

**MEASURES TAKEN BY NON ANNEX-I PARTIES TO REDUCE  
THE GROWTH OF THEIR EMISSIONS**

**Note by the Chairman**

1. This paper is intended to illustrate measures taken by non-Annex I Parties to reduce the growth in their emissions. Its sources are not exhaustive. As in Annex I Parties, many measures that reduce emissions growth have been taken for reasons other than that of climate change. In addition to such measures, over 100 non-Annex I Parties have received funding for enabling activities, including the preparation of national communications.
2. From 1990/91 to 1995/96,
  - Fossil fuel subsidies in 14 large non-Annex I Parties decreased by 45 per cent, from \$60 billion to \$33 billion;
  - Total fossil fuel subsidies in countries of the Organisation for Economic Co-operation and Development decreased by 20 per cent, from \$12.5 billion to \$10 billion.<sup>1</sup>
3. In the 1990s, Brazil, China, India, Mexico, South Africa, and Saudi Arabia cut fossil fuel subsidies significantly. It has been estimated that this resulted in energy-related CO<sub>2</sub> emissions that were around 10 per cent lower than in the business-as-usual scenarios for those Parties together.
4. The biggest carbon savings in any Party in the past decade are estimated to have been achieved in China, which in 1997 emitted over 10 per cent of world energy-related CO<sub>2</sub>. It has been estimated that China's energy-related CO<sub>2</sub> emissions would have been 20 per cent higher without reforms to fossil fuel subsidies and energy pricing, and without energy efficiency gains. In particular, petroleum subsidies by 1995 had fallen to negligible levels from

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<sup>1</sup> W. Reid and J. Goldenberg, "Are developing Parties already doing as much as industrialized Parties to slow climate change?", *Climate Notes*, July 1997.

a rate of 55 per cent in 1990.<sup>2</sup>

5. In sum, many non-Annex I economies became less energy- and less carbon-intensive (see also attached table). Fuel mixes are changing to less carbon-intensive sources, including natural gas, and there is increasing use of renewables, including wind and solar power.

### EXAMPLES OF SPECIFIC MEASURES

6. A range of cooperative projects involving a number of Parties are being conducted with the assistance of the Global Environment Facility, including: promotion of renewables; improving energy efficiency; afforestation and the fostering of alternatives to slash-and-burn agriculture; capacity building; conduct of country studies, including the development of options for the reduction in growth of emissions; climate change research and monitoring. Support for emission reduction projects has also been forthcoming from a number of bilateral donors.

7. Brazil:

- Since 1976 has been using gasoline containing 50 per cent ethanol produced from sugar cane. This reduces emissions by 15 per cent, and has helped establish a strong local agro-industrial sector;
- Is raising energy efficiency by improving market mechanisms, increasing energy prices, and improving consumer information;
- Is the site for a global pilot project on the commercial-scale gasification of wood chips and bagasse;
- Is aiming for commercial production of buses powered by hydrogen fuel cells.

8. China:

- By 1993 was producing 12 per cent of its installed electricity through cogeneration, an energy efficiency measure which is now mandatory for larger installations;
- Has programmes to promote clean coal technology, vehicle emission controls, wind energy, methane recovery, energy conservation and efficiency, and the commercialization of renewables, among many other measures. It is also conducting a 'Green Lighting' programme.

9. India:

- Grants customs duty exemptions on wind turbines and allows a 100 per cent accelerated depreciation for such equipment in the year of installation;

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<sup>2</sup> Ibid.

- Is undertaking major solar energy projects, including a pilot project for solar-thermal electric technology that is intended to have application worldwide.

10. Indonesia:

- Has a CLEAN/Energy project to promote renewables and energy efficiency, which is projected to save 1.2 million tons of CO<sub>2</sub> emissions in its first year of operation;
- Has small-scale wind, hydro and solar projects.

11. Morocco:

- Has programmes to improve energy plant efficiency that are projected to save 140,000 tons of CO<sub>2</sub> annually.

12. The Philippines:

- Has demand-side management projects that are expected to save between 1.5 and 5 million tons of CO<sub>2</sub> annually by 2010.

**TABLE 1. ENERGY INTENSITY TRENDS**(kg CO<sub>2</sub>/ GDP at 1996 US\$; exchange rate based)

	1987	1988	1989	1990	1991	1992	1993	Change in energy intensity, 1987-1993, %
Australia	1.14	0.91	0.89	0.89	0.88	0.91	0.97	-14.8
Brazil	0.75	0.72	0.54	0.50	0.61	0.62	0.52	-30.5
Canada	1.01	0.89	0.83	0.76	0.73	0.78	0.81	-19.8
China	8.34	7.76	7.22	6.69	6.52	6.03	6.25	-25.1
Germany	0.93	0.86	0.84	0.65	0.55	0.46	0.47	-49.5
India	1.93	1.96	2.08	2.03	2.54	2.53	2.82	45.9
Indonesia	1.55	1.47	1.47	1.49	1.55	1.45	1.42	-8.0
Japan	0.37	0.34	0.35	0.36	0.32	0.30	0.26	-31.1
Mexico	2.02	1.67	1.48	1.26	1.12	1.00	0.95	-52.7
New Zealand	0.62	0.55	0.60	0.58	0.61	0.68	0.63	0.6
Poland	7.53	6.51	5.21	5.63	4.46	4.11	4.05	-46.3
Republic of Korea	1.27	1.09	0.94	0.91	0.87	0.90	0.92	-27.5
Russian Federation <sup>3</sup>	..	..	..	..	..	5.23	5.66	..
South Africa	3.84	3.67	3.32	2.78	2.77	2.42	2.50	-35.0
Switzerland	0.24	0.23	0.23	0.20	0.19	0.19	0.19	-23.8
United Kingdom	0.85	0.70	0.68	0.60	0.58	0.56	0.60	-29.6
United States	1.06	1.02	0.97	0.89	0.87	0.84	0.82	-23.0
Venezuela	2.21	1.60	2.23	1.97	2.24	1.81	1.67	-24.5
OECD	0.80	0.73	0.72	0.64	0.60	0.56	0.57	-29.6
World	1.28	1.18	1.15	1.02	0.99	0.93	0.93	-27.3

Sources: CO<sub>2</sub> emissions data: CO<sub>2</sub> Emissions from Fuel Combustion (forthcoming), IEA, Paris; GDP data: World Tables, 1995 update, World Bank, Washington, D.C.

<sup>3</sup> CO<sub>2</sub> emissions data not available before 1992.