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A NEW CLIMATE POLICY FRAMEWORK FOR POST 2012

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At the 2005 climate summit in Montreal, the international community agreed on negotiations for the time after 2012. However, guidelines for a new climate protection treaty are still being disputed. Members of the European Union are urging to continue within the framework of the Kyoto Treaty and to further develop its emission caps and flexible mechanisms. The United States, in contrast, did not sign the protocol and do not accept any binding reduction targets. They fear potential economic costs and criticise that emerging countries like China and India do not accept emission caps either (Holdren 2003), although China is already one of the most important emitters of greenhouse gases. China and India should not grow without limits, while costly climate protection harms their own economy and leads to competitive disadvantages. The argumentation of US officials follows the rules of a common good, which is valid for international climate protection (Bardt 2005). The United States strongly claim that emerging countries also have to commit themselves to reduce greenhouse gas emissions (Müller 2003). This claim resulted in the so-called “Byrd-Hagel-Resolution” adopted unanimously by the US Senate in 1997 (US Senate 1997).

But the US position is only one reason why fast growing emerging countries have to be part of a new international climate regime. Today, China is emitting 18 percent of all carbon dioxide, only the United States is emitting more of this greenhouse gas. China will be the largest emitter very soon, countries like India, South Africa, Mexico or Brazil also being among the larger emitters. Therefore, any successful climate policy depends crucially on a limitation of the increase in greenhouse gas emissions in emerging countries. According to the International Panel on Climate Change (IPCC), carbon dioxide emissions from fuel combustion could rise by 45 to 110 percent by 2030 without further global measures. Developing and emerging countries (the “Non-Annex-1-countries”) will be responsible for two thirds to three quarters of these additional emissions (IPCC 2007).

Guidelines for a new climate protection agreement

Global climate protection should be organised as efficiently as possible. Hence, measures to reduce emissions should be applied wherever abatement costs are lowest. This is the only way to get the most climate protection per dollar or euro. Many of the most efficient options are located in developing and emerging countries. On the other hand, most of the cheap potentials of those industrialised countries with active climate policies have already been realised. A new international climate agreement has to make sure that the most efficient mitigation measures will be realised on a global level. Therefore, the flexible instruments of the Kyoto Treaty – “joint implementation”, “clean development mechanism” and “emission trading” – have to be strengthened. Massive research and development of climate-friendly technologies that can be sold on world markets may contribute to climate protection as well. A flexible use of different measures in order to fulfil reduction commitments can ensure the efficient allocation of resources while mitigating global warming. This flexibility must be ensured, no matter how national targets would be distributed.

In order to ensure a significant effect on global greenhouse gas emissions, a post 2012 agreement has to be ratified by a group of fifteen countries or country groups which are responsible for 80 percent of worldwide emissions. This includes the most important industrialised countries as well as upcoming emerging countries. The level of commitments should depend on the economic situation of each country. This should help the emerging countries to accept a new agreement. A classification into at least three groups of countries according to their GDP per capita – as an indicator of wealth – seems to be appropriate. In this respect, the fifteen largest emitters of carbon dioxide could be grouped as shown in Table 1.

A new international agreement must allow the participating nations utmost flexibility to decide about how to reach the national targets. Therefore, concepts like a global carbon tax do not lead to the desired results and would hardly be agreed on. Further commitments – like research and development initiatives – should, however, become an important part of a future climate protocol. Existing elements like regional climate protection initiatives or research co-operation should be integrated as well, even though they do not focus directly on reducing greenhouse gas emissions.

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Table 1
Fifteen largest emitters of carbon dioxide

High-income economies	Upper-middle-income economies	Lower-middle-income and low-income economies
Australia EU Japan Canada South Korea Saudi Arabia USA	Mexico Russia South Africa	Brazil China India Indonesia Iran

Source: Own compilation based on IEA (2006).

