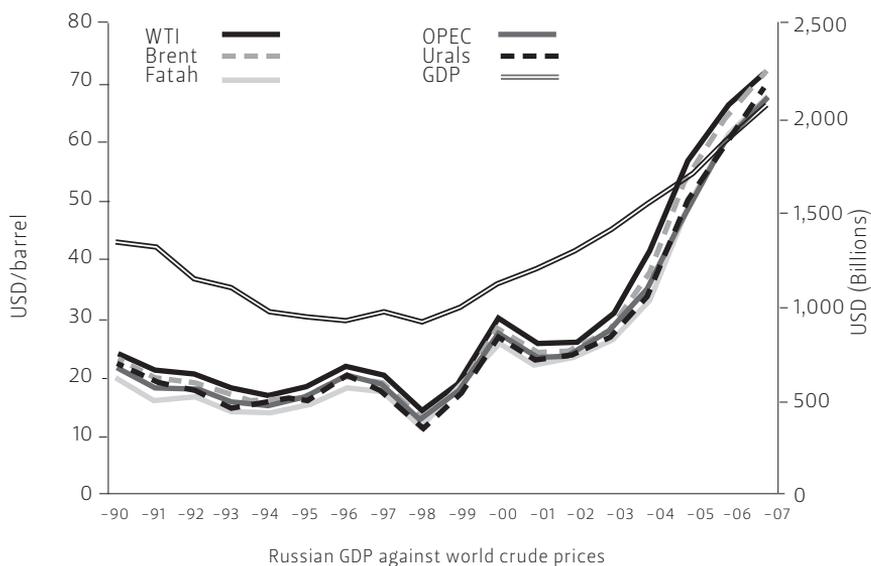
2.1.1 Background and dynamics of the economy

The Russian economy is very dependent on natural resources, especially oil and gas. The oil price has been an important element in this growth; the Russian economy has been growing steadily – on average by 6.7% annually – since the 1998 economic crisis which correlates with the developments of the oil price as shown in Graph 5.1. Oil accounts for some 33% and gas for some 25% of the Russian

¹⁷³ Grubb, Michael, Tim Laing, Sudhir Junankar and Hector Pollitt, “Global carbon mechanisms: Emerging lessons and implications. Global Carbon Mechanisms Annex II: Emissions and demand projections to 2020”, *Climate Strategies*, January 2009.

¹⁷⁴ This was brought up by a number of interviewees as well as by Viktor Blinov of the Ministry of Natural Resources; “Kyoto Carbon Credits Not For Sale”, Bloomberg, 4 December 2008.

government tax revenues.¹⁷⁵ It has been estimated that a 10 USD increase in the oil price adds some 2% to the Russian GDP. Tight fiscal policies, as well as rapid growth of domestic consumption, have contributed to the growth.¹⁷⁶ The Russian standard of living is defined as being at the lower end of the category ‘high’ by the Human Development Index at 13,205 US\$ PPP / person in 2006.¹⁷⁷



Graph 5.1. Evolution of Russian gross domestic product at purchasing power parity plotted against annual averages of chief crude oil price indicators¹⁷⁸

Source: IMF (Russian GDP), EIA (West Texas Intermediate, Brent Crude), IEA (Fatah Oman/ Dubai Crude, Urals), OPEC (OPEC Reference Basket)

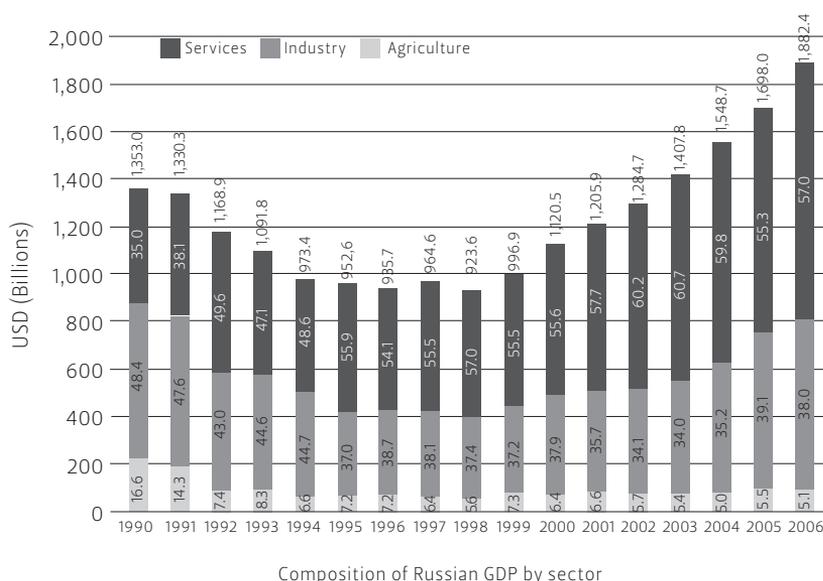
¹⁷⁵ Rutland, Peter, “The Impact of the Global Financial Crisis on Russia”, *Russian Analytical Digest*, vol. 48/08, 17 October 2008. EIA, available at <http://www.eia.doe.gov/cabs/Russia/NaturalGas.html> (accessed 15 January 2009).

¹⁷⁶ Ollus, Simon-Erik, “Natural resources – a blessing or a curse?”, in *New conditions of growth in Russia*, by Seija Lainela, Simon-Erik Ollus, Jouko Rautava, Heli Simola, Pekka Sutela and Merja Tekoniemi. BOFIT Online: 2007 No. 7.

¹⁷⁷ Human Development Index 2008.

¹⁷⁸ The Russian GDP data for 1990 and 1991 consist of estimates by the Economist Intelligence Unit. At the end of 2007, the Urals Crude was supposed to be phased out by the newer Russian Export Blend Crude Oil REBCO (not reflected in this graph).

The structure of the Russian economy has been changing rapidly since 1990 as the service sector has become dominant, accounting in 2005 for over 66% of the Russian GDP compared to 36% in 1990. This development has implications for the Russian total energy consumption as services are less energy-intensive than industry.



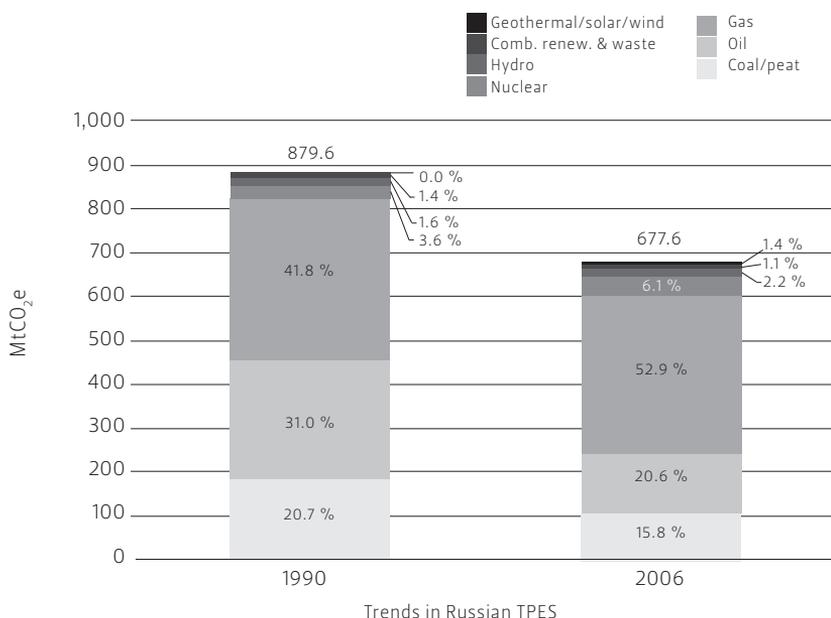
Graph 5.2. Breakdown of Russian gross domestic product by economic sector
 NOTE: The figures for Russian GDP for the years 1990 and 1991 are from estimations by the Economist Intelligence Unit. *Source: IMF (GDP), World Bank (Sectoral breakdown).*

The energy sector contributed some 65% - or 2/3 - of the value of Russian merchandise exports, while other raw materials and low value added products account for the majority of the remaining 1/3, including metals, machinery and equipment, and chemical industries. The massive increase in the value of the energy exports is due to the oil price developments. In 2008, the falling commodity prices caused by the global economic downturn, together with the decreasing oil price and credit crunch, were already starting to influence the development of the Russian economy and this trend is

likely to continue in 2009.¹⁷⁹ In November 2008 industrial production had shrunk by 9% compared to the previous year.¹⁸⁰

2.1.2 The energy sector

During 1990–2006, the Russian energy balance (Graph 5.3) very clearly moved towards the less carbon-intensive gas, and away from oil and coal. The nominal share of nuclear also increased due to the reduction of the total. According to the IEA data, the importance of industry as an energy consumer has been declining since 1990, while the shares of the commercial and transport sectors have been growing. These trends in energy consumption reflect the structural change of the Russian economy.



Graph 5.3. Changes in the composition of the Russian total primary energy supply in 1990 and 2006

NOTE: Excludes electricity trade. Source: IEA

¹⁷⁹ Rutland, Peter, “The Impact of the Global Financial Crisis on Russia”, *Russian Analytical Digest*, vol. 48/08, 17 October 2008. EIA, available at <http://www.eia.doe.gov/cabs/Russia/NaturalGas.html> (accessed 15 January 2009).

¹⁸⁰ BOFIT viikkokatsaus 51, 18 December 2008.

Energy policies were outlined in the early 2000s in the Russian Energy Strategy until 2020. This document covers most areas relevant to the energy sector, and many of the policies, if implemented, would have an impact on greenhouse gas emissions. Energy efficiency has been emphasized as an important policy area, and even a separate programme entitled ‘Energy Efficient Economy’ was launched. However, many of the policies have not been implemented properly and consequently the actual impact on energy efficiency has remained negligible. The Strategy also outlines a progressive shift from gas to coal in order to save gas for exports. This dynamic could have a dramatic impact on Russian emissions for two main reasons: first, because coal is significantly more carbon-intensive than gas, and second, due to the lower efficiency of the coal combustion capacity in Russia compared to the more modern gas combustion equipment. New nuclear power plants have also been planned, but their construction has been slow in the 2000s, and the financial crisis may cause further delays.

The great majority of the Russian renewable energy capacity is hydro power, and little has been invested in other types of renewable energy. Russia’s estimated economic potential¹⁸¹ in renewable energy¹⁸² stands at 30% of its total primary energy supply.¹⁸³ Currently, only 3.5% of TPES is derived from renewables, 2.4% of which is hydro.¹⁸⁴ Rising fossil fuel prices and falling renewable energy technology prices ought to have increased this percentage.

Renewable energy constitutes a thoroughly untapped resource. Large-scale hydropower is exploited at 23% of its economic potential, whereas small-scale hydro power hovers at 1%. Russian geothermal operating capacity was 73 MW in 2002 (compared to 3000 MW in the US). For wind power this figure stood at 7 MW (compared to 2365 MW in the US), and for solar power 0.5 MW (compared to 80 MW in Germany). In January 2009, the Russian government announced a

¹⁸¹ Economically viable segment from the technologically feasible part (technical potential) out of the total existing potential (gross potential).

