INTERNATIONAL ENERGY AGENCY

WHAT HAPPENED IN BONN?

The Nuts and Bolts of an Historic Agreement

WHAT HAPPENED?

On 23 July 2001, negotiators from 178 nations reached an unexpected political agreement on how to proceed with the international struggle against unwanted climate change. Specifically, they set out detailed rules for implementing the 1997 Kyoto Protocol to the United Nations Framework Convention on Climate Change. Participants and observers in Bonn, Germany quickly dubbed the accord a turning-point in the fight against global warming. But the document enshrining the agreement was so technical and allusive as to be incomprehensible to all but experts. This pamphlet, prepared by analysts in the International Energy Agency's Energy and Environment Division, sets out the terms of the Bonn agreement in layman's language. As in several earlier publications of this kind, the IEA seeks to inform the public debate and place it in context in a thoroughly dispassionate and objective way.

WHAT WAS AT STAKE?

In the decade since the 1992 Earth Summit, scientific evidence that man-made "greenhouse gases", mostly carbon dioxide from energy use, are altering the Earth's climate has mounted. The Intergovernmental Panel on Climate Change reports that unless we lower our emissions of these gases, the rise in concentrations will lead to an unprecedented increase in global temperatures of about 1.4–5.8°C by the year 2100. Public sensitivity to the issue has sharply increased. The document adopted at Kyoto four years ago is the political expression of that concern. Under its terms, the developed countries pledged to reduce their overall greenhouse gas emissions by an average of 5 per cent below what they were in 1990 by the period 2008-2012. Details of a number of important provisions in the Kyoto Protocol were left blank, however, to be filled in by the parties between 1998 and 2001.

By the end of 2000, virtually none of those details had been settled. A last-ditch meeting of the parties at The Hague in November 2000 broke up without any agreement. In March 2001, the Kyoto process suffered another setback when the newly-elected Republican Administration in the United States announced its withdrawal from the Protocol. Prospects for implementing the Protocol next year seemed dismal. Many observers to the Bonn meeting, hastily arranged after the fiasco at the Hague, expected it would end in another sterile deadlock.

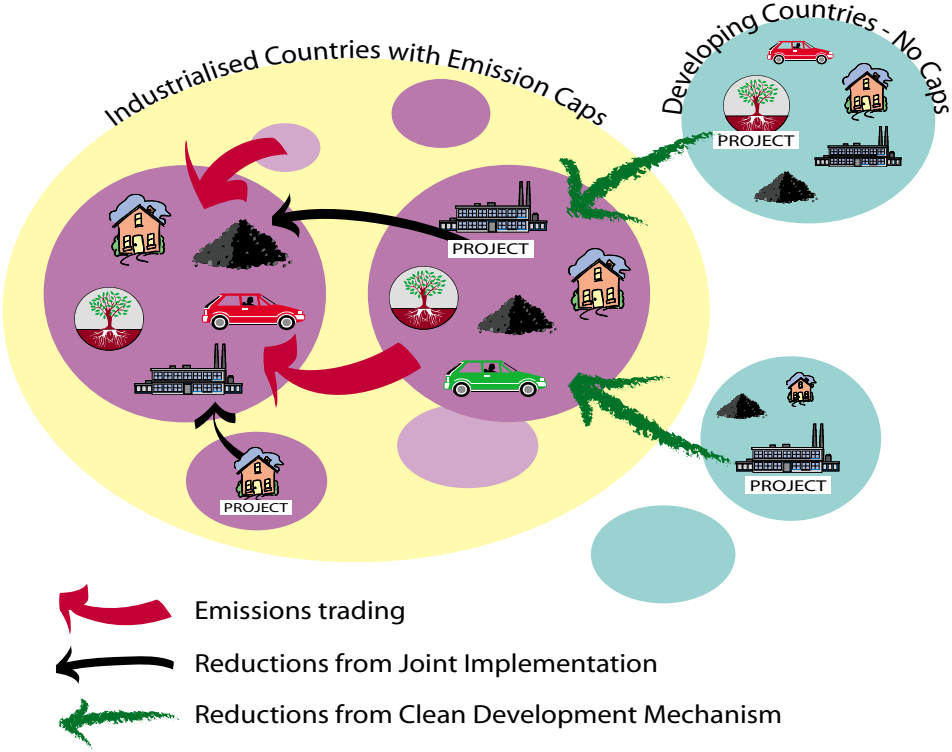
They were wrong. After a week of tough bargaining under a vigorous Dutch chairman, agreement emerged among all the parties – except the US, which attended but did not participate. Compromises were hammered out on such contentious issues as the rules for operating the Kyoto "flexibility mechanisms", the role of "sinks" in absorbing carbon dioxide, financial assistance from developed to developing countries to help them fight climate change and the penalties for non-compliance with pledges taken under the Protocol.

