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The Kyoto Protocol

– What just is in it –

The basis of international policy for cutting down emissions of greenhouse gases is the UN Framework Convention on Climate Change, which was signed by some 150 nations in the course of the United Nations conference at Rio de Janeiro in 1992. Coming into effect in 1994, by January 2003 this convention had been ratified by 187 parties.

It has as an "ultimate objective" the stabilizing of greenhouse-gas concentrations in the atmosphere "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system."

What that level should be is not indicated. The text merely says that it "should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

It is a stated principle of the convention that the industrialized nations, being responsible for by far the greatest part of the emissions, both now and in the past, should take the lead in combating climate change and its damaging effects. It also lays down that any measures that may be taken should be cost-effective, thus allowing room for joint implementation and emissions trading.

Non-binding commitments

This framework convention calls for no legally binding commitments on the part of the signers. The so-called Annex I countries do however have a non-binding aim to have returned their emissions of greenhouse gases to 1990 levels by the year 2000. These countries, now numbering 41, include members of the former eastern block besides the or-

dinarily recognized industrialized ones. Far from all succeeded in that aim. It could however be said that it was attained if the group's emissions are reckoned as a whole – largely because emissions dropped by almost 40 per cent in the countries with economies in transition.

Binding commitments came at Kyoto

A first step towards quantified commitments as a means of attaining the aim of the climate convention was taken when the Kyoto protocol was signed in 1997.

Under this protocol the industrialized nations have made legally binding undertakings in regard to their emissions of greenhouse gases for the period 1990 to 2008-12. Some countries will be allowed to increase their emissions, or freeze them at current levels, but most will have to make reductions (see Table 1). The overall reduction for the Annex I countries is expected to be 5 per cent. The way the EU countries have agreed to share out their common undertaking appears from Table 2.

Emissions from aviation and marine bunker fuels used in international transport do not enter into any national undertakings.

The protocol embraces six greenhouse gases which are combined in a "basket" where individual gases are translated into

Net take-up of carbon by trees and soil can be used as a set-off against emissions of carbon dioxide from the burning of fossil fuels or used in emissions trading – although only up to a limit set for each country in the Kyoto protocol.

Table 1. Commitments under the Kyoto protocol. Required changes from 1990 to 2008-12.

Increases:

+10% Iceland
+8% Australia
+1% Norway

Freezing:

New Zealand, Russia, Ukraine

Reductions:

-5 % Kroatia
-6 % Canada, Hungary, Japan, Poland
-7 % USA
-8 % EU (collectively), Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Liechtenstein, Monaco, Romania, Switzerland, Slovakia, and Slovenia.

Table 2. EU internal burden sharing under the Kyoto protocol.

Austria	-13%
Belgium	-7.5%
Denmark	-21%
Finland	0%
France	0%
Germany	-21%
Greece	+25%
Ireland	+13%
Italy	-6.5%
Luxembourg	-28%
Netherlands	-6%
Portugal	+27%
Spain	+15%
United Kingdom	-12.5%
Sweden	+4%
EU total	**-8%**

CO_2 equivalents which are then added up to produce a single figure.

The base year against which the reductions of the main greenhouse gases – carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) – will be measured is 1990, except for some countries with economies in transition, and reductions in the emissions of three long-lived industrial gases – hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6) – against either 1990 or 1995. (A major group of powerful greenhouse gases, chlorofluorocarbons or CFCs, is regulated under the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer.)

The protocol emphasizes that "demonstrable progress" towards meeting its aim must have been made by 2005, and reports with evidence of it submitted by January 1, 2006. Talks on targets for the second commitment period must start by 2005.

Details fixed at Bonn and Marrakech

The negotiations at Kyoto were so long-drawn-out that when the meeting ended and the protocol had been signed, some unresolved matters still remained. There had been especial difficulty in arriving at rules for the use of flexible mechanisms and carbon sinks, and further meetings had to be held to determine how the protocol was to be interpreted and how it was to function in practice. Much of this was decided at Bonn and Marrakech during the summer and autumn of 2001.

FLEXIBLE MECHANISMS. These include permit trading and the possibilities for any country to pay for reducing emissions in another and count the result to its own score (see factfile below). As several of the parties, including the EU, wanted to limit the possibilities of using flexible mechanisms, it was finally decided that if used they should be "supplemental to domestic action," and that such action must constitute "a significant element" of the effort to meet commitments. No limit was however set for the extent to which these mechanisms could be employed.