¹⁸² Estimated in 1993.

¹⁸³ As measured in 2001.

¹⁸⁴ *Idem*.

goal and passed a decree to increase the share of renewable energy to 4.5% by 2020, compared to the current share of less than 1%.¹⁸⁵

The Energy Strategy provided estimates to the effect that the country has the potential to save some 39–47% of its current energy consumption.¹⁸⁶ The level of Russian energy intensity has been falling steadily since 1998, particularly so in the 2000s, due to changes in the Russian economy rather than to any specific policies and measures.¹⁸⁷ In July 2008, President Medvedev passed a piece of legislation outlining a goal to improve energy efficiency by 40% in 2007–2020.¹⁸⁸ The law called for the development of further legislation defining in detail how this goal could be achieved, including the involvement of the private sector as well as introducing market-based incentives for energy saving. Efficiency standards are also in the pipeline and the use of obsolete technology is to be restricted. Many Russian experts argue that this legislation, if successfully implemented, could significantly contribute to GHG emission reductions in Russia, which would allow the country to commit to such reductions under the post-2012 pact. It could also be argued that the set goal is relatively easy to reach: Graph 5.4 shows how energy intensity has decreased by 40% during 1996–2006 due to economic restructuring. However, this pace is likely to slow down as the readiest improvement potential has already been tapped.

It should also be noted that the implementation of the previous legislation on energy efficiency passed in 1996¹⁸⁹ failed for the most part. The first additional piece of legislation putting the 2008 law into practice is currently being drafted. It remains unclear whether companies will be made accountable for energy saving; this would be a more likely way to ensure the implementation of the legislation

¹⁸⁵ “Government Aims for 4.5% Renewable Energy by 2020”, *The Moscow Times.com*, 21 January 2009.

¹⁸⁶ Kulagin, Vyacheslav, “Energy Efficiency and Development of Renewables: Russia’s Approach”, *Russian Analytical Digest*, vol. 46/08, 25 September 2008.

¹⁸⁷ Tulinov, Sergey, Presentation by the Russian Federation on Mitigation Potentials, 3 December 2008, Poznan. Kulagin, Vyacheslav, “Energy Efficiency and Development of Renewables: Russia’s Approach”, *Russian Analytical Digest*, vol. 46/08, 25 September 2008.

¹⁸⁸ N889. About some measures to improve the energy and environmental efficiency of the Russian economy. Decree by the president of Russia, 4 June 2008.

¹⁸⁹ N28–F3. ‘Ob energosberezhenii’, Federal Law of the Russian Federation, 3 April 1996.

than making the public administration responsible instead. Another important issue concerns the type of indicators that will be launched to produce the efficiency improvements; technical indicators are more likely to be taken seriously by company directors compared to environmental indicators.

	2008	2009	2010	2011
Natural gas				
Wholesale market	28.6	19.9	28	40
Regulated prices	25	20.3	28	--
For households	25	25	30	40
For all others	25	19.6	27.7	--
Electricity				
For households	14	25	25	25
For all others	16.7	26	22	18

Table 5.1: Planned gas and electricity price increases (2008–2011)

Source: Energy Information Administration¹⁹⁰

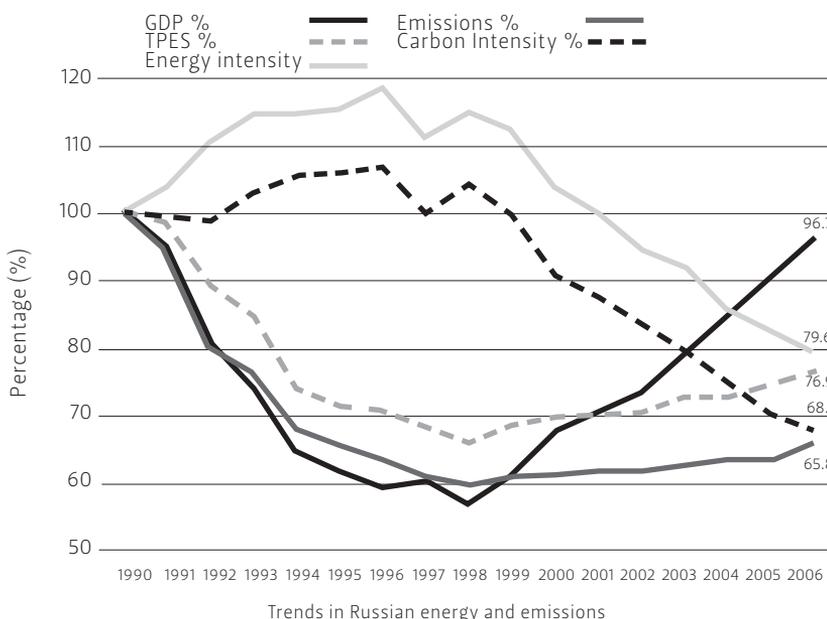
Rising energy prices are likely to contribute to energy efficiency improvements. As the monopoly of RAO UES Rossii has been dismantled, regional electricity producers are able to increase their industrial electricity prices more freely, although limitations on price increases will remain until 2011 as shown in Table 5.1. The domestic gas price remains regulated and Gazprom has to supply domestic customers regardless of the profitability of this activity, thereby subsidizing the Russian economy. However, significant increases in gas prices are expected in order to bring domestic prices into line with export prices by 2011. Some analysts argue that it may be difficult to reach this level within the given schedule partly due to the resistance of the industrial actors, who are keen to retain this competitive advantage.¹⁹¹

¹⁹⁰ <http://www.eia.doe.gov/cabs/Russia/NaturalGas.html> (accessed 15 January 2009).

¹⁹¹ Spanjer, Aldo, “Russian gas price reform and the EU–Russia gas relationship: Incentives, consequences and European security of supply”, *Energy Policy*, vol. 35, 2007, pp. 2889–2898. “Venäjä nostaa kotimaan energian hintaa”, *Tekniikka & Talous*, 26 May 2008.

2.1.3 GHG emissions

Russian emissions have been growing since 1998, and exceeded the 1998 level by some 15% in 2006. However, despite the clear growth curve since 2000, emissions remained 34% below the 1990 level in 2006. As shown in Graph 5.4, the carbon intensity as well as the energy intensity of the Russian economy has been decreasing steadily since 1998, while the GDP has shown robust growth.



Graph 5.4. Trends in Russian energy and emissions figures relative to 1990 (100%)

Source: IEA 20/20; UNFCCC.

The Russian Energy Strategy provided estimates of the Russian GHG emission trends until 2020, concluding that the emissions would remain below the 1990 level until 2020; 2,200 Mt in the scenario of favourable economic growth, and 1,840 Mt in the low economic growth scenario in 2020 against the 2,325 Mt Kyoto baseline. As the

Russian energy-related CO₂ emissions were 1,595 Mt in 2006¹⁹², the actual development has been even lower than the lower prediction. The energy-related emissions are also likely to decrease due to the economic crisis, as a significant share of the manufacturing industry reduced its output during the second half of 2008 due to the increasing production costs compared to the export prices. This development goes against the Russian forecast of growing emissions, at least in the short term.

Various dynamics are also driving the growth of the emission trends. Power generation is of particular significance. The consumption of electricity is increasing due to the improving standard of living in Russia. Since power generation is already operating at full capacity, the increased demand has led to the reintroduction of the old inefficient electricity generation installations, which were shut down when electricity consumption slumped in the early 1990s. In addition, small generators in particular may switch from gas to the more carbon-intensive coal, as the price of the latter is expected to remain lower. The Russian government has also called for the large-scale replacement of gas by coal in power generation in the longer term in order to maximize the export of gas.¹⁹³ What is more, the efficiency of energy use and the reduction of the energy intensity of the economy which was expected to take place ‘automatically’ due to the modernization and restructuring of the economy¹⁹⁴ has not occurred in Russia to any great extent thus far. However, these trends may slow down or even go into reverse due to the current economic crisis.

2.2 Political conditions

2.2.1 Domestic policies and measures

Beyond the institutional requirements to establish the compliance instrument, the Russian surplus allowances ensure that the country

¹⁹² IEA, *Beyond 20/20*.

¹⁹³ IEA, *Russia Energy Survey*. OECD/IEA, Paris, 2002, p. 255. Blagov, Sergei (2007), “Russia considers increasing coal use to facilitate gas exports”, *Eurasia Daily*, 11 June 2007, available at: http://www.jamestown.org/edm/article.php?article_id=2372221 (accessed 10 November 2008).

¹⁹⁴ For more on the basics of the impact of economic developments on GHG emissions, see for instance IPCC (2007). *Fourth Assessment Report: Mitigation of Climate Change*, p. 177.

does not necessarily need any domestic policies and measures to comply with Kyoto. The Russian PAMs have been modest in practice and the country has experienced problems with the implementation of various planned policies, such as those aimed at improving the level of energy efficiency.¹⁹⁵

The Progress Report on the implementation of the Kyoto Protocol by Russia presents the PAMs put into practice by 2006.¹⁹⁶ Macroeconomic policies are flagged as a set of policies which influence the Russian emissions through the reduction of energy and carbon intensities due to modernization and restructuring of the economy. The energy sector is the most significant carbon emitter and therefore also the main sector to cut emissions. The governmental ‘Energy efficient economy’ programme is reported as one of the main PAMs implemented. According to the Progress Report, during the period 2002–2005 the programme resulted in a reduction of emissions by some 50–60 Mt of CO₂e per year. The share of the reductions from the energy sector was on average some 50%. Technological improvements in electricity and heat production and the restructuring of gas compressor stations in the gas sector are mentioned as PAMs, but no policy tools such as incentive structures showing how these results were achieved have been specified. The housing sector is reported to have cut emissions by some 8–9 Mt CO₂e annually during 2002–2005 by such measures as increasing energy metering and switching to bio fuels. PAMs on transport, forestry and agricultural sectors are also under discussion. It is difficult to see how the reported reduction of emissions by 50–60 Mt annually during 2002–2005 corresponds to the dynamics of the Russian emissions, which have grown by some 130 Mt during this period. However, this may refer to avoided emissions compared to business-as-usual.

2.2.2 *Internal policy goals*

Domestic debate on post-2012 climate policy has not really got underway yet in Russia. The announcements by the Deputy Minister

¹⁹⁵ Korppoo, Anna, Drivers and Barriers to Energy Efficiency in the Russian Pulp and Paper Industry. PhD Thesis, Imperial College London, 2007.

¹⁹⁶ Российская Федерация (2006). Доклад об очевидном прогрессе в выполнении обязательств российской федерации по Киотскому протоколу. Министерство Экономического Развития и Торговли

and Alexander Pankin of the Ministry of Foreign Affairs may facilitate a debate in the near future.

