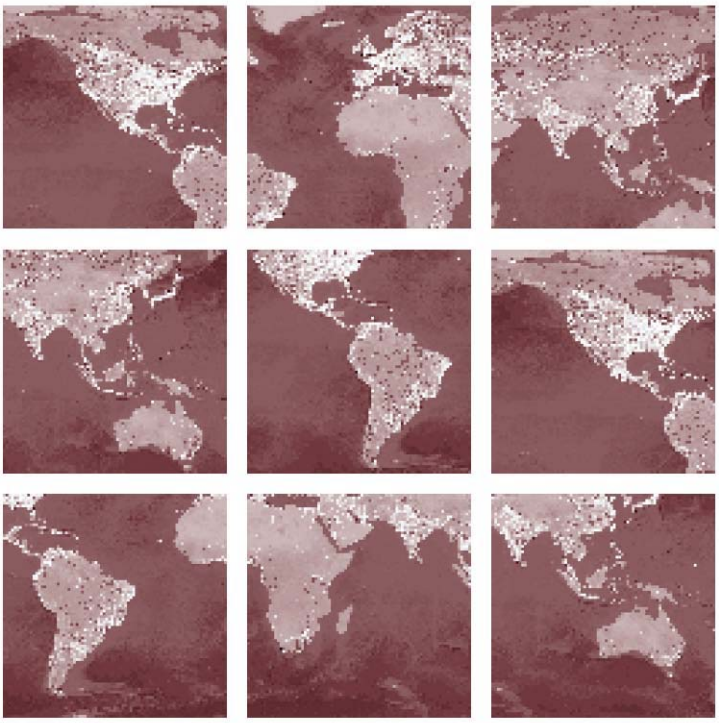
CHAPTER SEVEN

WHY THE BRICS DREAM WON'T BE GREEN

October 2006



WHY THE BRICS DREAM WON'T BE GREEN

Balancing economic development with environmental protection is already—and will remain—a major challenge to our 'BRICs Dream'. Urbanisation, industrialisation and intensive agriculture mean that pressures on the environment are unlikely to abate for decades.

Will breakneck growth in the BRICs result in environmental catastrophe? Will environmental degradation ultimately slow the BRICs' growth and the pace of poverty alleviation? These are among the most frequently asked questions about the long-term challenges to our BRICs projections.

In this issue, we examine a range of environmental challenges facing these countries. Urbanisation and industrialisation are the main 'culprits', but agriculture is also a source of pressure on the environment.

The unstoppable trend of **urbanisation** brings increasing strains on land and water resources. Although Brazil and Russia are already nearly as urban as the G6 (in some cases more so), India and China will face significant growth in their urban populations over the next 25 years. By 2030, the urban share is projected to increase by 50% in China and by 40% in India.

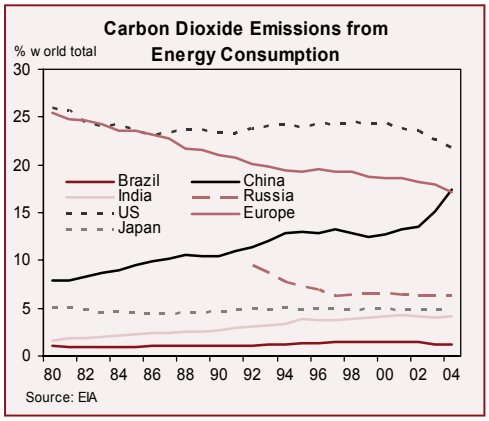
Air pollution is a burgeoning problem and a predictable consequence of the BRICs' growth, given that they are passing through the most energy-intensive phase of development. China is projected to outpace the US as the world's largest carbon dioxide emitter in less than a decade. Fuelled by 4% annual growth in CO_2 emissions, China's CO_2 emissions are projected to be one-third higher than those of the US in 2030, even before the Chinese economy surpasses the US. India's CO_2 emissions could be nearly twice as high as Japan's in 2030.

One way to satisfy the BRICs' rising energy demand would be to reduce reliance on traditional fuels. This can be achieved by improving energy efficiency and by switching towards **alternative energy sources**.

BRICs' consumption of hydroelectricity and other renewable energy is projected to more than double from current levels by 2030, when it will account for one-third of the world total. Expansion in hydropower is likely to be the main driver, particularly in China and India, but hydroelectric projects typically bring a number of negative environmental impacts. Brazil's natural resources also give it scope to increase its reliance on hydropower, ethanol, solar and other alternatives, but it currently has limited scope to undertake the investment needed.

