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**United Nations
Development
Programme**

Developed countries should provide incentives for Asia to go green

Setting out a pathway for Bali, the Human Development Report says rich nations must cut emissions by at least 80 percent and invest in adaptation and clean technology for poorer countries

Brasilia, 27 November 2007—Wealthier countries must take the lead in cutting carbon emissions to prevent catastrophic reversals in health, education and poverty reduction for the world's poor, while providing incentives for developing countries like China and India to follow suit, according to the 2007/2008 Human Development Report (HDR) on climate change launched here today.

Building on the recently-released Intergovernmental Panel on Climate Change (IPCC) Synthesis Report, the United Nations Development Programme (UNDP) HDR, entitled *Fighting climate change: Human solidarity in a divided world*, sets out a pathway for climate change negotiations in Bali, Indonesia, and stresses that a narrow ten-year window of opportunity remains to put it into practice.

If that window is missed, temperature rises of above two degrees Celsius could see the disappearance of the Himalayan glaciers that provide water and food for over two billion people, the displacement of 22 million people in Vietnam and the destruction of 45 percent of Mekong Delta farmland as sea levels continue to rise, the collapse of coral reefs in Indonesia on which local fishermen depend, and annual damage costs of up to seven percent of the gross domestic product (GDP) of small island states like Fiji, Samoa and Vanuatu. Some could disappear completely, warns the Report.

“The carbon budget of the 21st Century—the amount of carbon that can be absorbed creating an even probability that temperatures will not rise above two degrees—is being overspent and threatens to run out entirely by 2032,” says Kevin Watkins, lead author of the Human Development Report, “and the poor—those with the lightest carbon footprint and the least means to protect themselves—are the first victims of developed countries’ energy-rich lifestyle.”

The world's richest countries have a historic responsibility to take the lead in balancing the carbon budget by cutting emissions by at least 80 percent by 2050, according to the Report. In addition, they should support a new US\$86 billion global annual investment in substantial international adaptation efforts to protect the world's poor. Developed countries should also adopt a new mechanism to transfer clean energy technology to developing countries. The Report argues that with the support of such measures, developing Asian countries—especially fast growing and industrializing countries like China and India—should also play their part with total emission cuts of at least 20 percent by 2050.

A “nine-planet” lifestyle

Across the world, 1.6 billion poor people still rely on wood and animal dung for fuel—930 million of them live in East and South Asia. While they are left in the dark, rich countries are running up the energy bills. If each poor person on the planet had the same energy-rich lifestyle as the United States or Canada nine planets would be needed to

safely cope with the pollution, says *Fighting climate change*.

The Report points out that even though China will overtake the US as the world’s largest emitter of carbon dioxide in the next 10 years, a person in the US still emits on average five times more carbon dioxide than a person in China, or over fifteen times more than a person in India. The average air-conditioning unit in Florida emits more CO₂ in a year than a person in Cambodia during his or her lifetime.

“The critical challenge for Asia in the face of climate change is to expand access to affordable energy, while at the same time decarbonizing growth,” says UNDP Administrator Kemal Derviş, “International cooperation is vital to unlock win-win scenarios that enhance both the climate security and the energy security that are vital for growth and poverty reduction.”

The Report recommends establishing a Climate Change Mitigation Facility (CCMF), financed by developed countries and designed to provide incentives, including access to clean energy technology, to guide developing countries to a greener development pathway.

This is essential because developing countries will be responsible for an increasing share of emissions, say the authors. For example, the current level of power generation capacity in China is set to double by 2015—equivalent to current capacity in Germany, Japan and the United Kingdom combined—and will rise another 60 percent by 2030. Coal is likely to account for three-quarters of the total increase. Over the same period in India, power generation capacity will amount to roughly twice current power generation in California, again with coal as the lead source. As such, the authors stress that addressing climate change effectively will require serious investment in the cleanest possible coal technologies coupled with an increase in the use of clean and renewable energy sources and maximum energy efficiency.