Policy goals set by President Putin in 2000, such as doubling the gross domestic product by 2010, may hinder the acceptance of emission reduction commitments as many Russian decision-makers fear that limiting the consumption of fossil fuels in order to cut emissions would reduce GDP growth. The main Russian argument behind the position stems from the expected growth in emissions in tandem with the economy, as already flagged by Andrey Illarionov during the Kyoto ratification debate.¹⁹⁷ However, at the time, many Russian experts disagreed with Illarionov and argued that Kyoto would not limit Russian emissions during the first commitment period.¹⁹⁸ But now some of these experts fear that emissions are indeed growing at a rate that would require the Russian government to allocate funds for reducing emissions should Russia accept an emission reduction target.

The economic arguments against joining the post-2012 framework could be challenged. The recent economic growth has to a large extent been fuelled by the high oil price Russia received from its exports, which has no direct impact on Russian GHG emissions. In addition, in an energy-inefficient country like Russia, there is the potential to further weaken the link between GHG emissions and economic growth by improving energy efficiency. This would also have a positive impact on the economy, as recognized by the Russian administration as well.¹⁹⁹ Furthermore, development towards a post-industrialized economy is likely to decouple the dynamics of GHG emissions from economic growth; the increasing share of the service sector and the shrinking share of heavy industry are examples of such

¹⁹⁷ Hopkins, Philip, "Kyoto kills growth says Putin's chief economist", *The Age*, 9 December 2004. Available at <http://www.theage.com.au/news/Business/Kyoto-kills-growth-says-Putin-chief-economist/2004/12/08/1102182359957.html> (accessed 12 November 2008).

¹⁹⁸ For a review of Russian experts disagreeing with Illarionov's point, see Muller, Benito, *The Kyoto Protocol: Russian Opportunities, Briefing Note*, The Royal Institute of International Affairs, March 2004, p. 2-6.

¹⁹⁹ Dmitry Medvedev held a meeting on improving the environmental and energy efficiency of the Russian economy, press release of the Kremlin, 3 June 2008, available at <http://www.kremlin.ru/eng/text/news/2008/06/202060.shtml> (accessed 7 November 2008).

trends. It has also been argued that ‘A Russian Stern Review’ would be needed to highlight the costs of climate change to the country.²⁰⁰

However, due to the unfolding global economic crisis, the Russian delegation was of the opinion in Poznan that this would lead to less dramatic emission growth in the future together with domestic policies.

The traditions of climate policies under the Kyoto Protocol may support the current policy development as the administration had to act in order to establish compliance and prepare for approving JI projects (the institutional system is in place but, for political reasons, no projects have been approved as yet). The ratification debate also brought the issue onto the public agenda.

The government reshuffle after President Medvedev took up office led to institutional changes in the Russian climate policy administration, as previously independent Roshydromet was put under the Ministry of Natural Resources. Some observers have argued that this could lead to the Russian delegation in Copenhagen being composed of inexperienced new officials who have limited expertise in climate policy and negotiations.²⁰¹ However, in Poznan the negotiation team was more or less the same as in previous sessions with a new head of delegation.

During Poznan, the internal debate in the Russian media was very limited, focusing mostly on the positions of other countries rather than that of Russia. The EU received particular attention, due in part to its parallel negotiations on the climate and energy package, as well as the US.

The impacts of climate change are not regarded as purely negative in Russia. There is a strong tradition of climate scepticism in the Russian academia²⁰², and thus many Russians are still of the opinion that a number of the effects will be positive for their country, such as the opening of the northern sea routes as well as the shortening

²⁰⁰ Kaspar, Oldag, “Russia Dragging Its Feet On Kyoto”. *The Moscow Times.com*, 26 November 2008.

²⁰¹ Idem.

²⁰² See for instance Izrael, Y. (2007). Climate: putting panic in perspective, *RIA Novosti*, 18 April 2007. <http://en.rian.ru/analysis/20070418/63856919.html>.

heating period.²⁰³ The findings of the IPCC also promise some positive impacts of climate change on the Russian territory.²⁰⁴ Against this backdrop, a very important development took place in February 2009, when the Russian Hydrometeorological Service published its report on the forecast and experienced impacts of climate change on the Russian territory; the main messages of the report were that climate change is indeed human induced, and that the Russian government should adopt both mitigation and adaptation policies.²⁰⁵

2.2.3 Foreign policy aspects

Foreign policy aspects are crucial in bringing Russia under the post-2012 climate pact as the country is lacking other obvious incentives to join. Russia had an important role under Kyoto and received a great deal of international attention. A similar role would be ideal for the country in the future as well, but it is unlikely under the post-2012 regime as other key players will not grant Russia a decisive role yet again. As a result, it would be important to establish a role for Russia in international climate politics by regularly engaging the country in a high-level debate on the issue. This could encourage the Russian leadership to recognize the issue as a relevant topic. Something similar took place with regard to the issue of energy efficiency; President Medvedev passed legislation establishing the new energy intensity target prior to the G8 meeting. Many Russian analysts argue that his decision was linked to the need to demonstrate to the G8 that some progress had been made.

As the Russian position remains vague, there is room for negotiation in Copenhagen. Some Russian experts argue that demanding unrelated political or economic benefits yet again in exchange for participation in the post-2012 framework is possible, while others disagree. The EU's support for Russian WTO membership

²⁰³ Korppoo, Anna, *Russia and the Post-2012 Climate Regime: Foreign rather than Environmental Policy*, UPI Briefing Paper 23, November 2008. <http://www.upi-fiia.fi/fi/publication/61/>

²⁰⁴ IPCC (2007). *Climate Change 2007. Impacts, Adaptation and Variability*. Working Group II Report. Chapters 10 and 12.

²⁰⁵ Roshydromet (2008). *Assessment Report on Climate Change and its Consequences in the Russian Federation. General Summary*.

against the ratification of the Kyoto Protocol caused disappointment, and this is widely seen as a betrayal, as Russia remains outside the WTO to date. Another deal in the same vein may not be attractive.

3. Conclusion

Due to economic concerns, Russia is expected to be a reluctant negotiation partner in Copenhagen, as the country is probably aiming at the minimum level of commitments. However, several existing domestic policies suggest that it would be possible to limit Russian emissions and the economy could even benefit from this.

Environmental concerns provide no incentives as the impacts of climate change are expected to be at least somewhat beneficial, and regardless of the recent announcements by the Roshydromet, the tradition of climate scepticism as well as the faith in technological solutions to the impacts remain strong in Russia.

The main incentives for Russia to join the post-2012 pact include the following:

The political image of the country requires involvement in international pacts in order to have an international role;

Improvements in energy efficiency are needed in any case – this can be linked to emission reductions;

The need to restructure the economy and modernize industrial capacity in order to become more competitive in the export market; and

Surplus allowances under Kyoto which can ‘cushion’ any emission reduction commitment.

In order to persuade Russia to join, a high-level dialogue with the EU is an important demonstration of the Russian role on climate policy. This would be more obvious if the EU–Russia climate dialogue was upgraded to ministerial level.²⁰⁶ G8 could also be used as a forum, as Russia wants to avoid being the only G8 member blocking a global

²⁰⁶ This has also been recognized in Russia – see for instance Kozeltsev, Michael, “Working with Russia on Climate Change: Barriers and Opportunities for Enhancing EU–Russia Dialogue”, IES Autumn Lecture Series, 10 December 2008.

consensus on the post-2012 regime.²⁰⁷ Additionally, the participation – and support – of the United States is a very important factor for the Russian government. As a legacy of the Cold War, the US is still seen as being equal to Russia as an actor in world politics.

²⁰⁷ Korppoo, Anna, *Russia and the Post-2012 Climate Regime: Foreign rather than Environmental Policy*, UPI Briefing Paper 23, November 2008. <http://www.upi-fia.fi/fi/publication/61/>

6. The United States of America

Author: Johannes Urpelainen

1. Negotiation position

American climate policy is at a critical juncture. Although global warming appeared on the political agenda as far back as the 1980s with the first scientific results and such extreme weather events as the heat wave and droughts of the summer of 1988, it was only towards the end of the 1990s that state-level policymakers in the United States began to formulate and enact mitigation policies.²⁰⁸ After President George W. Bush publicly announced that he did not intend to submit the Kyoto Protocol to the US Senate for ratification in March 2001, however, the United States has not enacted any federal policies of significance, nor played a proactive role in the international climate negotiations under the United Nations Framework Convention on Climate Change.²⁰⁹

With the inauguration of the 44th President, Barack Obama, the United States is likely to strengthen its domestic climate policies and adopt a more cooperative stance in the international climate negotiations. Although Obama and his administration were not able to have official representation in the 14th Conference of Parties to the UNFCCC in December 2008, numerous US Congressmen and women and Senators were present to inform other countries of the role that the United States would play in future international climate negotiations. Senator John Kerry who “observers in Poznan [saw] as representing the next administration’s commitment on climate protection,” told reporters that “[t]he United States is determined to lead not just rhetorically, but by example and policies,” and added that Obama was committed to a “mandatory regime of emission

²⁰⁸ Barry G. Rabe, *Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy*, The Brookings Institution Press, 2004.

²⁰⁹ Guri Bang, Camilla Bretteville Froyn, Jon Hovi, and Fredric C. Menz, “The United States and International Climate Cooperation: International ‘Pull’ versus Domestic ‘Push’.” *Energy Policy*, 2007, 35 (2): 1282–1291.

reductions”.²¹⁰ This commitment amounts to a complete turnaround of the US position in international climate negotiations.

Despite deep and widespread enthusiasm about the future role for America in the international climate negotiations, the negotiation position of the United States remains far from clear. The US political system places significant constraints on the powers of the executive, so there is a lot riding on the course of the political process in the US House of Representatives and the Senate. Among the most important questions are participation by rapidly industrializing countries such as China and India, national security and energy independence, and the pace of emission reductions.

1.1 Key elements of a post-2012 agreement

The past position of the United States in international climate negotiations does not offer much guidance on the future role of the country. Domestic political constraints notwithstanding, the Bush administration did not view global warming as an important policy issue. In stark contrast, President Obama announced the long-term goal of reducing national greenhouse gas emissions 80% below the 1990 level by 2050 as part of his campaign.²¹¹ This long-term commitment is obviously beyond the control of the current administration, so the prospect of short-term and medium-term climate policies is of greater interest.

1.1.1 Broad participation

For the United States, it is important to negotiate a global agreement that ensures participation by rapidly industrializing countries, such as China and India. The most controversial issue in the domestic debate in the Kyoto Protocol in the 1990s was the role of developing countries. In July 1997, months before the negotiations on the Kyoto Protocol, the US Senate unanimously passed the Byrd-Hagel resolution, which expressed the negative view of the Senate towards any international agreement that would not include binding

²¹⁰ Sen. John Kerry: “US Will Lead on Climate”, *United Press International*, December 11, 2008.