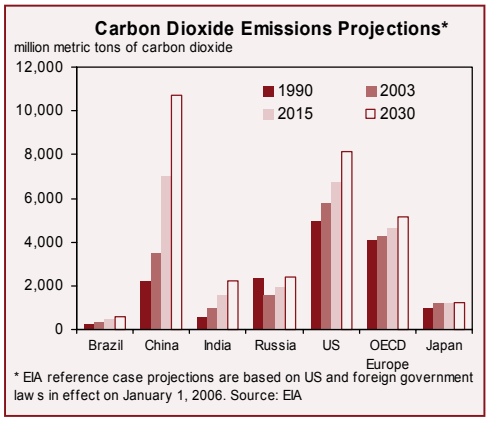
Agriculture too imposes its share of costs on the environment. Agriculture accounts for the vast majority of fresh water withdrawn from the ground in India and China. Even so, only one-third of the cropland in these countries is irrigated, suggesting that agriculture's draw on water resources could intensify. Brazil is perhaps most at risk on this front, since agriculture accounts for 60% of fresh-water consumption, but less than 5% of its cropland is irrigated.

Sandra Lawson, David Heacock and Anna Stupnytska
October 18, 2006



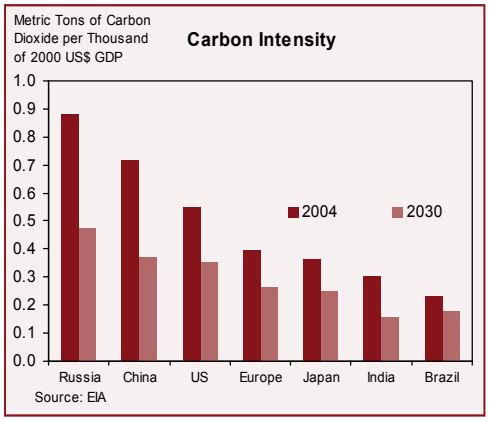
BRICs' Share of Carbon Emissions Is Rising

- The global pattern of CO_2 emissions is shifting as developing countries industrialise while advanced economies shift towards less energy-intensive sectors.
- The developing world already emits nearly half of the world total of CO_2 emissions, with the BRICs alone responsible for nearly 30% of the global total. This is largely thanks to China, where the share has more than doubled since 1980. The collapse of the Soviet Union led to a sharp decline in Russia's industrial base and thus emissions from energy consumption; in 2004 emissions were still just 80% of the 1992 level.



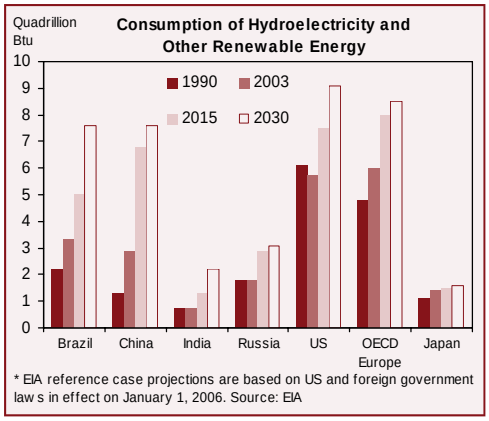
BRICs CO_2 Emissions to Exceed G6 Share by 2025 …

- Thanks to strong growth in the energy-intensive industrial and transport sectors, China is projected to overtake the US in terms of carbon dioxide emissions by 2015. By 2030, China is expected to account for nearly one-quarter of the world total, compared with 19% in the US.
- At the other end of the scale, Russia's emissions are only projected to return to Soviet-era levels in 2030, placing it on a par with India, at 5% of the world total. Brazil will not be a major player; its share of world CO_2 emissions is forecast to remain steady at 1.4%.



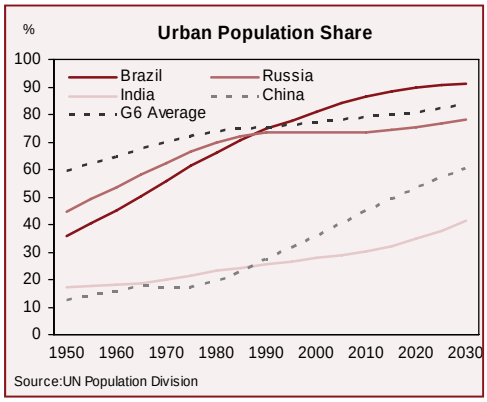
… But Carbon Intensity Is Expected to Fall

- Russia and China have the most carbon-intensive economies, with the two other BRICs lagging the G6 countries. India and China are expected to make the most progress in reducing carbon intensity over time, nearly halving it by 2030. This is likely to reflect rapid economic growth rather than a switch to less carbon-intensive fuels.
- By 2030 carbon intensity is projected to decline across the board, resulting from generally higher investments in improving the efficiency of energy use, and a gradual switch from oil and coal to natural gas and renewables.