“Properly financed technology transfer from rich countries to poor countries has to be the entry price that developed countries pay for their carbon trail,” says Mr. Watkins.

Deforestation

Fighting climate change emphasizes that a key driver of growing emissions is deforestation, though the profit made from felling trees across the developing world could be dwarfed by the benefits of conservation.

In Indonesia, for example, oil palm cultivation generates an estimated value of \$14 per hectare, says the Report. “As the trees that stood on that hectare burn and rot, they release CO₂ into the atmosphere—perhaps 500 tonnes a hectare in dense rainforest. At a carbon price of \$20-30 a tonne, a plausible future range on the (European Unions Emissions

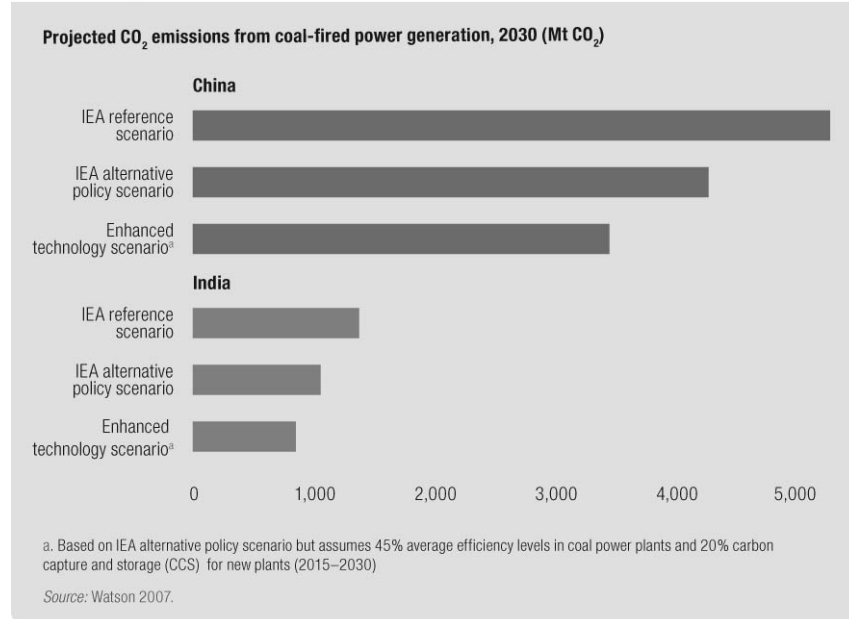
Table 3.3 Carbon emissions are linked to coal plant technology

	Approx. CO ₂ emissions (g/kWh)	Reduction from Chinese average (%)	Lifetime CO ₂ saving (Mt CO ₂) ^a
Coal-fired plants:			
Chinese coal-fired fleet average, 2006	1140	–	–
Global standard	892	22	73.3
Advanced cleaner coal	733	36	120.5
Supercritical coal with carbon capture	94	92	310.8

a. Lifetime savings assume a 1GW plant running for 40 years at an average capacity factor of 85 percent in comparison with a similar plant with Chinese average efficiency (currently 29 percent).

Source: Watson et al. 2007.

Figure 3.8 Increased coal efficiency could cut CO₂ emissions



Trading Scheme) EU ETS, the carbon market value of that release would amount to \$10,000–15,000 a hectare.” Put differently, farmers in Indonesia are trading a carbon bank asset worth at least \$10,000 in terms of climate change mitigation for around two percent of its value, says the Report.