²¹¹ Barack Obama and Joe Biden. “The Change We Need: New Energy for America”, available at <http://my.barackobama.com/page/content/newenergy> (accessed on 9 February 2009).

commitments for developing countries or in any other way threaten the US economy.²¹²

This concern continues to shape the domestic political debate. Recently, the Lieberman-Warner Climate Security Act, which would have established an economy-wide cap-and-trade emissions regime, but which was rejected by a narrow vote in the US Senate in June 2008, required that the President determine in two years whether the major trading partners of the United States had “comparable” programmes to control their greenhouse gas emissions.²¹³

The concern over broad participation stems both from the fear that any emission reductions achieved by the United States would be offset by corresponding increases in rapidly industrializing countries and, probably more significantly, that energy-intensive industries could migrate to countries that do not regulate greenhouse gas emissions.²¹⁴ Indeed, the comparability clause in the Lieberman-Warner Climate Security Act was originally included in a 2007 proposal by American Electric Power and the International Brotherhood of Electric Workers. This proposal, which gained strong support in the US Congress, contained a provision that exporters from countries without programmes comparable to that adopted by the United States would have to buy emissions allowances from the United States.²¹⁵ While recognizing that the developed countries have both the capacity and the responsibility to lead in international climate policy, the United States thus pays particular attention to the formulation in the Bali Roadmap of 2007 for international climate negotiations, that

²¹² “Byrd-Hagel Resolution Sponsored by Senator Robert Byrd (D-WV) and Senator Chuck Hagel (R-NE)”, 105th Congress, 1st Session, S. Res. 98.

²¹³ Kenneth Lieberthal and David Sandalow, *Overcoming Obstacles to U.S.-China Cooperation on Climate Change*. John L. Thornton China Center Monograph Series, Brookings Institution, 2009. The criteria for “comparability” were left open in the legislation. The legislation received 48 votes for and 36 votes against. In addition, six absentee Senators announced their support for the vote in public. See “Carbon-Capping Climate Senate Bill Dies”, *Environmental News Network*, 6 June 2008.

²¹⁴ For an assessment of the effect of climate policy on competitiveness and potential solutions, see “Addressing Competitiveness in U.S. Climate Change Policy”, *Congressional Policy Brief Series*, Pew Center on Global Climate Change, November 2008.

²¹⁵ Lieberthal and Sandalow (2009): 25-26.

developing countries adopt “measurable, verifiable, and reportable” commitments.²¹⁶

1.1.2 Domestic politics and the pace of transition

As the United States does not currently have a federal climate policy, the domestic political debate on the appropriate response to global warming is still at an early stage. The variation in the state-level response to global warming shows that neither the public nor the political elite have reached a consensus on the exact means and ends of climate policy.²¹⁷ Consequently, the role of the United States in a post-2012 climate agreement is subject to significant uncertainty and will emerge from complex interactions between the international negotiations and the domestic political process.

Indicative of the underlying disagreements are the diverging positions both within the Obama administration and among Democrats in the US Congress. First, as John M. Broder writes in the *New York Times*, the Obama administration itself is split into “two camps” on climate policy.²¹⁸ On the one hand, Secretary of Energy Steven Chu, a Nobel-winning physicist and the director of the Lawrence Berkeley National Laboratory, and Carol M. Browner, the White House coordinator of energy and climate policy, both advocate rapid imposition of strict limits on greenhouse gas emissions. On the other hand, Lawrence Summers, who leads the economic team of the administration, is hesitant to reduce greenhouse gas emissions too quickly, although he agrees that federal climate policies are necessary. Second, in the US Congress, the Democratic Party is split between such proponents of ambitious climate policy as Representatives Barbara Boxer and Nancy Pelosi of California, and those who come from auto- or coal-producing states, such as Representative John D. Dingell of Michigan.

²¹⁶ See the Congressional testimony by Elliot Diringer, Vice President for International Strategies at the Pew Center on Global Climate Change: “Toward a Post-2012 Climate Treaty”, Submitted on February 4, 2009.

²¹⁷ For a recent quantitative review of state-level climate policies, see Nicholas Lutsey and Daniel Sperling, “America’s Bottom-Up Climate Policy”, *Energy Policy*, 2008, 36 (2): 673-685.

²¹⁸ “In Obama’s Camp, Two Views on Climate”, *New York Times* 2 January 2009.

The domestic situation complicates international negotiations in three ways. First, it precludes firm predictions regarding the position of the United States. Unlike the other major emitters studied in this report and the European Union, the United States does not have a reliable “track record” on climate policy. The position of the United States during the Bush presidency is so different from that promoted by the Obama administration that little can be learned by examining official US positions in past negotiations.

Second, it could potentially delay the international negotiations. As House Speaker, Representative Pelosi said on 6 January, 2009, she might delay the vote on an economy-wide cap-and-trade scheme until 2010: “I’m not sure this year [2009], because I don’t know if we’ll be ready.”²¹⁹ Given the tendency of the United States to first lay the domestic groundwork for international cooperation and then ratify international treaties, the absence of domestic legislation would greatly constrain the Obama administration in the international negotiations. With uncertainty over which terms are domestically acceptable, the Obama administration could find itself in the awkward situation in which it promises an international commitment that cannot be implemented domestically. The difficulties that such an implementation gap causes were apparent in the international climate negotiations after the Kyoto conference in 1997, where the then Vice President Al Gore promised international commitments that were known to be unacceptable to the US Congress.

Third, the Obama administration must strike a delicate balance between domestic and international demands. For instance, the European Union has unilaterally committed to reducing greenhouse gas emissions by 20% by 2020 and promised to reduce them by another 10% if a comprehensive international climate regime is agreed upon.²²⁰ The Europeans have an incentive to demand a commitment of similar magnitude from the United States. A major challenge for the Obama administration is therefore to find a national target that is ambitious enough for the Europeans but not considered excessive by the US domestic political actors. To understand the magnitude of

²¹⁹ “Pelosi: House Can Pass Cap and Trade, But Maybe Not This Year”, *Environment and Energy Daily*, 6 January 2009.

²²⁰ “EU Promises 20% Reduction in Carbon Emissions by 2020”, *The Guardian*, 21 February 2007.

the challenge, it is useful to recall that even California, a front-runner state in environmental policy, has only committed to reducing its emissions to 1990 levels by 2020.²²¹

1.1.3 National security and energy independence

Among factors that could facilitate American participation in international climate negotiations, longstanding concerns about the dependence of the US economy on imported oil from the Middle East, Venezuela, and other unstable sources are particularly important. The long-term goal of energy independence is frequently linked to climate policy. For example, the US House of Representatives has established the Select Committee on Energy Independence and Global Warming to facilitate legislative preparation on both issues.²²² Since approximately 40% of national greenhouse gas emissions have in recent years originated from the transportation sector, the United States has a particularly strong interest in international cooperation that promises to reduce oil consumption through improved energy efficiency or other means.²²³

A potential complication in the linkage between climate change and energy independence is the role of coal. The United States has abundant coal resources, which could provide a potential medium-term solution to the problem of dependence on foreign oil.²²⁴ However, coal is an emissions-intensive fuel, so reliance on domestic coal without such clean technologies as carbon capture and storage could result in dramatic increases in national greenhouse gas emissions.²²⁵ Indeed, the Obama administration has recognized the development and application of clean coal technologies as an important part of the

²²¹ Testimony by Diringer.

²²² The website of the committee can be found at <http://globalwarming.house.gov/> (accessed on 10 February 2009).

²²³ See section 2.1 below for a review of economic conditions in the United States.

²²⁴ For coal resources in the United States, see Energy Information Administration, "Coal Reserves", 2008, available at <http://www.eia.doe.gov/neic/infosheets/coalreserves.html>, (accessed on 11 February 2009).

²²⁵ For carbon capture and sequestration, see Intergovernmental Panel on Climate Change, *Carbon Dioxide Capture and Storage*, Geneva, IPCC Special Report, 2005.

energy policy.²²⁶ Internationally, the future of coal is a particularly important issue for the bilateral relationship between the United States and China, as China is also heavily reliant on domestic coal as a fuel. In their report on facilitating bilateral climate cooperation between the two countries, Lieberthal and Sandalow highlight clean coal technology as a fruitful form of cooperation.²²⁷

1.1.4 Funding for developing countries

As the sections on China and India in this report show, a central bone of contention in international climate negotiations is the role of foreign aid to enable mitigation and adaptation efforts in developing countries.²²⁸ The developing countries emphasize that the developed countries grew rich without constraining their greenhouse gas emissions, and demand that they be given the right to prioritize economic development over the environment.²²⁹ Given the pivotal role that the rapidly industrializing countries play, and will play, now and in the future as major emitters, developing countries have proposed that developed countries fund mitigation and adaptation activities also in developing countries.

These demands pose a difficult problem for the United States. As in any country, large amounts of foreign aid are not domestically popular, and the problem is compounded by the image that the United States would be paying for other countries to reduce their pollution. The current economic crisis and the fiscal measures used to stimulate the economy are set to increase the federal budget deficit, which adds further pressures to reduce government spending.²³⁰

²²⁶ For example, President Obama's putative economic stimulus legislation includes a \$2 billion clean-coal plant. See *CBS News* 10 February 2009, available at: <http://www.cbsnews.com/stories/2009/02/10/politics/100days/economy/main4789549.shtml> (accessed on 11 February 2009).

²²⁷ Lieberthal and Sandalow 2009: 64.

²²⁸ For an introduction, see J. Timmons Roberts and Bradley J. Parks, *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Policy*, Cambridge: MIT Press, 2007.

²²⁹ Before the Kyoto conference of 1997, the Brazilian delegation announced the "Brazilian Proposal" which emphasizes the historical responsibility of developed countries for increasing the concentrations of greenhouse gases in the atmosphere.

²³⁰ Testimony of Douglas W. Elmendorf, Director of the Congressional Budget Office, before the Committee on the Budget of the U.S. House of Representatives: "The State of the Economy and Issues in Developing an Effective Policy Response", 27 January 2009.

1.2 Scenarios

Based on the above review of key issues, it is useful to illustrate the role of the United States in the forthcoming Copenhagen negotiations through three stylized scenarios. Many commentators consider the most likely outcome to be a “framework” for a post-2012 climate agreement, largely because the United States must first reach a domestic political agreement on its willingness to undertake binding commitments and help developing countries in reducing their greenhouse gas emissions. However, it is also possible that the negotiators can agree on details, in particular if the United States has the contours of federal climate policy ready by December 2009. Finally, in the worst case, negotiations may become gridlocked because the Obama administration cannot reconcile international and domestic demands.

1.2.1 *A post-2012 agreement*

The official goal of the Copenhagen negotiations is a post-2012 agreement. Most commentators agree that the domestic political process in the United States presents a major obstacle to achieving this goal.²³¹ If the United States does not have comprehensive domestic legislation ready in time for the negotiations, it will be very difficult for the country to undertake precise and binding commitments. The current economic crisis diverts attention away from other issues towards fiscal stimulus and reduces politicians’ willingness to undertake ambitious commitments. Moreover, even if the US Congress is able to pass climate legislation in time, it is not clear whether it will be easy to reconcile with the interests of other major emitters, particularly China and India.