Nevertheless, these decentralized measures will not be sufficient to limit global warming. Consequently, clear emission caps seem to be necessary, at least for the well-performing high-income economies. In spite of US opposition to binding reduction targets, interest in climate protection is rising (Dröge 2007). There are already various climate initiatives on the state level. In order to meet the concerns of the federal government, the reduction targets could be modified in different ways. One possibility to avoid unforeseeable costs is to link national targets agreed on in an international protocol to certain conditions. A safety valve, for example, could be included, which means that reduction obligations could be suspended if reduction costs exceed a certain percentage of GDP. The disadvantage of this modification is a lower ecological effectiveness. Other ways to implement a specific target and to avoid a possible negative effect on economic growth and incalculable costs are indexed targets. An indexed target defines a reduction target which is pegged

to one or more variables. An example could be the emission of greenhouse gases per unit of GDP. That means the participating countries would have to increase their greenhouse gas efficiency by a certain rate (Bodansky 2003).

It will be even more difficult to find appropriate targets for emerging countries. Upper-middle-income economies could agree on the avoidance of growing absolute emission levels and the reduction of emissions per unit of GDP by a specified rate. The lower-middle economies and low-income economies could commit themselves to reducing emissions per unit of GDP without limiting the absolute increase of emissions. This would not reduce their emissions, but could lead to more efficient wealth creation and progress in separating economic growth and greenhouse gas emissions. After several years, stricter reduction targets for emerging countries could be introduced as well.

A core element of a new agreement must be the improvement of market-based flexible instruments that are also a crucial part of the Kyoto Treaty. This is the only way to allow reductions to be implemented at minimum cost. Instruments like the clean development mechanism, joint implementation or emissions trading lead to efficiency in reducing emissions. In an ideal world where these instruments would guarantee full flexibility and allocation efficiency, the distribution of reduction targets would be nothing more than the distribution of costs. Additionally, the time horizon of a new treaty will be essential for private business. To be sure, long-term targets are necessary for long-term investments like power plants. In order to define the road towards such long-term targets, medium-term milestones should be agreed as well.

Table 2
Impact of different emission targets

	Ecological effectiveness	Flexibility of compliance	Influence on economic growth	Cost control
Absolute reduction target	+	+	-	-
Indexed target	0	+	0	0
Conditioned target	0	+	0	+
Sector-specific target	0	0	0	-
Financial target	0/-	+	0	+

Note: The signs “+”, “0” and “-” mean “positive”, “neutral” and “negative”, respectively.

Source: Own compilation.

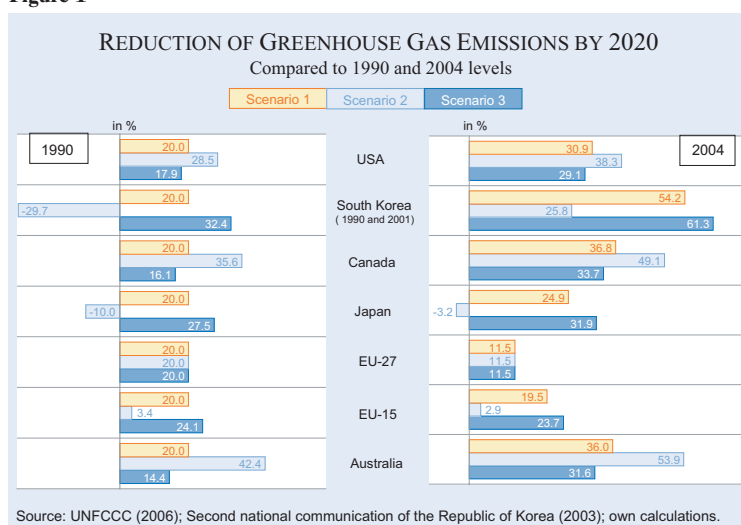
Distribution scenarios

Binding targets to reduce greenhouse gas emissions may only be a result of intense negotiations and can hardly be predicted. But even if an agreement on decentralized elements like the promotion of technological development and non-binding targets can be reached, an implicit burden-sharing will result from those commitments. Clear reduction targets would make this bur-

den-sharing explicit. The following scenarios show three options for possibly resulting distribution effects (Bardt and Selke 2007). The scenarios vary in the basic distribution rule for reduction targets:¹

