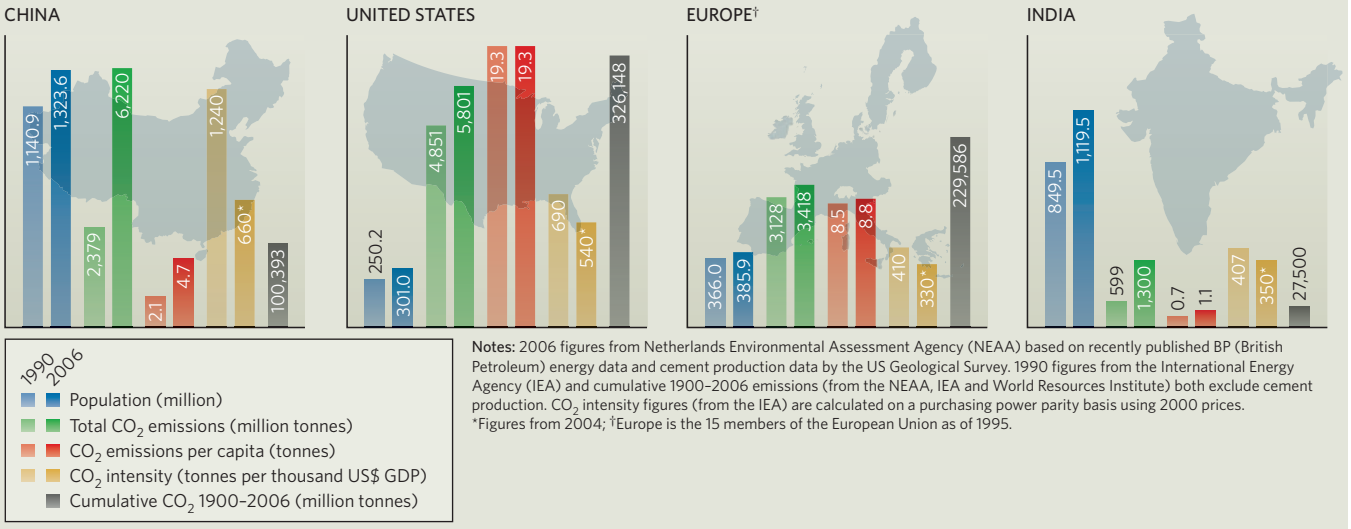
GRAPHIC DETAIL

Gas exchange: CO_2 emissions 1990–2006

Last week, the Netherlands Environmental Assessment Agency produced a preliminary report showing that China had overtaken the United States as the world's largest emitter of carbon dioxide from the burning of fossil fuels and the manufacture of cement (44% of the world's new cement is currently being laid in China). Here's how the world's big emitters stacked up.

In per capita terms, the United States is still easily the most carbon-profligate economy, and it has made by far the largest historical contribution to the stock of atmospheric CO_2. In terms of the emissions it takes to provide a given amount of gross domestic product (GDP), the carbon intensity, China is in the worst position. The carbon intensity has dropped in all four economies since 1990, most impressively in China. But given economic growth, overall global CO_2 emissions rose by more than 35% between 1990 and 2006.



Notes: 2006 figures from Netherlands Environmental Assessment Agency (NEAA) based on recently published BP (British Petroleum) energy data and cement production data by the US Geological Survey. 1990 figures from the International Energy Agency (IEA) and cumulative 1900–2006 emissions (from the NEAA, IEA and World Resources Institute) both exclude cement production. CO_2 intensity figures (from the IEA) are calculated on a purchasing power parity basis using 2000 prices. *Figures from 2004; †Europe is the 15 members of the European Union as of 1995.

Darfur's climate roots challenged

A United Nations (UN) report claiming that "climate change, land degradation and the resulting competition over scarce natural resources are among the root causes" of the Darfur conflict has been met with scepticism by experts on the region. Although these factors contributed, they say, the UN overstates the case.

The 358-page Sudan Post-Conflict Environmental Assessment, released on 22 June by the UN Environmental Programme, is in the main a comprehensive treatise on environmental management. "It seems to have been thoughtfully and professionally done," says Martha Saavedra, associate director of the Center for African Studies at the University of California, Berkeley.

But like many experts, Saavedra questions the UN's spin, which has played up the role of environmental degradation. Ban Ki-moon, UN Secretary-General, stressed this theme in a 16 June article in the *Washington Post* entitled "A Climate Culprit In Darfur". His piece painted a tragic picture of resource scarcity triggering conflict between herders and settled farmers who had previously coexisted peacefully.