1.2.3 *A framework for a post-2012 agreement*

Even if the United States is not able to complete the domestic political process for climate legislation, by Copenhagen it could well reach the stage at which the Obama administration has a good understanding of possible outcomes. In this case, the United States could outline the broad contours of its post-2012 position, including its willingness to assist the developing countries financially and technologically. If

²³¹ See Diringer, Elliot, “The U.S. Election and Prospects for a New Climate Agreement”, Discussion Paper, Washington DC: Transatlantic Climate Policy Group, 2008.

this position was acceptable to other major emitters, and remaining disagreements could be resolved, the United States could credibly signal its intention to conclude the negotiation process in the near future. This outcome is quite plausible given that the pressures to make progress in the international climate negotiations are mounting and the domestic basis for action is already in place. Much depends on the ability of the United States and other major emitters to find a political compromise despite difficult domestic political constraints.

1.2.4 Gridlock

The worst possible outcome of the Copenhagen negotiations would be a gridlock. If the domestic political process of the United States sets stringent constraints on its international position, particularly with respect to the commitments that it expects from the rapidly industrializing countries and the amount of foreign aid available, and other countries are unable to agree to these conditions, the negotiators could fail to make progress towards a post-2012 agreement. This outcome can best be avoided if the negotiators have a good understanding of their respective domestic political constraints. An important factor that would militate against a gridlock is the accumulation of political pressures, in the United States and elsewhere, to make progress in international climate negotiations.

2. National conditions

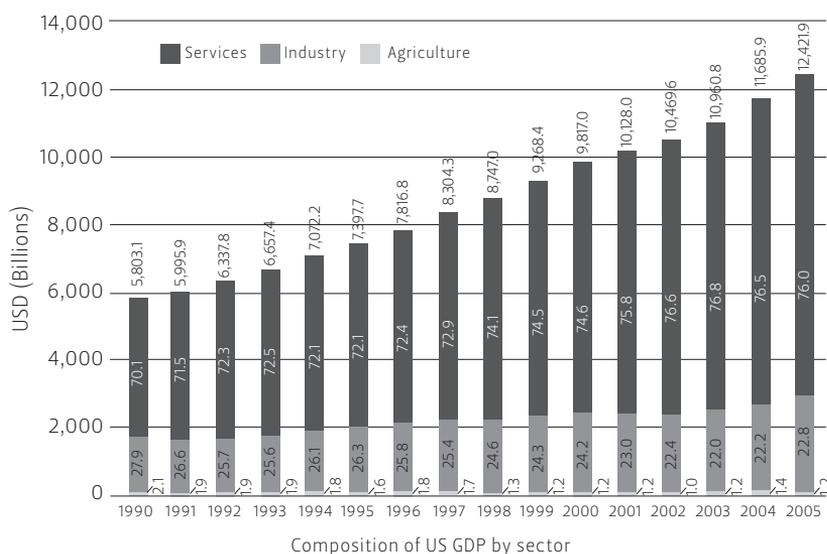
2.1. Economic conditions

The US economy is unique in several ways. High productivity, advanced technology, uniquely mobile labour and lifestyle, abundant coal resources, and a growing population contribute to a rapid decline in emissions intensity without a corresponding decrease in national or per capita greenhouse gas emissions. This is in contrast to most other industrialized countries, where population growth has stalled, and to the rapidly industrializing countries, in which per capita greenhouse gas emissions are rapidly increasing.

2.1.1 Economy and demography

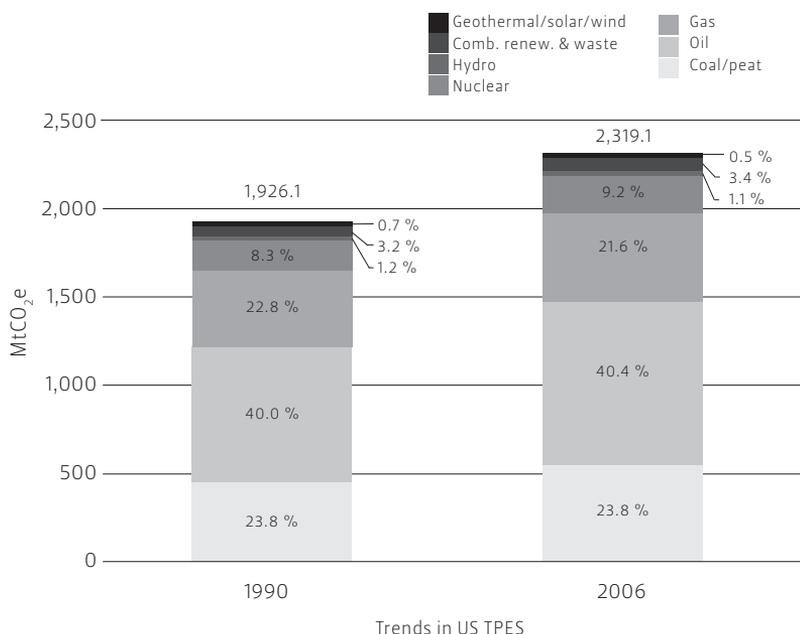
The United States is among the wealthiest countries in the world. The gross domestic product exceeded \$13,000 billion in 2006 and 2007 before the current financial crisis, which corresponds to a \$45,000 per capita income for a population of approximately 300 million Americans. The current financial crisis notwithstanding, per capita income is expected to grow with productivity in the coming decades. Unlike in other industrialized countries, rising income levels have not been accompanied by a rapid decrease in population growth. The national population has grown by 50 million people since 1990, and the United States is expected to reach the 350 million mark between 2020 and 2030. Both immigration and fertility rates contribute to the population growth.

The sectoral composition of the United States reveals a heavy emphasis on services, as demonstrated in Graph 6.1. In 1990, services generated 70% of the gross domestic product, and in 2005 their share had increased to 76%. Of the remaining 24%, almost all is industrial production, as the share of agriculture has decreased to approximately 1%.



Graph 6.1. The breakdown of the US gross domestic product by economic sector
Source: IMF (GDP), World Bank (Breakdown by sector).

2.1.2 The energy sector



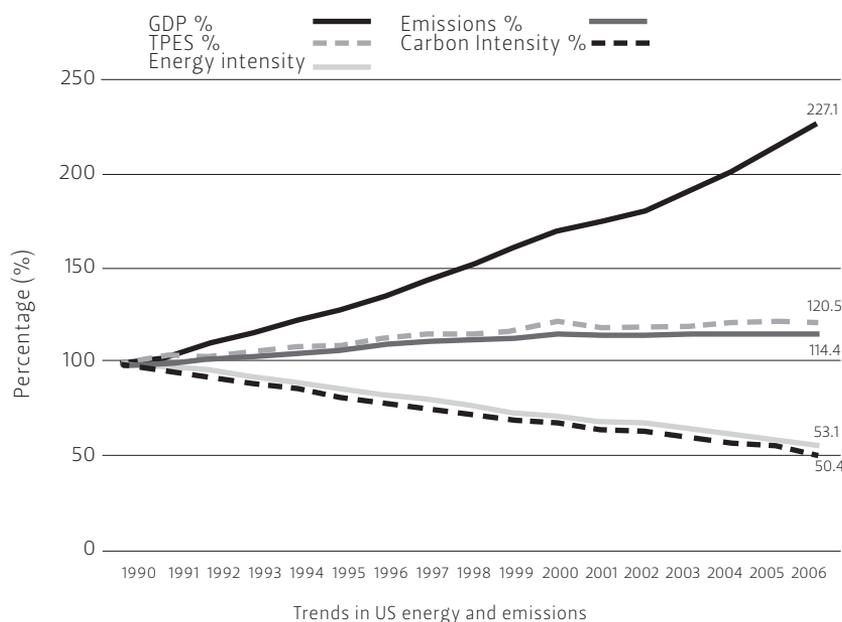
Graph 6.2. Changes in the composition of the US total primary energy supply
 Source: IEA.

The energy sector of the United States is heavily dependent on domestic and foreign fossil fuels. As documented below, the United States has not taken steps to reduce its reliance on oil, coal, and natural gas. Graph 6.2 shows the breakdown of the US total primary energy supply in 1990 and 2005. Most importantly, approximately 40% of total energy consumption consists of oil, which is almost exclusively due to transportation. Another major source of energy is coal, 24% of the total primary energy supply. It is mostly used for power generation, as many US states have abundant coal resources that they use to generate cheap electricity. Of these two, coal is mostly domestic, as the United States has abundant coal resources. Conversely, domestic oil reserves are being rapidly depleted and most of the oil is imported from other countries, particularly Canada,

Mexico, Venezuela, and the Middle East.²³² Other important energy sources include natural gas and nuclear energy. The share of renewable energy sources is only 5%, but growing rapidly.

2.1.3 Greenhouse gas emissions

The United States is one of the largest producers of greenhouse gas emissions, both nationally and in per capita terms. High living standards and reliance on oil and coal have elevated per capita greenhouse gas emissions to 25 tonnes of CO₂e, which adds up to a national total of more than 7 Gt of CO₂e. Only China produces more greenhouse gas emissions than the United States.



Graph 6.3. Trends in US energy and emissions figures relative to 1990 (100%)
 Source: International Energy Agency (GDP, TPES) and United Nations Framework Convention on Climate Change Secretariat (greenhouse gas emissions).

²³² Energy Information Administration “Crude Oil and Total Petroleum Imports from Top 15 Countries”, available at http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/company_level_imports/current/import.html (accessed on 18 February 2009). The four most important exporters of oil and other petroleum products in 2008 were Canada, Saudi Arabia, Mexico, and Venezuela.

The most important trends are shown in Graph 6.3. The growth in per capita income has been accompanied by a rapid decrease in the energy intensity of the economy, but these effects largely cancel each other out, and with population growth, both energy consumption and emissions are set to rise unless climate policies are implemented.

2.2 Federal policies

Until the inauguration of President Obama, the United States had not engaged in climate policy at the federal level. Even though initial attempts to enact federal policy occurred in the first months of President Clinton's first term, climate change was conspicuously absent from the federal policy agenda in the 1990s, with the exception of various expressions of hostility towards international commitments by the US Congress.²³³

This inactivity stands in stark contrast to rapidly intensifying legislative action in the US Congress. As of July 2008, the 110th US Congress (2007–2008) had introduced 235 bills, resolutions, and amendments that address climate change, which is more than twice the 106 legislative initiatives introduced by the 106th US Congress (2005–2006).²³⁴ Legislative initiatives by the 110th Congress comprise ten proposals for a cap-and-trade emissions trading scheme to cover the entire US economy, of which the most prominent was the Lieberman–Warner Climate Security Act, also advocated by the then Senator Obama, which was rejected by a narrow vote in the US Senate in June 2008.²³⁵

The Obama administration has publicly announced a commitment to a more ambitious federal climate policy, although the details of the implementation remain unknown. Even during his campaign, President Obama declared that his cap-and-trade policy would reduce US greenhouse gas emissions by 80% by 2050. Other important

²³³ Shardun Agrawala and Steinar Andresen, "Indispensability and Indefensibility? The United States in the Climate Treaty Negotiations", *Global Governance*, 1999, 5 (4): 457–482.