Not every detail was settled at Bonn. But the surprising degree of agreement that was reached raised hopes that a complete blueprint for implementation can be adopted when the parties hold their next formal meeting in October in Marrakech, Morocco.

MARKET INSTRUMENTS: FLEXING THE MECHS

The Protocol contains three novel instruments, known as "flexibility mechanisms" – or "flex mechs" –, all designed to harness free market forces in the cause of cost-effective emissions reductions. They are:

- **Emissions trading**, which enables countries with binding emissions targets to buy and sell emission reductions among themselves;
- **Joint Implementation (JI)**, under which one country with a target may receive an emission credit for performing an emissions-cutting project in another such country;
- **The Clean Development Mechanism (CDM)**, similar to JI but for projects undertaken in developing countries, which have no binding targets at national level.



Flex mechs were among the most original and promising features of the Protocol, but working out precise rules for their operation proved extremely difficult. The Bonn meeting achieved breakthroughs in many areas of implementation:

1. Some countries had urged that there should be a ceiling on the number of tons of emission reductions any country could buy, rather than achieving their own cuts at home. Bonn indicated that international purchases are to be "supplemental" to domestic actions, but rejected explicit caps on such purchases.

2. The Bonn accord limits participation in any of the mechanisms to countries which are in compliance with detailed monitoring and reporting requirements.

3. The Protocol says that flex-mechs projects must contribute to "sustainable development". Bonn leaves it up to the host country to decide whether that criterion is met. The Bonn accord "urges" parties not to use emissions reductions gained by installing or expanding nuclear facilities to fulfil their targets. And it forbade counting of emissions reductions achieved through regular foreign-aid programs.

4. Parties agreed to levy a 2% tax on CDM projects. It ruled out a similar levy on emissions trading and JI. The tax revenues will be used by the new Kyoto Protocol "adaptation fund."

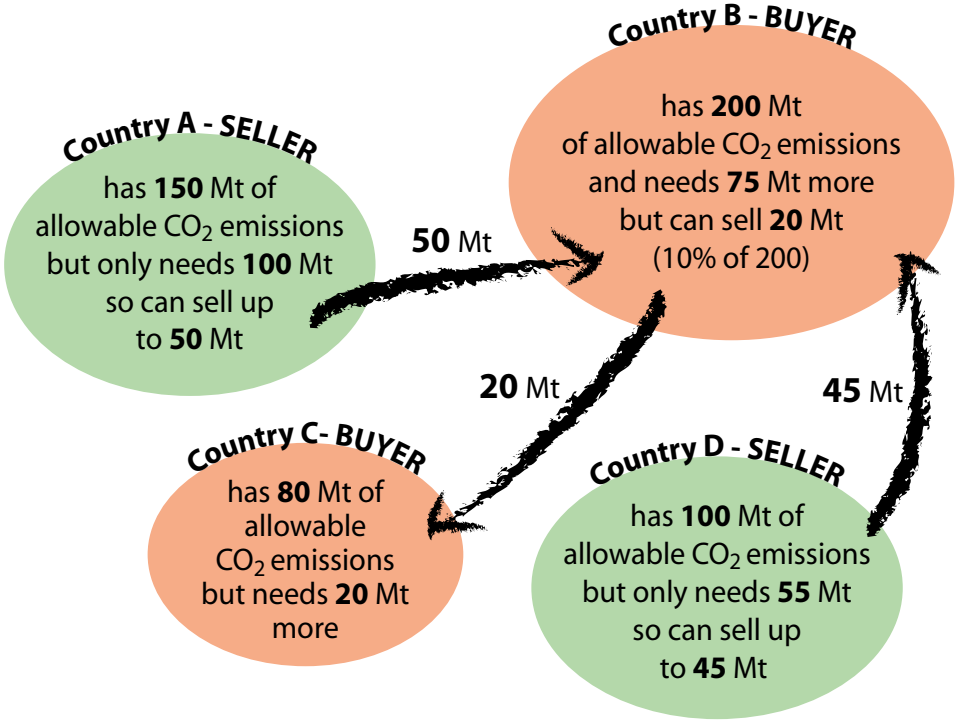
5. "Sinks" – forests or other land uses that absorb CO_2 emissions from the atmosphere – may be counted in CDM projects, but under strict limits. Afforestation and reforestation count, but conservation projects don't. Moreover, emission credits from sinks projects may not total more than 1% of the purchasing country's base-year emissions, in most cases those of 1990.