"Almost invariably, we discuss Darfur in a convenient military and political shorthand — an ethnic conflict pitting Arab militias against black rebels and farmers," Ban wrote. "Look to its roots, though, and you discover a more complex dynamic. Amid the diverse social and political causes, the Darfur conflict began as an ecological crisis, arising at least in part from climate change."

Alex de Waal, an expert on Darfur at the Social Science Research Council in New York, agrees that the dynamic is complex — and warns that the environmental argument, too, raises "a danger of oversimplifying Darfur." Darfurians have adapted to environmental change for centuries, he points out. "Over the past thirty years, change has occurred at a faster pace and on a larger scale," he says. "But depleted natural resources and livelihood transformations cannot on their own account for armed conflict."

M. KAMBER/REUTERS

Do Darfur's problems stem from resource scarcity?

The true culprit in Darfur is the National Islamic Front, which came to power in Khartoum in a military coup in 1989. It was bent on expanding its political base though ethnic cleansing, using terror as a tactic, says Eric Reeves, an analyst of Sudan at Smith College in Northampton, Massachusetts. "This is not about competition over resources."

"There will always be conflict, but having good, regular conflict regulating and resolution mechanisms — legitimate governing systems — is key," agrees Saavedra, adding that although these issues are referred to in the report, the political issues that lie at the heart of the conflict are sidestepped.

A version of the Darfur conflict would have occurred whatever the environmental changes, says Reeves, adding that they cannot be used as an alibi for the international community's failure to prevent the genocide. "You don't have a diminishment in rain, and then an uncontrolled genocidal conflict; this just doesn't correspond to the political realities in Darfur." ■

Declan Butler

The Swiss National Science Foundation will supervise the scientific quality of the initiative, with help from international experts. This is a first for the granting agency, which has not previously been involved in the quality control of projects it does not fund itself.

US politicians push for food-safety funding boost

Twenty-three US senators are calling on President George W. Bush to boost funding for food-safety oversight in 2009. In a 6 December letter to Bush, the bipartisan group complained that the budget of the Food and Drug Administration (FDA) does not reflect its "critical" and growing role.

They noted, for instance, that the value of US agricultural imports had grown by 40% between 2003 and 2006, yet between 2004 and 2007, the number of employees dedicated to food safety at the FDA fell by 15% to 2,613. In February, Bush proposed increasing the agency's food-safety budget by $10.5 million, to $467 million. Congress has yet to approve the spending bill.

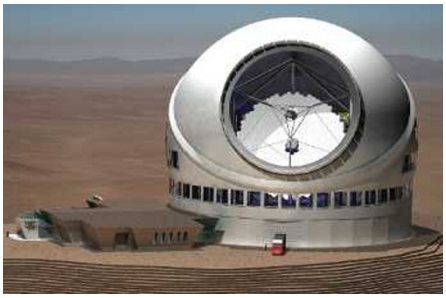
The letter comes on the heels of a highly critical report on 29 November from the FDA's scientific advisory board. It said that the $1.9-billion agency cannot fulfil its mission because of the erosion and inadequacy of its scientific base and information-technology infrastucture.

Private funds raise hopes for giant telescope

Plans to build the world's largest optical telescope were jump-started with a 5 December announcement that a foundation set up by Intel co-founder Gordon Moore and his wife Betty had given the California Institute of Technology and the University of California $200 million.

The two universities will also put in $100 million for the billion-dollar project, called the Thirty Meter Telescope (TMT).

The gift puts the TMT ahead of two other planned mega-telescopes — the Giant Magellan Telescope, a 24.5-metre telescope led by a consortium including the Carnegie Institution of Washington, and the Extremely Large Telescope, a 42-metre observatory planned by the European Southern Observatory. The TMT's 492 hexagonal mirrors will stretch for 30 metres, and the device is expected to achieve a better resolution than that of the Hubble Space Telescope. A final design is expected in 2009.



THIRTY METER TELESCOPE

The Thirty Meter Telescope will have 492 mirrors.

Hackers steal personal data from US laboratories

The Oak Ridge National Laboratory (ORNL) in Tennessee has warned some 12,000 people that their personal data may have been stolen as part of a "sophisticated cyber attack".

Hackers sent lab employees e-mails that seemed legitimate but contained attachments that, when opened, gave the hackers access to their computers. The 'phishing' scheme apparently allowed the hackers to download personal information about people visiting the laboratory between 1990 and 2004.

Correction

The legend to our graphic 'CO_2 emissions 1990–2006' (*Nature* **447,** 1038; 2007) erroneously gave CO_2 intensity in tonnes per thousand US$ GDP. It should have been tonnes per million US$ GDP.