²³⁴ Pew Center on Global Climate Change, "Climate Action in Congress", available at http://www.pewclimate.org/what_s_being_done/in_the_congress (accessed on 2 February 2009).

²³⁵ Pew Center on Global Climate Change, "Economy-Wide Cap-and-Trade Proposals in the 110th Congress as of December 1, 2008", available at <http://www.pewclimate.org/federal/analysis/congress/110/cap-trade-bills> (accessed on 3 February 2009).

elements of his announced federal climate policy include \$150 billion in subsidies for energy efficiency programmes, renewable energy production, and clean coal technology.²³⁶ As a concrete policy, on January 25, 2009, the Obama administration authorized California and 13 other US states to “set strict automobile and fuel emissions standards”, overturning President Bush’s previous rejection of an application by California for such standards.²³⁷

2.3 State-level policies

The actions that individual US states and other local actors have taken paint a very different picture of American climate policy. As documented by Professor Barry G. Rabe in his book *Statehouse and Greenhouse*, numerous US states have, since the late 1990s, enacted ambitious policies that reduce their greenhouse gas emissions.²³⁸ These policies exhibit striking variation: they comprise everything from renewable energy subsidies to energy efficiency schemes, from cap-and-trade emissions trading schemes to fuel efficiency standards.²³⁹

The combined effect of current local, state-level, and regional climate policies on national greenhouse gas emissions in the United States has been documented in a recent article by Lutsey and Sperling.²⁴⁰ They find that if all existing climate policies, as of September 2007, were implemented, US emissions would stabilize at 2010 levels by 2020. This is a reduction of approximately 1,041 Gt of carbon dioxide, or 13% relative to the baseline. They also show that approximately every other American lives in a state that has a “climate change mitigation action plan” and that 90% of national

²³⁶ Barack Obama’s campaign site, “New Energy for America”, available at <http://my.barackobama.com/page/content/newenergy> (accessed 3 February 2009). In Section 3.2 potential disagreements within the Obama administration on federal climate policies are discussed.

²³⁷ *New York Times* January 25, 2009. Specifically, President Obama ordered the Environmental Protection Agency to reconsider California’s application.

²³⁸ Barry G. Rabe, *Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy*, Washington DC: Brookings Institution Press, 2004.

²³⁹ Nicholas Lutsey and Daniel Sperling, “America’s Bottom-Up Climate Change Mitigation Policy.” *Energy Policy*, 2008, 36 (2): 673-685.

²⁴⁰ Lutsey and Sperling (2008).

greenhouse gas emissions are produced in states that have engaged in “multi-government partnerships” to establish market mechanisms to reduce their emissions. While these reductions are of clearly lesser magnitude than those necessary to reach the goal of reducing global warming to two degrees Celsius in the 21st century, they stand in stark contrast to the early 1990s when climate change was a non-issue in the United States.

In addition to their direct effect, state-level climate policies play an important role as examples for and experiments in mitigation.²⁴¹ One of the defining features of the American federal political system is the “Madisonian” role that individual states have as policy laboratories and front-runners in policy formation. For example, California has enacted and is currently implementing the “Global Warming Solutions Act of 2006”, also known as “AB 32”, which is expected to reduce its greenhouse gas emissions to 1990 levels by 2020. This legislation includes a package of policies such as stringent fuel efficiency standards for the automobile fleet, other energy efficiency standards, subsidies for renewable energy production, and possibly a cap-and-trade emissions trading scheme. If these policies prove successful, they will provide federal policymakers with experience on mitigation that may reduce the cost of emission reductions and increase Washington’s willingness to undertake ambitious domestic and international commitments.

Another policy of great importance is the Regional Greenhouse Gas Initiative by ten northeastern states, which establishes a cap-and-trade scheme to stabilize the emissions from power plants by 2015 and reduce them by 10% between 2015 and 2020. This cap-and-trade scheme is the first one that has been implemented for greenhouse gas emissions in the United States,²⁴² and it contains a number of innovative elements, such as the requirement that all states auction at least 25% of their carbon quota. Whether this cap-and-trade scheme

²⁴¹ Barr G. Rabe, “States on Steroids: The Intergovernmental Odyssey of American Climate Policy.” *Review of Policy Research*, 2005, 25 (2): 105-128; David G. Victor, Joshua C. House and Sarah Joy, “A Madisonian Approach to Climate Policy”, *Science*, 2005, 309: 1820-1821.

²⁴² However, the United States pioneered the use of market-based mechanisms in environmental policy by implementing another emissions trading scheme to reduce acid rain in 1990. See Robert N. Stavins “What Can We Learn from the Grand Policy Experiment? Lessons from SO₂ Allowance Trading”, *Journal of Economic Perspectives*, 1998, 12 (3): 69-88.

turns out to reduce greenhouse gas emissions at a low economic cost or not, it offers lessons for federal policymakers and reduces the risk that the United States enacts costly or ineffective domestic mitigation policies.

2.3 Vulnerability to climate change

Somewhat ironically, the United States is less vulnerable to climate change than many other countries. The effects of climate change also vary significantly across states. Specifically, coastal states that are already vulnerable to extreme weather events, such as hurricanes and tornadoes, and arid Southern states that suffer from periodic droughts, are more vulnerable than Northern and inland states.

The United States has recently experienced unusual weather patterns that are consistent with the predicted effects of climate change, and these patterns are expected to worsen over time. Among the most important effects are reduced rainfall in the South, rampant wildfires and the threat that the loss of the snowpack poses to water supplies in the West, floods due to rising sea levels in such low-lying areas as Florida, and stronger Atlantic hurricanes.²⁴³ Recent public opinion polls also indicate that most Americans see the impact of climate change as a serious problem that has to be addressed. For example, a CNN poll conducted in October 2007 showed that 66% of Americans agreed with the statement “The US should reduce emissions of CO₂ and other gases that may contribute to global warming, even if it does so by itself”.²⁴⁴

Importantly, the aforementioned effects do not account for the indirect, international effects of climate change on the United States. As a global superpower, the United States must also consider the effect of climate change elsewhere in the world. In 2007, a report composed by the Military Advisory Board for the CNA corporation, a non-profit research organization, found that climate change is a

²⁴³ Intergovernmental Panel on Climate Change, “Fourth Assessment Report: Climate Change 2007.” IPCC: Geneva, 2007.

²⁴⁴ CNN Poll, 19 October 2007. For a comprehensive survey of public opinion data on global warming and international climate policy in the United States, see World Public Opinion: Global Public Opinion on International Affairs, “American Attitudes: Global Warming”, available at http://americans-world.org/digest/global_issues/global_warming/gw_summary.cfm (accessed on 19 February 2009).

significant “threat multiplier” that causes political instability and increases the risk of political crises and failed states in already strained societies, especially in Africa, Asia, and the Middle East.²⁴⁵ Given current concerns about transnational terrorism and groups hostile to the United States in these areas, the report calls both for improved preparedness for climate change and international cooperation to reduce the rate of global warming.

3. Conclusion

The United States has at least four important incentives to join a post-2012 climate agreement. First, as discussed above, the domestic political support for climate policies is increasing steadily. Many politicians and interest groups agree that the benefits of mitigation exceed the costs, which puts pressure on the administration to achieve results at the international level. The lack of such support has been the most significant obstacle to meaningful participation in the past, so this incentive is probably the most important one.

Second, a post-2012 climate agreement could help the United States reduce its dependence on foreign oil and promote the development of clean energy technology and energy efficiency. Both energy independence and technological development are important issues in the contemporary debate on America’s future. They are easier to achieve if other countries cooperate with the United States because technological development through innovation is a global process.²⁴⁶ A comprehensive approach to climate change could provide a framework for this kind of cooperation as well.

Third, the United States has an interest in finding a cooperative political solution to the problem of climate change with other major

²⁴⁵ CNA Corporation (2007). *National Security and the Threat of Climate Change*. CNA: Virginia, 2007. Available at <http://securityandclimate.cna.org/>.

²⁴⁶ For an introduction to the relationship between environmental policy and technological change, see Adam B. Jaffe, Richard G. Newell, and Robert N. Stavins, “Environmental Policy and Technological Change”, *Environmental and Resource Economics*, 2002, 22 (1-2): 41-70. For a recent literature review in Finnish, see Johannes Urpelainen, “Päästörajoitusten ilmastotohyödyt rajoitusten ulkopuolisissa maissa: Selvitys Vanhasen II hallituksen tulevaisuusselontekoa varten”, *Valtioneuvoston kanslian julkaisusarja*, 2008, 17.

powers of the world. The Obama administration has abandoned the unilateralist approach and now seeks multilateral solutions to current problems. For the European Union, climate change is a central political problem, and the United States understands that its relations with Europe would be strained if it failed to join a post-2012 agreement. For China, climate change is also a source of concern, particularly as it tries to avoid reduced rates of economic growth. Since China is now the most important bilateral partner of the United States, the latter has a strong incentive to promote solutions that are satisfactory to both sides. Other major powers, such as India, Japan, and Russia, also expect the United States to respect their positions in the negotiations.

Finally, the United States knows that the problem of climate change cannot be solved without it. Unless the country is willing to enact climate policies and provide leadership, other countries have few incentives to do so either. In this sense, the United States does not have the negative incentive to engage in “free riding” on emission reductions by others.

7. Comparing the EU position to the positions of other major emitters

Author: Anna Korppoo

Although the EU is also still in the process of formulating its position for Copenhagen at the time of writing, many views were already made public in the March 2009 Council Conclusions, and their backgrounds discussed in depth in the Commission documentations released in December 2008 (outlined in Chapter 1). As a result, it is useful to compare the analyses of the positions of the five major emitters provided in this report to the position of the EU. First, this chapter briefly compares each of the positions of the major emitters to the EU position separately to identify common ground as well as conflicting views, and then summarizes these positions in a concluding table.

7.1 EU – China

The EU and China agree on the level of commitments expected from developed countries. However, there is some disagreement on the commitments for developing countries because China is reluctant to accept internationally imposed targets. On the other hand, the G-5 position requires developed countries to take action first as outlined by the EU, and expresses preparedness to match this commitment with a level of deviation, although 15-30% below BAU by 2020 is likely to be unacceptable to China. China is opposing the sub-categorization of developing countries, even though the EU approach could conceivably be acceptable to Beijing as there is no proposal for emerging economies to be sub-categorized.

