

Room to move: 'ecological space' and emissions equity

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Tackling climate change will involve a monumental balancing act. How can we effectively curb emissions while ensuring that poor countries are not restricted in their efforts to develop sustainably? The concept of 'ecological space' offers a viable solution. By measuring and comparing countries' greenhouse gas emissions, we can pinpoint their share of the total remaining emissions the planet can sustain without serious disruption to climate. The relatively low emissions of poor countries — and the per capita levels for the poorest are just 2 per cent of those in the US — allow them the ecological space for non-restrictive economic development. Overall, the concept is a workable guide to achieving emissions equity while collectively moving towards a low-carbon future.

The distribution of ecological space

'Ecological space' extends the concept of rights to natural resources such as energy, land and clean air. With respect to climate change, ecological space means the highest sustainable level that global greenhouse gas emissions can reach. Because regions, countries and even individuals also have a share of ecological space within the total, the issue of equity in how it is distributed is key. The Kyoto Protocol's recognition of per capita carbon dioxide emissions helps in defining the concept of equitable ecological space at the individual level.

When we look at how ecological space is actually distributed globally, however, there is an obvious imbalance. Past and present emissions, and hence contributions to climate change, differ widely among different countries. Today, sustainable carbon emissions stand at about 2 tonnes per person per year. However, the actual global average is 3.6 tonnes, with the UK averaging 9.2 tonnes and Africa 1.04. So the UK, and other countries, have exceeded the limits of their ecological space, while Africa is under-utilizing its own.

The Least Developed Countries (LDCs) emit the least carbon per capita and in total. In Africa, only two countries — Libya and South Africa — emit more than the global average. In the LDCs, the per capita emissions of 0.2 tonnes amount to about 2 per cent those of the UK. The 1950-2000 data from the World Resource Institute's Climate Analysis Indicators Tool shows that African countries contributed 4.6 per cent of cumulative global carbon emissions then, and just 3.5 per cent today. Meanwhile, the EU has been exceeding global per capita average emissions for many years.

Harnessing ecological space

Because of its past and present greenhouse gas emissions, the industrialised world is the prime driver of climate change. Poor countries meanwhile pollute the least and suffer the most from the impacts of climate change. These disparities in emissions also mean most developing countries, particularly in Africa, have high levels of carbon credit. To redress the balance, developing countries can use some of their excess ecological space to reduce poverty and boost low-carbon economic growth and development. If the balance is achieved at a globally low level of emissions, it would be in line with the theory of Contraction and Convergence, proposed in the 1990s by the Global Commons Institute and accepted as a policy target by the Africa Group, among others.

While a significant share of the emissions from industrialised countries can be accounted to sources such as 'luxury' consumption and leisure, African countries emit mostly 'productive' carbon, generated in the course of meeting basic needs. This difference could be realized in trade-driven activities that benefit developing countries — for example, the export of flowers or green beans from several African countries, including Kenya, to developed countries like the UK (see 'Fresh thinking', below). While this may generate additional emissions in developing countries through production and freighting of these goods, it

KEY MESSAGES:

- Equity in mitigation should remain a key element in discussions under the Kyoto Protocol.
- Compared to industrialised countries, developing countries have 'ecological space' credit because of lower emissions, past and present.
- The international community needs to recognise the global benefits of promoting opportunities for developing countries to use or sell their unused ecological space — for example through low-carbon development, trade, transfer of knowledge and poverty reduction.
- Identifying and promoting equitable trade expansion would then promote sustainable development.

Fresh thinking: Africa's exported produce

Exporting produce such as flowers or green beans offers a good option for developing countries to use their excess ecological space in ways that promote development and poverty reduction. It is also an example of 'trade not aid', with the benefits spilling over into other parts of the economy. In Zambia, for instance, every US\$1 of agricultural income generates another \$1.50 for other businesses and about \$1.65 in Kenya. Currently there are 1 million to 1.5 million livelihoods supported by the industry, which has a declared value of some \$400 million and good prospects for growing further in Africa.

Emissions from aviation are not included in national emissions calculations at the moment, partly because of the unresolved problem of how to allocate associated aviation emissions between departure and arrival countries. In the case of exported African produce, if the aviation emissions were entirely allocated to the UK carbon budget they would account for an extra 0.1 per cent of the UK's total emissions. This would exceed the UK's ecological space even further, and effectively stop further trade in fresh produce with Africa — with predictable negative impacts on African economies.

Alternatively, if all the emissions were allocated to Kenya's budget, they would account for an extra 4.8 per cent of the country's total emissions, raising per capita emissions to 0.42 tonnes. As this is the equivalent of just 20 per cent of Kenya's estimated ecological space, the trade would be sustainable. An additional factor is that 60-80 per cent of fresh produce flown from Africa is transported in the bellyhold of passenger flights; so, when the passenger emissions have been factored out, the level accounted to produce will be lower.

In practical terms, potential exporters should be offered the opportunity to choose to use their spare national ecological space to pursue development initiatives, with scope to invest in low-emissions technologies in the long term.

also enables them to develop their economies and boost the livelihoods of many people.

Other initiatives have been proposed to enable the poor to adapt to the impacts of climate change due to past emissions by developed countries, such as:

- Incorporating adaptation as an additional value to the prices of voluntary carbon offsets originating in poor communities
- Introducing an International Air Travel Adaptation Levy to raise adaptation finance.

What needs to happen for the idea to work

A number of issues that have arisen around the concept of ecological space need to be addressed for it to work.

First, there is a need for innovative financial and economic mechanisms to encourage best practices. The UN Framework Convention on Climate Change could then be able to address both the impacts of climate change, and poverty reduction and economic development. Such mechanisms could include:

- A socially differentiated tax system on aviation that incorporates social considerations without transforming the incentives aimed at producing environmental benefits
- Allocating the carbon load from the export of fresh produce to the producing country.

Secondly, one of the challenges of achieving equitable emissions distribution is arriving at an internationally enforced global contract to reduce carbon emissions — for example, to the target of 0.45 tonnes per capita by 2100. Some of the issues that surface in this context are:

- Significant data limitations that constrain consensus among all countries
- The need for facilitating low-carbon economic development through technology and knowledge transfer from developed to developing countries
- The hot debate over mechanisms to hit the 0.45 tonnes per capita target by 2100, as these require emissions reductions

of over 90 per cent while allowing unconstrained economic development in developing countries.

Thirdly, the use of ecological space as a benchmark has limitations. As the global population rises, the global per capita ecological space shrinks. With the population of Africa forecast to double by 2025, total CO₂ emissions will rise if the per capita emissions are kept constant. Thus per capita and total ecological space available to different countries and regions as well as globally will need to be reviewed as conditions such as population shift.

Finally, as economic development continues, total carbon emissions from LDCs and developing countries will rise. If this economic development entails a shift from agriculture to manufacturing, higher levels of emissions will be expected. To keep these low, it will be essential to support this shift with the transfer of cleaner technology from developed countries. Even if the economic development is agriculture-based, improvements in technology and productivity are essential to minimize agricultural expansion as it often involves deforestation, which can generate emissions problems too.

Sources

For more on Contraction and Convergence, see www.gci.org.uk/contconv/cc.html

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