CARBON SINKS concern measures such as afforestation and reforestation aimed at increasing nature's ability to bind carbon. Many countries wanted to have it made possible to account any increased takeup of carbon in trees and soil as a reduction of their emissions. A telling objection to this is the difficulty of measuring the net effects of any such project. It was however decided that sinks could be used up to the limit set for each country in a separate table, although concessions that had to be made to Russia,

FACTFILE

Flexible mechanisms

The flexible mechanisms are intended to make it easier for countries to fulfill their commitments to reduce emissions. While the climate effect will be the same no matter where emissions take place, the cost of reduction will vary considerably from one locality to another. The three kinds of mechanism are described further on.

Flexible mechanisms are among those parts of the protocol which, besides carbon sinks, have been most criticized by environmentalists – who consider there to be a risk of the necessary changes in the rich countries' energy and transportation systems being delayed, since they will be able to buy emission permits from other countries.

A lot of the emission permits consist moreover of what is called "hot air." Russia and eastern European countries now emit very much less than they did in 1990, the base year, because great parts of their energy-intensive industries were shut down after the fall of the iron curtain and the Soviet Union's dissolution. If their surplus permits are bought up by other countries, the result could be an increase of emissions in some country for which there would be no corresponding reduction in another.

Another matter of criticism has been the difficulty of accurately measuring the effects of various projects. Is an Annex I country for instance to be allowed credit for having helped a developing country to effectivize, when the latter might soon have done so in any case?

Emissions trading. In this way Annex I parties may acquire assigned amount units (AAUs) from other Annex I parties. Such parties may also acquire CERs (from CDM projects), ERUs (from joint implementation projects), or RMUs (removable units from sink activities) from other Annex I parties. International trading under the Kyoto protocol can start in 2008.

CERs: certified emission reductions.
CDM: clean development mechanism.
ERUs: emission reduction units.

Joint implementation allows Annex I parties to implement projects to reduce emissions, or increase removals by sinks, in the territories of other Annex I parties. Emission-reduction units generated by such projects can then be used by the investing Annex I parties to help meet their own emissions targets. To avoid a double reckoning, a corresponding subtraction is made from the emissions figure granted to the benefiting country. Joint implementation projects are most likely to take place in countries with economies in transition, where there tends to be more scope for cutting emissions at low cost.

Clean Development Mechanism allows Annex I parties to implement projects that reduce emissions in the territories of non-Annex I parties. The CERs generated by such projects can be used by the Annex I parties to help meet their emission targets, while also helping non-Annex I parties to achieve sustainable development and thus contribute to the ultimate aim of the convention.

The mechanism is intended primarily for projects that will reduce emissions. Rules are however being developed to include afforestation and reforestation during the first commitment period. There is a limit as to how much Annex I parties may use sink projects for achieving their targets: 1 per cent of the party's emissions in the base year for each of the five years of the commitment period.

A CDM project might for instance involve a rural electrification scheme using solar panels, or reforestation of degraded land. As in the case of joint implementation projects, CERs arising from the use of nuclear energy may not be used to meet emission targets.

Canada, and Japan have meant that these countries will now be able to use sinks to a greater extent than other countries.

SANCTIONS. A party failing to meet its commitments will have its emission quota reduced for the following period by the overrunning amount, plus an extra 30 per cent.

AID TO DEVELOPING COUNTRIES. Parties to Annex II (Annex I countries minus those of the former eastern block; in other words the OECD countries) are committed to providing financial resources, as special funds, to help non-Annex I countries to meet their commitments under the protocol.

BANKED EMISSIONS. A party achieving more substantial cuts in its emissions than required may, subject to certain limitations, carry over the difference to the next commitment period. Credits earned from the use of sinks cannot be so carried over, and credits obtained from joint implementation projects and through use of the clean development mechanism (see factfile) can only be carried over to the extent of 2.5 per cent of the initial assigned amount.