On financial issues, the basic approach – that developed countries should provide financial assistance – is similar; both actors also agree that some funds could be raised from the auctioning of allowances. However, views diverge on the governance of the financing as the EU is suggesting that the GEF plays a key role, while China wants to see the main authority on financial decisions granted to the COP. There is no clear opposition by China to the suggestion that developing

countries should differentiate between domestically funded actions and those requiring external financial assistance, nor is there direct support for this view either. Measurement, reporting and verification of actions in the EU approach go against general Chinese sensitivities to data.

7.2 EU – India

India is requesting that the developed countries commit to deeper cuts than those suggested by the EU. India is rather sensitive to any attempts to amend the Annexes of the Convention and the KP, which is a key issue for the EU as well as other Northern countries. There is some common ground on the issue of convergence to the equal per capita approach, but India is demanding that this should already be the leading view in current decisions, while the EU regards this as relevant only in the long term. The deviation from the BAU as suggested by the EU will be politically difficult for India to accept, as one of the most fundamental arguments of the country is the unbounded right to develop. India has announced that the Indian per capita emissions will not exceed the level of developed countries. Differentiation between domestically funded actions and those requiring external funding may not suit the country as one of its main arguments is that due to the historical responsibility and the principles of the Convention, the developed countries should bear the costs of mitigation and adaptation.

On financial issues, the EU gives some indications of meeting the Indian demand for developed countries to provide new and additional financing for mitigation and adaptation in developing countries. However, the actual figures are not yet on the table and the governance side of the funding is likely to become a major stumbling block. India is very critical towards the involvement of the GEF, which the EU is promoting as the operating entity of the financial mechanism. Like China, India would like to see the COP in charge of the financial decision-making. India is sensitive about reporting actions internationally as the Convention does not require this from non-Annex I countries, and thus strongly opposes the EU

suggestion of measurement, reporting and verifying, as well as annual inventories by developing countries.

7.3 EU – Japan

One of the main bones of contention as far as the EU and Japanese positions are concerned is likely to be burden sharing, and in particular, the depth of the Japanese commitment. Even though the countries agree on the indicators-based method of allocation, one set of indicators presented in the Commission report would come up with a target of a 29% reduction of the 2005 level by 2020 for Japan; this is much more than the 14% reduction envisaged by some Japanese stakeholders. However, it is positive that both use the same base year. There is more common ground on the developing country commitments; both the EU and Japan want to expand Annex I as well as persuade the most advanced developing countries to adopt some kind of targets.

Both Japan and the EU regard themselves as providers of financial assistance to facilitate developing country actions, and the involvement of commercial actors in this is likely to be central for both. The Japanese position also corresponds with that of the EU on the governance of the financial flows, as both are suggesting the application of existing structures and their reforms. Both would also like to see more accurate and frequent measurement of developing country emissions.

It seems as if the EU has attempted to adopt the Japanese sectoral approach thinking to some extent as it has called its new creation the ‘sectoral crediting and trading mechanism’. However, the details of this mechanism remain unclear. It also seems likely that both actors would like to see some reforms to improve the efficiency of the existing Kyoto mechanisms. The Japanese approach to emissions trading at the national level differs from the EU approach, however, as its leading idea is not cap-and-trade. At the moment it would be difficult for the Japanese to relate to an international emissions trading scheme suggested by the EU.

7.4 EU – Russia

The issue of burden sharing is likely to be the most difficult issue for the EU and Russia to settle; the Russian approach – at least at the time of writing – is to avoid international emission reduction commitments because they are feared to limit the growth of the economy, while the EU calculations suggest a 12% reduction of the 2005 level by 2020 for the Commonwealth of Independent States. Even though reductions up to 30% of the 1990 level by 2020 have been planned domestically in Russia, the EU suggestion is unfavourable as in practice it would be equivalent to a 44% reduction of the 1990 level for Russia, as the base year is 2005. In addition, the Russian approach to the definition of the concept of ‘legally binding’ differs radically from the EU approach. Common ground can be identified on the expansion of Annex I already outlined in the Russian Proposal, and the method of burden sharing based on indicators.

Russia has no specific views on the developing countries, but has underlined the importance of the participation of the large emerging economies, namely China and India. This complies well with the more detailed EU approach. There seems to be no obvious conflict between the EU and Russia on the banking of the surplus as the EU has not openly opposed this; however, the issue may be brought up should the Copenhagen agreement fall outside the Kyoto Protocol.

The Russian opposition to the use of market mechanisms is odd as the country has so far promoted the use of both JI and international emissions trading, and thus it is unlikely that there would be a major conflict with the EU proposals in general. However, seeking to replace JI with a new mechanism may raise eyebrows in Russia.

7.5. EU – US

The formation of the US position is very much a work in progress at the time of writing, and thus details cannot be meaningfully compared to those of the EU position. However, the main recognized approaches seem similar as the US regards the participation of the large emerging economies, especially China, as a crucial prerequisite for its own participation. The US would also like to see more frequent reporting

of emissions from developing countries. An international emissions trading market, as suggested by the EU, would probably fit neatly in the US approach as well. The US is unclear about its own position as a funder of developing country actions, however, partly due to competitiveness issues, but also as a result of the economic crisis. Something similar has been experienced in the EU as the finance ministers left further decisions on such funding on the table in their March 2009 meeting.

7.6 Concluding table

Table 7.1 provides a comparison of the positions and shows that, at the time of writing, the EU position is much more detailed than the positions of the major emitters.²⁴⁷ This study illustrates that the expectations by the major emitters on the future climate regime differ significantly. As a result, the negotiations in Copenhagen in December 2009 can be expected to be complex, and thus, challenging.

²⁴⁷ It should also be noted that this study excludes detailed positions on LULUCF and REDD.

Comparing the EU position to the positions of other major emitters

Table 7.1. Concluding table on the comparison of the emerging positions of the major emitters in comparison of the EU position

The EU approach	China	India	Japan	Russia	US
Developed countries to collectively reduce emissions by 25-40% of 1990 level by 2020.	Developed countries to collectively reduce emissions by at least 25-40% of 1990 level by 2020.	Annex I to reduce more than 25-40% of 1990 level by 2020 plus lifestyle changes, based on the IPCC.	No official commitment announced – expected in June 2009; 14% reduction of 2005 level by 2020 envisaged as possible by some.	Collective reduction of Annex I by 25-40% of 1990 level by 2020 'unreasonable'; as economy development needs scope for increasing emissions; questioning whether Russia is a developed country or an emerging economy.	N/A
Developed countries' targets binding and quantified.	Developed countries' targets stringent and binding.	Developed countries' targets stringent and binding.	Developed countries' targets binding and quantified.	Commitments can be legally binding if regime not enforceable, targets adjustable and provide incentives; domestic target could replace international commitment.	N/A
Expansion of Annex I to OECD and countries with similar standard of living.	Opposes sub-categorization of developing countries as it weakens their position.	Developed countries carry historical responsibility; no new annexes or other changes in current division.	Expansion of Annex I to OECD and countries with similar standard of living.	Backs differentiation of Annex I and non-Annex I but Russia seen as a potential emerging economy; the Russian Proposal	N/A
Burden sharing based on indicators: capability to pay, reduction potential, domestic early action and population trends.	N/A	N/A	Promoter of burden sharing based on indicators in order to secure fairness: early action particularly important, GDP/ capita, emissions / capita, HDI etc.; Sectoral approach as a vehicle.	Burden sharing based on indicators, GDP/ capita mentioned.	N/A
Gradual convergence to equal per capita in longer term.	N/A	Convergence to equal per capita emissions is the central argument.	N/A	N/A	N/A

Table 7.1. continues on next page

Comparing the EU position to the positions of other major emitters

The EU approach	China	India	Japan	Russia	US
Envisaged targets: EU –24%, the US –34%, Japan –29%, the Commonwealth of Independent States –12% of 2005 level by 2020.	Developed countries to collectively reduce emissions by at least 25–40% of 1990 level by 2020.	All Annex I more than 25–40% of 1990 level by 2020 plus lifestyle changes.	No officially announced figure; –14% of 2005 level by 2020 envisaged by some, strong domestic opposition to deeper commitments.	Domestic target envisaged –30% of 1990 level by 2020, participation of the US important.	N/A
Most advanced developing countries – deviation of 15–30% below the predicted BAU by 2020.	‘Difficult’ for China to accept national emission reduction targets; unlikely to accept internationally agreed commitments; some deviation possible if developed countries reduce emissions by 25–40% of 1990 level by 2020.	Refusing to accept any commitments, including sectoral intensity targets; committed only to not exceeding the developed country level of per capita emissions.	Most advanced developing countries to adopt binding energy or carbon intensity targets; graduation to more advanced targets.	Participation of the major developing countries – emerging economies – crucial as their absence made the Kyoto Protocol inefficient.	The participation of the rapidly industrializing non-Annex I countries important, in particular China and India.
Banking of the surpluses for compliance purposes as established in the Kyoto Protocol.	N/A	N/A	Banking of the surpluses as established in the Kyoto Protocol.	Banking of the surpluses as established in the Kyoto Protocol.	N/A
EU’s role as a provider of adequate, predictable and timely financial assistance.	Post–2012 regime should include firm commitments by developed countries to finance technology transfer.	Annex I countries obliged by the Convention to provide new, additional, adequate and predictable financing for mitigation and adaptation.	Japan sees itself as a provider of financial assistance; commercial approach important.	N/A	Economic crisis limiting the popularity of US financing mitigation in developing countries; competitiveness concerns.
Financial architecture governance: effectiveness, efficiency, equity, transparency, accountability, coherence, predictability, sound financial management.	Governance under the authority of COP, transparent and efficient system involving the parties in balanced manner, easy access and low management costs.	Governance under the authority of the COP, new Executive Body on Technology, equitable and balanced representation, direct access to funding, recipient country involvement during all stages.	N/A	N/A	N/A

Table 7.1. continues on next page

Comparing the EU position to the positions of other major emitters

The EU approach	China	India	Japan	Russia	US
Reformed GEF in a key role in financial architecture.	Multilateral Technology Acquisition Fund mainly based on public sources from developed countries; Funds outside UNFCCC not regarded as fulfilment of commitments to fund.	Multilateral Technology Acquisition Fund governed by the COP; active in raising concerns towards the GEF.	Effective use of existing funds under the Convention, reforms.	N/A	N/A
Low carbon development strategies and plans covering all key emitting sectors in developing countries.	If developed countries reduce emissions by 25–40% of 1990 level by 2020, G–5 commits to increasing the depth and range of nationally appropriate actions supported by financing.	If developed countries reduce emissions by 25–40% of 1990 level by 2020, G–5 commits to increasing the depth and range of nationally appropriate actions supported by financing.	Voluntary action plans by all developing countries.	N/A	N/A
Developing countries to differentiate between actions which can be undertaken autonomously and those requiring external support.	Nationally appropriate actions, especially technology transfer, to be supported by developed country financing.	Developing country actions are to be supported by the Annex I countries' MRV financing and technology.	Sectoral approach could be used to establish technological and financial assistance.	N/A	N/A
Robust and transparent measurement, reporting and verification of mitigation and actions.	Measurable, reportable and verifiable actions by Annex I; sensitive about reporting its actions internationally.	Sensitive about reporting its activities internationally, as the Convention does require this from non-Annex I.	N/A	N/A	N/A
Developing countries should start providing annual emission inventories covering the key emitting sectors from 2011.	Not made emissions data public since 2004, and may oppose annual inventories.	Opposing – see above.	Developing countries should establish national measurement systems.	N/A	More frequent reporting requested.