6. Institutions to oversee the mechanisms' performance are to be set up – and quickly. Nominations to the CDM Executive Board are to be made by October 2001, with elections two weeks later. Like several other bodies

created at Bonn, that board will have a majority from developing countries. Countries agreed to develop simplified procedures to jump start small-scale CDM projects, e.g. for renewable energy and energy efficiency improvements.

7 A rule – the reserve – was adopted to avoid the "overselling" of emission credits, i.e., the sale of credits by Parties that need them to cover their emissions. Countries with emissions lower than their target for years to come may, of course, sell, but not more than their projected surplus. In order to increase market liquidity and competition, countries with emissions higher than their targets – net buyers – are allowed to trade up to 10% of their allowable emissions.

The emissions trading reserve



FORESTS, SOILS AND OTHER SINKS: EMISSIONS FROM A TO "Z"

At Kyoto, negotiators adopted the principle that countries could receive credit toward their emissions targets for carbon absorbed by changes in land-use and forestry activities, the so-called "sinks." But they delayed a decision on just what sinks would be recognized and on how sink credits would be counted. Bonn decided both questions:

- Most activities claimed as sinks will be eligible for credits, including forest management, management of croplands and grazing land and re-vegetation – so long as they can be shown to have taken place since 1990.
- The only limit applies to forest management: "Annex Z" of the Bonn accord sets limits for all countries with emissions targets. They range from zero to 17 million tons, for the Russian Federation. These limits apply also to sinks credits that a country can buy from Joint Implementation projects.

Industrialized countries emissions and targets, with and without sinks

Country	Base Year Emissions (MtC)*	1998 Emissions (MtC)**	% Change in Gross Emissions (1990-98)	% Change in Net Emissions (with sinks) (1990-98)***	Allowable reductions under forest management (MtC)****	Kyoto Target (% reduction from base year)
Australia	114	132	+15	+6	0.00	+8
Austria	21	21	+4	+7	0.63	-13
Belgium	37	39	+6	+7	0.03	-7.5
Bulgaria	43	23	-47	-49	0.37	-8
Canada	164	186	+13	+17	12.00	-6
Czech Republic	52	40	-22	-23	0.32	-8
Denmark	19	21	+9	+9	0.05	-21
Estonia	11	6	-47	-37	0.10	-8
Finland	21	21	+0.7	+28	0.16	0
France	149	150	+0.9	-1	0.88	0
Germany	327	275	-16	-16	1.24	-21

Country	Base Year Emissions (MtC)*	1998 Emissions (MtC)**	% Change in Gross Emissions (1990-98)	% Change in Net Emissions (with sinks) (1990-98)***	Allowable reductions under forest management (MtC)****	Kyoto Target (% reduction from base year)
Greece	28	33	+16		0.09	+25
Hungary	28	23	-19	-21	0.29	-6
Iceland	1	1	+5		0.00	+10
Ireland	15	17	+19	+18	0.05	+13
Italy	141	147	+4	+5	0.18	-6.5
Japan	321	350	+9.1	+8.6	13.00	-6
Latvia	10	3	-68	-96	0.34	-8
Liechtenstein	0	0			0.01	-8
Lithuania	14	7	-54	-26	0.28	-8
Luxembourg	4	3	-24	-25	0.01	-28
Netherlands	57	62	+8	+8	0.01	-6
New Zealand	20	20	+3	+5	0.20	0
Norway	13	15	+15	-2	0.40	+1
Poland	154	110	-29	-30	0.82	-6
Portugal	17	20	+17	+17	0.22	+27
Romania	72	0			1.10	-8
Russian Federation	818	525	-36	-58	17.63	0
Slovakia	21	14	-31	-31	0.50	-8
Slovenia	5	0			0.36	-8
Spain	82	98	+19	+21	0.67	+15
Sweden	19	19	+1	+22	0.58	+4
Switzerland	14	14	+0	-4	0.50	-8
Ukraine	251	124	-51	-55	1.11	0
United Kingdom	198	179	-9.6	-10.1	0.37	-12.5
United States	1,627	1,794	+10	+21	(28.00)++	-7

* Base Year for most countries is 1990. Exceptions are: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania(1989).