- scenario 1: reduction of greenhouse gases by 20 percent
- scenario 2: harmonisation of greenhouse gas intensities
- scenario 3: definition of reduction targets according to gross domestic product

Figure 1



Scenario 1

At the Council meeting in spring 2007, the heads of state and government of the European Union decided to reduce greenhouse gas emissions by at least 20 percent by 2020 compared to the level of 1990. Emissions should be reduced by 30 percent, provided that other industrialized countries commit themselves to comparable reductions and that well-performing developing countries contribute appropriately according to their responsibilities and capabilities. If members of the category “high-income economies” agreed to a 20 percent target, all countries would have to reduce much more than 20 percent compared to the 2004 level – except the European Union (see Figure 1). This is the result of stable emissions in the “old EU” (i.e. EU-15) and significant reductions in the transition countries of central and eastern Europe, while there has been a massive increase of emissions in most other countries since 1990, regardless whether they signed the Kyoto Treaty or not.

Scenario 2

Another reasonable rule could be the harmonisation of emission intensities, i.e. greenhouse gas emissions per unit of GDP. While the European Union follows its 20 percent target, other high-income economies could commit themselves to reduce their emissions until the European emission intensity is reached, based on today’s GDP. In this case, most countries would have much stricter reduction targets than in

scenario 1, while Japan could even increase emissions until 2020.

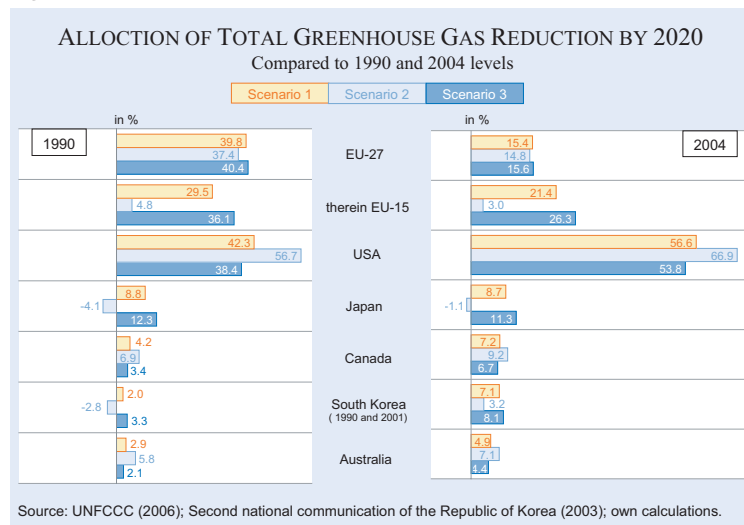
Scenario 3

The third option for a distribution rule is to use the current GDP. The idea is to have richer countries reduce emissions on a larger scale than less wealthy countries. Therefore, in the third scenario the shares of 2004 GDP should be equal to the corresponding shares of total greenhouse gas reduction compared with 1990. Again, the European Union is supposed to reduce its emissions by 20 percent by 2020. In effect, the results are quite similar to those of scenario 1: Canada, Australia and the United States would have slightly less ambitious reduction targets, while Japan and Korea would have to reduce more.

Although the scenarios show higher reduction targets for most countries than for the European Union when taking the 2004 emission level as the benchmark, the EU has to accept a very high share of the total reduction burden. According to the scenarios 1 and 3, the European share is about 40 percent of total emission reductions since 1990 (see Figure 2). The relatively low value in scenario 2 is a result of the lower carbon intensity of the European economy. When calculated based on the 2004 emission level, further reduction duties are distributed quite differently. The European share of any future reduction is significantly lower because of the climate protection efforts made between 1990 and 2004.

¹ Because of insufficient data, Saudi Arabia will not be considered in the scenario calculations.

Figure 2



All three scenarios demonstrate different potential results of international climate negotiations. These results are derived based on “fair” underlying distribution rules. They also highlight the commitments of other countries which are necessary for the European Union to increase its reduction target to 30 percent by 2020 compared to the 1990 level, as the European Council indicated in March 2007.

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