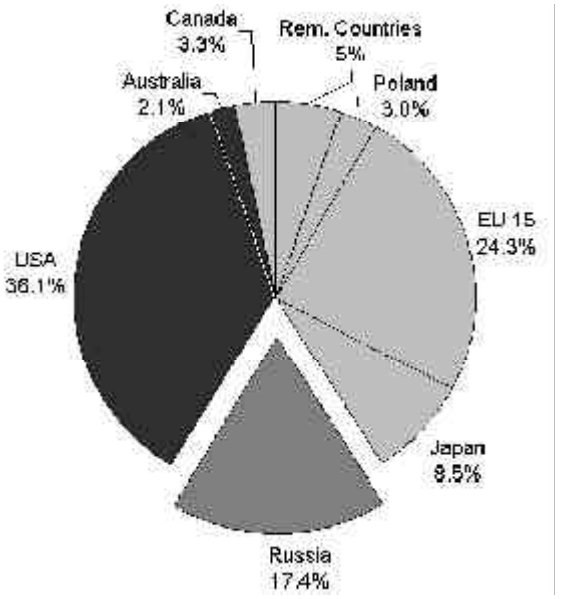

Figure 1. The Annex I countries' share of CO_2 emissions in 1990. To come into force, the Kyoto protocol must have been ratified by so many countries as to account for 55 per cent of the emissions. Since the US do not intend to ratify, Russia must do so to make up the difference.

US opts out

The United States – which answered for a good third of the Annex I countries' emissions in 1990 (see Figure 1) and has the world's largest emissions per capita – abandoned the protocol in March 2001, with the excuse that it excluded 80 per cent of the world's population and would, moreover, be detrimental to the US economy. In February 2002 President Bush presented a national policy on climate change, with voluntary targets that are likely to lead to an increase in emissions of more than 30 per cent over 1990 levels by 2010.

The US withdrawal means that the Annex I countries' total emissions will not decline as envisaged, and that the protocol will have to be ratified by almost all the other Annex I countries if it is to be legally binding. It will come into effect after it has been ratified by at least 55 parties to the convention, including Annex I countries representing at least 55 per cent of the carbon dioxide emissions in 1990 from this group. It now only needs Russia to ratify – which it has repeatedly promised to do. Without Russia or the US, there can be no coming into force.

Watered-down commitments

If countries should choose to utilize carbon sinks to the extent permitted under the protocol, the overall reduction of emissions during the 20-year period would not come to 5 per cent but only return to zero or even rise a few per cent. Use of the flexible mechanisms might also make it possible for individual countries to increase their emissions and yet meet their commitment.

Continuous negotiation

The parties to the convention meet regularly at the Conference of the Parties of the Convention (COP), which is also the venue of the Meeting of the Parties (MOP) to the protocol. Parties to the convention that are not parties to the protocol can participate in protocol-related meetings as observers.

It is said in the protocol that negotiations concerning the next period for commitments (after 2012) must start at the latest by 2005, but no directions are given for this. So far most of the developing countries have rejected all suggestions they should cut emissions, maintaining that it is the rich countries that have caused the problem and should therefore be the first to be required to deal with it.

But the developing countries' emissions are increasing, so that after no more than a few decades emissions from rich and poor will be about equal. The Annex I countries are most likely to demand some form of binding commitment from the developing ones for the period after 2012.

It will be important to decide how reductions are to be distributed. It might be better, instead of overall percentual figures, to take emissions per inhabitant as the measure. If all individuals were allotted an equal volume of emissions – as might seem reasonable – the industrialized countries would have to reduce their emissions a great deal, while many developing countries could be permitted a slight increase.

Sights need setting higher

No diminishing of greenhouse-gas emissions will result from the Kyoto protocol. Even if it should in the end lead to a reduction of 5 per cent from the industrialized countries, that would only mean that the speed at which concentrations in the air is increasing would be lessened by 4-14 per cent.

The commitments made at Kyoto, with subsequent waterings down, thus appear distinctly modest – although it must be added that in the past all international agreements concerning the environment have set off falteringly, but gradually taken firmer shape.

More information

More about the climate convention and the Kyoto protocol can be found on the convention's website www.unfccc.int. Besides general information this gives the complete texts, a list of the countries that have ratified, and a mass of data about the participating countries, which are obliged under the convention and the protocol to report on emissions to the convention's secretariat (yearly in the case of the Annex I countries).