“Countries are losing assets that could have real value in terms of carbon finance. And people depending on forests for

Appendix table 1.1

Measuring the global carbon footprint—selected countries and regions

Top 30 CO ₂ emitters	Carbon dioxide emissions ^a								
	Total emissions (Mt CO ₂)			Share of world total (%)		Population share (%)	CO ₂ emissions per capita (t CO ₂)		CO ₂ emissions or sequestration from forests ^b (Mt CO ₂ / year)
	1990	2004	Growth rate (1990–2004) (%)	1990	2004	2004	1990	2004	1990–2005
1 United States	4,818	6,046	25	21.2	20.9	4.6	19.3	20.6	-500
2 China ^c	2,399	5,007	109	10.6	17.3	20.0	2.1	3.8	-335
3 Russian Federation	1,984 ^d	1,524	-23 ^d	8.7 ^d	5.3	2.2	13.4 ^d	10.6	72
4 India	682	1,342	97	3.0	4.6	17.1	0.8	1.2	-41
5 Japan	1,071	1,257	17	4.7	4.3	2.0	8.7	9.9	-118
6 Germany	980	808	-18	4.3	2.8	1.3	12.3	9.8	-75
7 Canada	416	639	54	1.8	2.2	0.5	15.0	20.0	..
8 United Kingdom	579	587	1	2.6	2.0	0.9	10.0	9.8	-4
9 Korea (Republic of)	241	465	93	1.1	1.6	0.7	5.6	9.7	-32
10 Italy	390	450	15	1.7	1.6	0.9	6.9	7.8	-52
11 Mexico	413	438	6	1.8	1.5	1.6	5.0	4.2	..
12 South Africa	332	437	32	1.5	1.5	0.7	9.1	9.8	(.)
13 Iran (Islamic Republic of)	218	433	99	1.0	1.5	1.1	4.0	6.4	-2
14 Indonesia	214	378	77	0.9	1.3	3.4	1.2	1.7	2,271
15 France	364	373	3	1.6	1.3	0.9	6.4	6.0	-44
16 Brazil	210	332	58	0.9	1.1	2.8	1.4	1.8	1,111
17 Spain	212	330	56	0.9	1.1	0.7	5.5	7.6	-28
18 Ukraine	600 ^d	330	-45 ^d	2.6 ^d	1.1	0.7	11.5 ^d	7.0	-60
19 Australia	278	327	17	1.2	1.1	0.3	16.3	16.2	..
20 Saudi Arabia	255	308	21	1.1	1.1	0.4	15.9	13.6	(.)
21 Poland	348	307	-12	1.5	1.1	0.6	9.1	8.0	-44
22 Thailand	96	268	180	0.4	0.9	1.0	1.7	4.2	18
23 Turkey	146	226	55	0.6	0.8	1.1	2.6	3.2	-18
24 Kazakhstan	259 ^d	200	-23 ^d	1.1 ^d	0.7	0.2	15.7 ^d	13.3	(.)
25 Algeria	77	194	152	0.3	0.7	0.5	3.0	5.5	-6
26 Malaysia	55	177	221	0.2	0.6	0.4	3.0	7.5	3
27 Venezuela (Bolivarian Republic of)	117	173	47	0.5	0.6	0.4	6.0	6.6	..
28 Egypt	75	158	110	0.3	0.5	1.1	1.5	2.3	-1
29 United Arab Emirates	55	149	173	0.2	0.5	0.1	27.2	34.1	-1
30 Netherlands	141	142	1	0.6	0.5	0.2	9.4	8.7	-1
World aggregates									
OECD ^e	11,205	13,319	19	49	46	18	10.8	11.5	-1,000
Central & Eastern Europe & CIS	4,182	3,168	-24	18	11	6	10.3	7.9	-166
Developing countries	6,833	12,303	80	30	42	79	1.7	2.4	5,092
East Asia and the Pacific	3,414	6,682	96	15	23	30	2.1	3.5	2,294
South Asia	991	1,955	97	4	7	24	0.8	1.3	-49
Latin America & the Caribbean	1,088	1,423	31	5	5	8	2.5	2.6	1,667
Arab States	734	1,348	84	3	5	5	3.3	4.5	44
Sub-Saharan Africa	456	663	45	2	2	11	1.0	1.0	1,154
Least developed countries	74	146	97	(.)	1	11	0.2	0.2	1,098
High human development	14,495	16,616	15	64	57	25	9.8	10.1	90
Medium human development	5,946	10,215	72	26	35	64	1.8	2.5	3,027
Low human development	78	162	108	(.)	1	8	0.3	0.3	858
High income	10,572	12,975	23	47	45	15	12.1	13.3	-937
Middle income	8,971	12,163	36	40	42	47	3.4	4.0	3,693
Low income	1,325	2,084	57	6	7	37	0.8	0.9	1,275
World	22,703 ^f	28,983 ^f	28	100 ^f	100 ^f	100	4.3	4.5	4,038