** 1998 data except: Iceland (1995); Japan (1997); Luxembourg (1995) and Russian Federation (1996).

*** Net emissions are calculated as (gross emissions minus sinks, i.e., land-use change and forestry).

**** The values, listed in tons of carbon per year, are taken from the "Annex Z" of the decision in Bonn.

++ No value was assigned to the USA; had one been established using the formula applied to other countries, the value would have been 28.

DEVELOPING COUNTRIES: EXTENDING A HELPING HAND

That the wealthier countries should aid the poorer ones in the battle against climate destabilisation has been accepted since the start of the process. About $3.6 billion has already been distributed to developing countries to help them reduce climate change and adapt to its adverse effects. The Global Environment Facility (GEF), acting under the World Bank, the United Nations Development Program and the United Nations Environment Program, has managed much of this aid. The Bonn accord created three new climate funds, all to be run by the GEF:

- a Special Climate Change Fund to provide additional aid for adaptation, technology transfer, energy, transport, industry, agriculture, forestry and waste management, as well as broad economic diversification;
- a Least Developed Country Fund, to support the very poorest countries, mainly in adapting to climate change;
- a Kyoto Protocol Adaptation Fund, to be funded by the CDM levy and voluntary contributions.

This was the first time since 1992 that parties to the Framework Convention on Climate Change had agreed to the need for new funding. Contributions to the new funds are not mandatory, but the European Union and several other developed countries pledged a total of $410 million (some of it to replenish the Global Environmental Facility. Canada pledged $10 million specifically to the Least Developed Country Fund).

Developed countries also agreed to report on how they are reducing emissions so as to minimise the negative economic impacts on developing countries (e.g. a possible reduction in fossil fuel sales for exporting countries) but also the adverse effects of climate change itself. Insurance funds could be established to mitigate these effects.

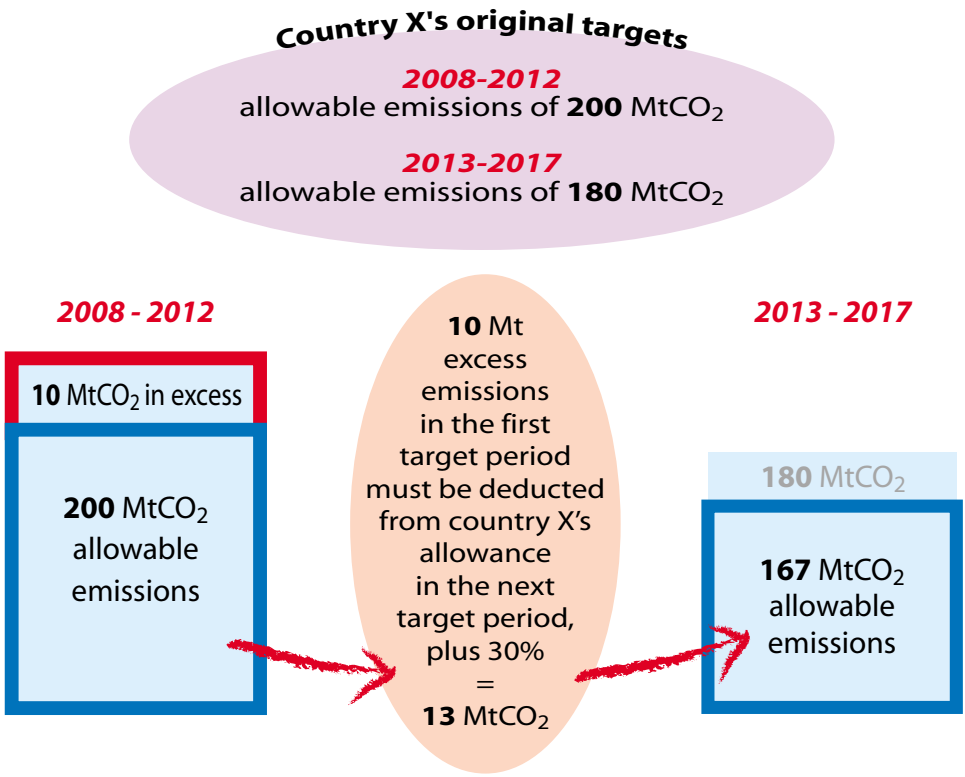
COMPLIANCE: CARROTS AND STICKS

One of the largest blanks left by the Kyoto drafters was what to do when a country failed to meet the obligations it assumed. The Bonn accord filled in part of the blank, leaving a good deal to be decided at the COP7 meeting at Marrakech in October and November.