Table 7.1. continues on next page

Comparing the EU position to the positions of other major emitters

The EU approach	China	India	Japan	Russia	US
Funding from an international auctioning arrangement of the AAUs allocated to the parties.	Funding from taxation of carbon transactions / auctioning of emission permits.	N/A	N/A	N/A	N/A
OECD-wide carbon market through linking of national / regional cap-and-trade systems by 2015.	N/A	N/A	No clear position, no domestic ETS which could be linked as current systems not based on cap-and-trade.	Using market mechanisms as climate policies challenged; in the past a market promoter.	Plans to establish a domestic emissions trading system; however, no position on linking it to other systems.
Extend international carbon market to economically more advanced developing countries by 2020 through no-lose or binding targets.	N/A	Opposing all targets for non-Annex I.	N/A	N/A	The participation of the major developing countries decisive to the US participation.
New sectoral crediting and trading mechanism.	Sectoral approach could be accepted.	Opposing all sectoral mechanisms in developing countries not linked only to technology transfer.	Sectoral crediting mechanism for developing countries based on sectoral approach.	N/A	N/A
The CDM and JI reformed and later replaced by new sectoral crediting and trading mechanism.	N/A	Opposing, see above.	The CDM and JI reforms probably welcomed even though no established position.	Using market mechanisms as climate policies challenged; in the past a market promoter.	N/A

Source: Authors

Graphs and tables

Graph 2.1. Breakdown of the Chinese gross domestic product by economic sectors	33
Graph 2.2. Changes in the composition of the Chinese total primary energy supply	34
Graph 2.3. Trends in the composition of Chinese total final energy consumption by economic sectors	35
Graph 2.4. Trends in Chinese energy and emissions figures relative to 1990 (100%)	37
Graph 3.1. Breakdown of Indian gross domestic product by economic sector	56
Graph 3.2. Changes in the composition of the Indian total primary energy supply	57
Graph 3.3. Trends in Indian energy and emissions figures relative to 1990 (100%)	59
Graph 4.1. Breakdown of Japanese gross domestic product by economic sector	70
Graph 4.2. Changes in the composition of the Japanese total primary energy supply	71
Graph 4.3. Trends in Japanese energy and emissions figures relative to 1990 (100%)	74
Graph 5.1. Evolution of Russian gross domestic product at purchasing power parity plotted against annual averages of chief crude oil price indicators	86
Graph 5.2. Breakdown of Russian gross domestic product by economic sector	87

Graph 5.3. Changes in the composition of the Russian total primary energy supply in 1990 and 2006	88
Graph 5.4. Trends in Russian energy and emissions figures relative to 1990 (100%)	92
Graph 6.1. The breakdown of the US gross domestic product by economic sector	109
Graph 6.2. Changes in the composition of the US total primary energy supply	110
Graph 6.3. Trends in US energy and emissions figures relative to 1990 (100%)	111
Table 5.1. Planned gas and electricity price increases (2008–2011)	91
Table 7.1. Concluding table on the comparison of the emerging positions of the major emitters in comparison of the EU position	123

Abbreviations

AAU	Assigned Amount Unit
AWG-LCA	Ad Hoc Working Group on Long-term Cooperative Action under the Convention
Annex I	Industrialized country group
Annex Z	List of forest sink allowances under Article 3.4 of the Kyoto Protocol
AWG	Ad Hoc Working Group on Further Commitments to Annex I Parties
AWG-KP	Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol
BAU	Business as usual
CBDR	Common but differentiated responsibilities
CDM	Clean Development Mechanism
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
COP	Conference of parties
EIA	Energy Information Administration
G5	UN Group of Five; world's leading industrialized countries, i.e. France, Germany, Japan, the United Kingdom and the United States
G77	Group of 77 developing countries
G8	Group of Eight, i.e. Canada, France, Germany, Italy, Japan, Russia, the United Kingdom and the United States
GEF	Global Environmental Facility
GDP	Gross domestic product
GHG	Greenhouse gas
Gt	Giga-tons
GW	Giga-watt
HDI	Human Development Index
IEA	International Energy Agency
IGCC	Integrated Gasification Combined Cycle
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IPR	Intellectual property rights
JI	Joint implementation
KP	Kyoto Protocol

Abbreviations

METI	Ministry of Economy, Trade and Industry of Japan
MOE	Ministry of Environment of Japan
MoEF	Ministry of Environment and Forests of India
MRV	Measurable, reportable and verifiable
Mt	Mega-tons
MTAF	Multilateral Technology Acquisition Fund
Mtoe	Million tons oil equivalent
MW	Mega-watt
NAPCC	National Action Plan on Climate Change of India
NDRC	National Development and Reform Commission of China
NEDO	New Energy and Industrial Technology Development Organization
NGO	Non-governmental organization
ODA	Official development aid
OECD	Organization for Economic Co-operation and Development
OPEC	Organization of Petroleum Exporting Countries
PAMs	Policies and measures
PM	Prime Minister
PPP	Purchasing power parity
R&D	Research and development
SO _x	Sulphur oxides
TERI	The Energy and Resource Institute
TPES	Total primary energy supply
UN	United Nations
UNCOMTRADE	United Nations Commodity Trade Statistics Database
UNFCCC	United Nations Framework Convention on Climate Change
USD	US dollars
WTO	World Trade Organization

Previously published in the series:

Christer Pursiainen & Sinikukka Saari:
Et tu Brute! Suomen Nato-optio ja Venäjä.
UPI-raportti 1/2002.

Christer Pursiainen & Sinikukka Saari:
Et tu Brute! Finland's NATO Option and Russia.
FIIA Report 1/2002.

Hiski Haukkala:
Kohti ulottuvuuksien unionia.
Itälaajentumisen vaikutukset pohjoiselle ulottuvuudelle.
UPI-raportti 2/2002.

Hiski Haukkala:
Towards a Union of Dimensions.
The effects of eastern enlargement on the Northern Dimension.
FIIA Report 2/2002.

Hanna Ojanen:
EU:n puolustuspolitiikka ja suhteet
Natoon: tervetullutta kilpailua.
UPI-raportti 3/2003.

Arkady Moshes:
Ukraine in tomorrow's Europe.
FIIA Report 4/2003.

Arkady Moshes (ed.):
Rethinking the Respective Strategies of Russia and the European Union. Special
FIIA - Carnegie Moscow
Center Report 2003.

Soile Kauranen & Henri Vogt:
Piilopoliittisuudesta poliittisuuteen.
Afrikan, Karibian ja Tyynenmeren
valtioiden ja Euroopan unionin
yhteistyön kehitys.
UPI-raportti 5/2003.

Hanna Ojanen (ed.):
Neutrality and non-alignment in Europe today.
FIIA Report 6/2003.

Toby Archer:
Kansainvälinen terrorismi ja Suomi.
UPI-raportti 7/2004.

Toby Archer:
International Terrorism and Finland.
FIIA Report 7/2004.

Linda Jakobson:
Taiwanin kiistanalainen asema.
Tulevaisuudennäkymät
ja niiden vaikutukset EU-Kiina-
suhteisiin.
UPI-raportti 8/2004.

Linda Jakobson:
Taiwan's Unresolved Status: Visions
for the Future and Implications for EU
Foreign Policy.
FIIA report 8/2004.

Previously published in the series:

Hiski Haukkala & Arkady Moshes:

Beyond "Big Bang": The Challenges of the EU's Neighbourhood Policy in the East.

FIIA Report 9/2004.

Kristi Raik & Teemu Palosaari:

It's the Taking Part that Counts: The new member states adapt to EU foreign and security policy.

FIIA Report 10/2004.

Hu Angang, Linda Jakobson & Shen Mingming:

China's Transforming Society and Foreign Policy.

FIIA Report 11/2005.

Grzegorz Gromadzki, Raimundas Lopata & Kristi Raik:

Friends or Family? Finnish, Lithuanian and Polish perspectives on the EU's policy towards Ukraine, Belarus and Moldova.

FIIA Report 12/2005.

Hanna Ojanen:

EU ja YK: Yhteinen tulevaisuus.

UPI-raportti 13/2005.

Hanna Ojanen:

The EU and the UN: A shared future.

FIIA Report 13/2006.

Hanna Ojanen (ed.):

Peacekeeping – Peacebuilding: Preparing for the future.

FIIA Report 14/2006.

Sergei Medvedev:

EU-Russian Relations – Alternative futures.

FIIA Report 15/2006.

Toby Archer & Tihomir Popovic:

The Trans-Saharan Counter – Terrorism Initiative: The US War on Terrorism in Northwest Africa.

FIIA Report 16/2007.

Charly Saloniuss-Pasternak (toim.):

Joidenkin puolustamisesta monen turvaamiseen: Naton tie puolustusliitosta turvallisuusmanageriksi.

Charly Saloniuss-Pasternak (ed.):

From Protecting Some to Securing many: Nato's Journey from a Military Alliance to a Security Manager.

FIIA report 17/2007

Minna-Mari Salminen &

Arkady Moshes:

Practise what you preach – The prospects for visa freedom in Russia-EU relations

FIIA Report 18/2009.

Towards a new climate regime?

Views of China, India, Japan, Russia and the United States on the road to Copenhagen

Anna Korppoo, Linda Jakobson, Johannes Urpelainen, Antto Vihma, Alex Luta

The latest findings of the Intergovernmental Panel on Climate Change urge humankind to take more radical action to address global warming. The fifteenth Conference of Parties of the United Nations Framework Convention on Climate Change will be held in Copenhagen in December 2009. This meeting has been set as the political deadline for establishing a comprehensive regime to respond to the dramatic threat of climate change and to follow up the Kyoto Protocol, which has established commitments for the majority of industrialized countries until 2012.

In order to succeed in limiting dangerous climate change, the next regime must establish emission mitigation and limitation action not only in industrialized countries, but also in the major emerging economies. However, these major emitters have very different approaches to global climate governance as a result of their varying levels of development and divergent views concerning the dynamics of economic growth. This report outlines the views and backgrounds of five major emitters, China, India, Japan, Russia and the United States, with regard to the post-2012 climate regime. The emerging positions of these major actors for the Copenhagen negotiations are also outlined. In addition, these findings are compared to the emerging position of the European Union, which has adopted a facilitating role for the Copenhagen conference.

ISBN 978-951-769-222-9

ISSN 1458-994X