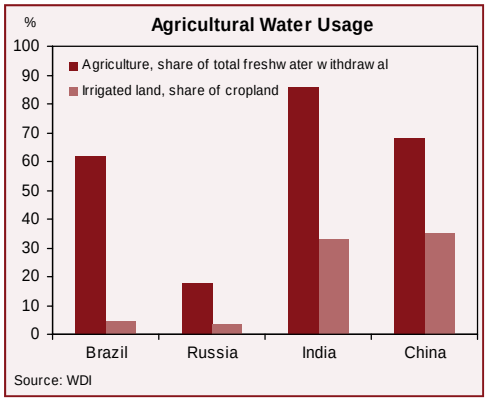
… and Renewables Will Play a Bigger Role

- High prices of traditional fuels, emissions concerns and rising energy demand will encourage greater reliance on renewable energy sources. Global energy consumption from these sources is projected to nearly double between 2003 and 2030, though their share in total consumption is projected to rise only slightly, from 7.8% to 8.6%.
- Brazil already uses nearly as much hydroelectricity as China and the US, despite the size and income differentials. Brazil also has the environmental resources to expand capacity further, but it currently lacks the financial resources to do so.



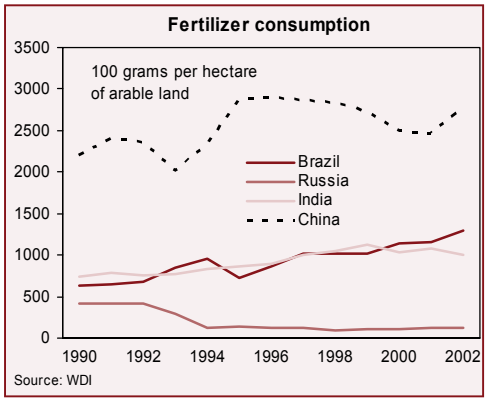
Urbanisation Moving Toward G6 Levels

- Urbanisation will remain a dominant feature in the BRICs in the decades ahead. 57% of the BRICs population now live in urban areas, up from 42% in 1975. The urban population is projected to reach an average 68% in 2030—still lower than the current G6 average of 78%.
- Urbanisation brings environmental issues including water and air pollution, waste disposal and traffic congestion. These challenges will be especially acute in China and India, where the urban share is projected to jump from 41% to 61% in China and from 29% to 41% in India.



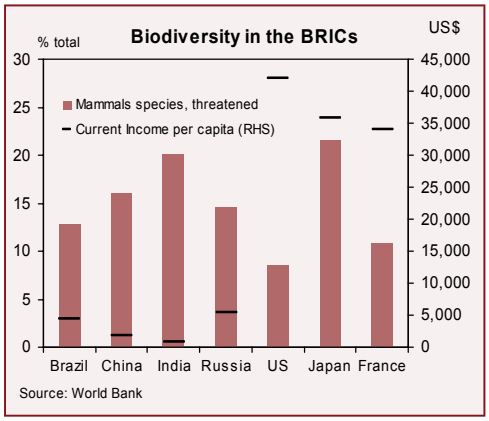
Agricultural Water Usage Is Split …

- Developing and urbanising countries face a dual challenge of supporting intensive agriculture while preserving fresh-water supplies. According to the UN's FAO, the 20% of the world's cropland that is irrigated accounts for 40% of total food production. Worldwide, 70% of total fresh-water withdrawal goes to irrigation.
- One-third of the cropland is irrigated in China and India; in Brazil and Russia, the figure is less than 5%. China's agricultural water use is more efficient than India's: agriculture in China draws only 68% of total water usage, compared with 86% in India.



… Along With Fertiliser Usage

- The FAO estimates that irrigated crop production will need to increase by 80% by 2030 in order to match demand from the developing world. At the same time, it expects irrigated land water use to rise by just 12%, increasing the need for fertilisers to boost crop efficiency.
- Fertiliser usage explains some of the divergence between agricultural efficiency in China and India. China uses 2.8 times as much fertiliser per hectare as India. While this boosts agricultural yields and thus supports urbanisation, it raises the risks of water pollution in both the countryside and the city.



Trade-off Between Biodiversity and Wealth

- Biodiversity is a critical aspect of environmental sustainability. Although industrialisation tends to be achieved at the expense of the environment, the trade-off between growth and the environment becomes more balanced as countries grow richer.
- This is visible in the BRICs and the G3 in measures of shares of threatened species and income per capita. India, poorest of the group, has the highest share (over 20%) of mammals under threat, while US has the lowest share (9%).