NOTES

a Data refer to carbon dioxide emissions stemming from the consumption of solid, liquid and gaseous fossil fuels and from gas flaring and production of cement.

b Data refer only to living biomass—above and below ground, carbon in deadwood, soil and litter are not included. Refer to annual average net emissions or sequestration due to changes in carbon stock of forest biomass. A positive number

suggests carbon emissions while a negative number suggests carbon sequestration.

c CO₂ emissions for China do not include emissions for Taiwan, Province of China, which were 124 Mt CO₂ in 1990 and 241 Mt CO₂ in 2004.

d Data refer to 1992 and growth rate values refer to the 1992–2004 period.

e OECD as a region includes the following countries that are also included in other subregions listed here: Czech Republic, Hungary, Mexico, Poland,

Republic of Korea and Slovakia. Therefore, in some instances, the sum of individual regions may be greater than the world total.

f The world total includes carbon dioxide emissions not included in national totals, such as those from bunker fuels and oxidation of non-fuel hydrocarbon products (e.g., asphalt), and emissions by countries not shown in the main indicator tables. These emissions amount to approximately 5% of the world total.

Source: Indicator Table 24.

their livelihoods are losing out to economic activities operating on the basis of a false economy,” stress the authors, who call for carbon sequestration from both forests and land to be recognized as an essential parts of December’s climate change negotiations in Bali.

Fighting “adaptation apartheid”

As the climate changes, poor people are being forced to cope with increasing climate shocks and long term risks—and the price of doing so is likely to leave their prospects for human development bankrupt, says *Fighting climate change*. Even if stringent emission cuts are put into place now, the two thirds of the world’s poor that live in Asia will be increasingly vulnerable to rising temperatures. They must be given meaningful assistance now to adapt, stress the authors.

“The poor are not in a position to manage added risks. When there is a drought, they sell their seeds and livestock, they withdraw their children from school, the whole family starts skipping meals,” says Mr. Watkins. This varies dramatically with how rich countries cope, says the Report.

In the low-lying Netherlands, for example, homeowners are preparing for flooding with the assistance of the Government by building homes with foundations like the hull of a ship that can float on water, yet in the densely populated villages of the Mekong Delta in Vietnam, locals have been left to adapt with swimming lessons and lifejackets. While the rich are learning how to float on water, the poor are learning how to float in it, “creating a world of ‘adaptation apartheid’,” writes Desmond Tutu, Archbishop Emeritus of Cape Town, South Africa, in the Report.

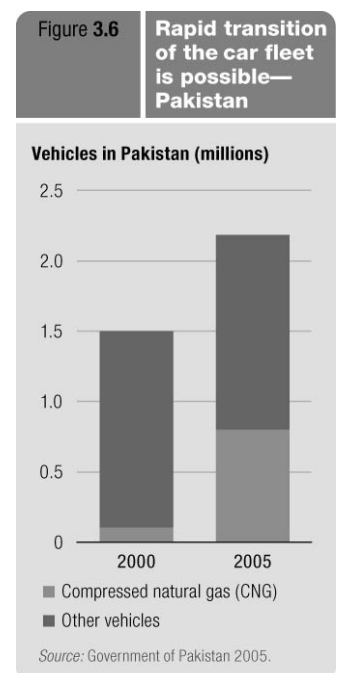
There are examples of how adaptation efforts can make a difference. The ‘char’ islands of Bangladesh are home to 2.5 million people, 80 percent of whom live in extreme poverty and all of whom live in constant risk of flooding. Recent efforts to construct homes on earthen platforms and provide hand pumps and latrines to secure clean water and sanitation mean that 56,000 of the char dwellers are less vulnerable to flooding than before. According to the Report, every \$1 invested in this adaptation initiative protects \$2-3 of assets that would otherwise be lost during flooding, without mention of the highly damaging implications of flooding for nutrition, health and education that may be avoided.