The Bonn accord contains three major provisions on compliance:

- If a country fails to meet its undertaking to reduce greenhouse gas emissions, it must "repay" the shortfall, augmented by 30%, in the next target period (e.g. 2013-2017);

What happens if a country over-emits?



- Any country that has not made full restitution will be ineligible to sell emission reductions under emission trading;
- Countries that fall behind must develop a compliance action plan.

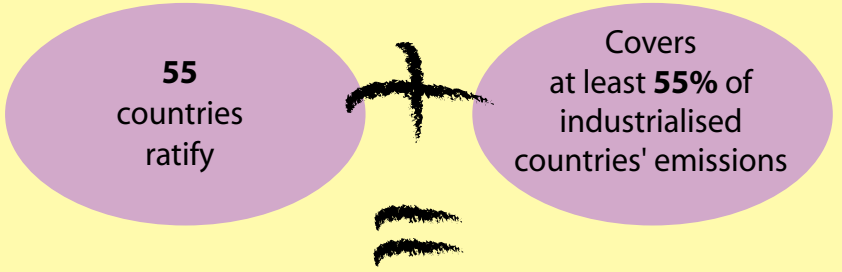
Negotiators at Bonn provided both a carrot and a stick. Help for countries having a hard time meeting its targets will be available from a "facilitative branch" of the compliance committee. Non-compliance – and its consequences – will be determined by an "enforcement branch", whose decisions can only be reversed by a three-quarters vote of all the parties to the Protocol. Both these branches will have a majority of members from developing countries.

ODDS AND ENDS: UNFINISHED BUSINESS FOR MARRAKECH

Despite the very positive tone at Bonn in the wake of agreement, negotiators left some details undecided in virtually every area.

On one very controversial subject, that of technology development and transfer, they decided on nothing but the creation of a new expert group, once again with a majority of members from developing countries. Although there was a long debate on the composition of the body, little or no progress was made on the many, very substantial issues it will have to deal with.

What's needed ?



KYOTO, BONN AND MARRAKECH: WHAT HAPPENS NEXT?

In a very literal sense, the next act of the unfolding climate-change drama will play itself out at COP7 in Marrakech, Morocco, from 29 October to 9 November. Delegates to that key meeting will have to tie up the loose ends left after Bonn – and ensure that major elements of the Kyoto Protocol start working.

Bonn's achievement is unmistakable. It set a framework for implementing the Protocol. But on every core question – flex mechs, sinks, financing, technology cooperation and compliance – it left important technical details unsettled. And some of those "technical" matters have real political significance. Some countries, for example, will press for the adoption of specific rules, which would allow the technical mechanisms to start operating immediately – particularly the fast track for small-scale CDM projects.

Delegates at Marrakech also expect to hear first-hand the US Administration's suggestions for an alternative approach to combatting unwanted climate change. At Bonn, US delegates attended meetings but did not intervene.

BUT WHAT DOES IT REALLY MEAN?

Setting aside the mass of confusing detail, one can see three – and only three – ways to control greenhouse gas emissions:

- by increasing the energy efficiency of output – thereby producing the desired amount of goods and services with less energy and less carbon;
- switching fuels, away from fossil fuels to others that emit little or no carbon, such as renewable energy;
- by absorbing emissions, through planting trees or other crops or by capturing carbon before it is emitted into the atmosphere, and removing it permanently from circulation.

These actions may be taken within one country or, using the flexible mechanisms, in another country. The Intergovernmental Panel on Climate Change reports that more than enough technical potential exists to meet the Kyoto targets on time. Renewable energy alone could provide all the energy needed by the year 2100. Carbon storage in oil, coal and gas fields, and in the ocean, could remove more than 2,500 gigatons of carbon from the atmosphere. This would be from one-and-a-half to eight times as much as will be needed over the next century, depending on the scenario you choose.

To be practicable, of course, the technical solutions must be cost effective – which is what the market mechanisms are meant to ensure.

Paradoxically, the withdrawal of the United States from the Protocol will make it easier for other countries to achieve their Kyoto targets. As the source of about 25% of world emissions, the US would have been a major buyer of emissions credits on the world market. Were the US to participate in those markets, IEA studies calculated the price of a ton of carbon at about $100. With the Americans absent, the price could fall to about $10, and even lower as a result of the Bonn agreement on sinks.

Even though the absence of the United States greatly reduces the environmental reach of the agreement, the emergence of emissions trading, a device which will set a clear reference price for carbon, is a major step in itself. The long-term political agreement that the accord embodies will drive private companies to re-evaluate their energy production and use and weigh their long-term investments with an eye to minimising the now-defined cost of emitting carbon.

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