Yet the finance needed to support such practical initiatives to protect the poor is not available, stress the authors. In fact, says the Report, total current spending through multilateral mechanisms on adaptation in developing countries has amounted to only \$26 million to date—roughly one week’s worth of spending on United Kingdom flood defences. This is nowhere near sufficient, says the Report, and it calls on the developed countries to support a new global investment of \$86 billion annually, or 0.2 percent of northern countries’ combined GDP, in adaptation efforts to climate-proof infrastructure and build the resilience of the poor to the effects of climate change.

Pathway for Bali

Fighting climate change lays out a definitive checklist for all political leaders meeting in Bali in December— a pathway for a binding and enforceable post 2012 multilateral agreement that the authors stress will be essential to buttress our planet and its poorest people against the worst impacts of climate change:

- **Cut emissions** from developing countries by 20 percent by 2050 and from developed countries by 30 percent by 2020 and at least 80 percent by 2050, compared to 1990 levels.
- **Create a Climate Change Mitigation Facility** to finance the incremental low-carbon energy investment in developing countries, to give them both the means to switch to low emission pathways and the incentive to commit to binding international emission cuts. This would need an investment of \$25-50 billion annually.
- **Put a proper price on carbon** through a combination of carbon taxation and an



ambitious global expansion of cap-and-trade schemes.

- **Strengthen regulatory standards** by adopting and enforcing tougher efficiency standards on vehicle, building and electrical appliance emissions.
- **Support the development of low carbon energy provision**, recognizing unexploited potential for an increase in the share of renewable energy used and the need for urgent investment in breakthrough technologies such as carbon capture and storage (CCS).
- **Allocate \$86 billion, or 0.2 percent of northern countries' combined GDP to adaptation** to climate proof infrastructure and build the resilience of the poor to the effects of climate change.
- **Make adaptation part of all plans to reduce poverty and extreme inequality**, including poverty reduction strategy papers (PRSPs).
- **Recognize carbon sequestration** on forests and land as essential parts of a future global agreement and **back international finance transfer plans on deforestation** as advocated by Brazil among others.

Fighting climate change concludes that “one of the hardest lessons taught by climate change is that the economic model which drives growth and the profligate consumption in rich nations that goes with it, is ecologically unsustainable.” But the authors argue, “with the right reforms, it is not too late to cut greenhouse gas emissions to sustainable levels without sacrificing economic growth: that rising prosperity and climate security are not conflicting objectives.”

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ABOUT THIS REPORT: The Human Development Report continues to frame debates on some of the most pressing challenges facing humanity. It is an independent report commissioned by the United Nations Development Programme (UNDP). Kevin Watkins is the Lead Author of the 2007/2008 report, which includes special contributions from UN Secretary-General Ban Ki-moon, President Luiz Inácio Lula da Silva of Brazil, Mayor of the City of New York Michael R. Bloomberg, Advocate for Arctic climate change Sheila Watt-Cloutier, Chair of the World Commission on Sustainable Development and former Prime Minister of Norway Gro Harlem Brundtland, Archbishop Emeritus of Cape Town Desmond Tutu, and the Director of the Centre for Science and Environment Sunita Narain. The Report is translated into more than a dozen languages and launched in more than 100 countries annually. Further information can be found at <http://hdr.undp.org/en/reports/global/hdr2007-2008/>. The 2007/2008 Human Development Report is published in English by Palgrave Macmillan.

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