

a tonne, since those other regions have typically less carbon-efficient economies. We hesitate to acknowledge it, but the more we abate, the higher the global emissions are; and this is not the classical carbon leakage (which, indeed, according to some definitions and studies has been small).

For some economists it has been obvious since the early 1990s. Nevertheless, there were arguments to proceed with unilateral reductions on several grounds. One justification is that 'somebody has to show a good example'. Providing a good example is a perfect method to raise children, but negotiators from non-Annex I countries do not behave like children. They are smart and rational. If they see an opportunity to gain something, they go for it.

Another justification is to 'exert leadership' – a nice slogan, except that its side effect is increasing damages for countries that are vulnerable to climate change. I am not concerned about the Dutch or Poles. Both the Netherlands and Poland have resources to cope with sea level rise and other problems expected with climate change. I am concerned about Bangladesh and Maldives since they lack sufficient resources, and their policy makers face so profound short term problems that any long run considerations seem much less important. Therefore they do not fight for solutions which are necessary for their long run well being.

The predicament is not hopeless though. The effectiveness requires that non-Annex I countries take binding commitments, i.e. depart from the Berlin Mandate. The equity (or 'common but differentiated responsibility' in the UNFCCC parlance) requires that the rich pay a significant amount of the cost borne by the poor. Luckily there are ways out of this. One solution is a cap-and-trade system with allocations giving the poor enough permits so they become their net sellers. Negotiating an agreement along these lines is not a trivial task, but the present system of unilateral reductions is indefensible.

The EAERE has concluded its 18th Annual Conference. For many reasons – not only because of an opportunity to see Rome – it was an enjoyable event. Nevertheless its academic profile was somewhat disappointing. There were 95 papers presented in sessions explicitly devoted to 'climate change'. In addition, at least 78 papers dealt with this issue, even though they were allocated to different ('non-climate') sessions. On top of that there were several other discussions or presentations addressing climate policy. Given the fact that the total number of accepted papers was less than 540, it is fair to say that roughly one third of all presentations dealt with the global warming. In the group of posters, the share was lower (7 out of 34).

The high share of climate-related papers reflects the high priority European scholars attach to this issue. Participants of the EAERE conference are professional economists and they note the fact that climate is a public good. Thus nobody in Rome tried to equate individual marginal abatement costs with marginal damages (something very often spotted in politicians' speeches or NGO arguments). Nevertheless I was disappointed with the prevailing mode the issue was tackled with at the conference. There seems to be a tacit assumption that the game played between the Annex I and non-Annex I countries is a 'win-win' game. Unfortunately, it was not over the last two decades. The policy of unilateral reductions is either 'win-lose' or 'lose-lose', depending on how benefits from unilateral abatement are identified and shared. The non-Annex I countries lose anyway.

As a result of this tacit assumption, a number of important climate-related problems are under-researched. For instance, it may be true that unilateral reductions yield some benefits for those who undertake them. But then it would be interesting to calculate 'trade-off' ratios between Annex I benefits (such as e.g. 'the first mover's advantage' or 'energy security') and non-Annex I damages (resulting from increased global emissions). There were no papers tackling this issue. Likewise there were no papers analyzing prospects for departure from the Berlin Mandate in terms of game theory. There were very few papers observing the fact that unilateral reductions result in increased global emissions.

Instead there were a number of papers which dealt with important economic issues which stay far from environmental economics. For instance, an analysis of an oligopolistic competition between firms participating in the ETS may be a valuable contribution to microeconomics or financial economics, but it has nothing to do with climate protection. Similarly, an analysis of benefits from innovations in a low-carbon technology is a fascinating topic, but its link to global climate protection is indirect and requires numerous heroic assumptions.

At the next EAERE meeting, it would be good to listen to presentations offering a much more complete view on economics of climate change. In particular, it would be good to have a comprehensive assessment of the Berlin Mandate and its role in climate negotiations. European environmental economists should clearly see the relationship between unilateral abatement and total emissions of a global pollutant.

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Letters from Regions

Challenges and Initiatives in South Asia ▼



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The South Asian sub-continent houses a quarter of the world's population and half the world's poor. Fortune listed 55 billionaires of South Asian origin (in 2011) accounting for 4.5% of the global billionaires. The region therefore is a mixed bag as far as development indicators are concerned. Being a late starter on the growth turnpike, the region has seen a spurt towards economic prosperity only in the last two decades.

Per capita incomes have risen annually between 1.7% (in Pakistan) to 5.9% (in Maldives) in the period 1990-2009. If we compare the trajectory of growth in the two periods 1970-90 and 1990-2009, Nepal nearly doubled its per capita income growth rate from 1% (1970-90) to 1.9% (1990-2009). India, which hosts a billion plus population, has more than doubled its per capita income growth rate from 2.1% to 4.8% in the same period.

However, the remarkable growth story has been that of Bangladesh going from 0.4% to 3.4% in the bi-decadal comparison. On the other hand, Nepal has only seen a marginal increase from 3% to 4%, while Pakistan is the only country in the sub-continent that has seen a decline in per capita growth rates from 3% to 1.7% (UNDP 2011).

The pursuit of growth and the rise in population have led to greater levels of resource consumption which has in turn increased the pressure on the environment (Mukhopadhyay & Shyamsundar, forthcoming). Even though South Asia's per capita CO₂ emissions is one of the lowest in the world (at 1.5 tonnes per capita), it is growing at 3.4% per annum and the natural resource depletion was 6.2% of gross national income per annum in 2009 (UNDP, 2011:149). Is the economic growth in South Asia sustainable? There are two suggested ways to understand this. One, is to examine the trend in genuine savings and ensure that net savings not only accounts for depletion of physical capital (as is done traditionally) but also of natural capital (Hamilton & Clemens, 1999).

However, a more reliable way to ensure sustainability may be to track changes in aggregate capital stock or comprehensive wealth (Arrow et al, 2004). The World Bank provides estimates of comprehensive wealth for three different years – 1995, 2000 and 2005. Per capita comprehensive wealth has been increasing in the region over this decade, which is good news. However, this increase

has been at the cost of a declining per capita natural wealth, except for Bangladesh and Bhutan (WB, 2010).

Other than the wealth estimates by the World Bank, there is no consistent, time series data available from the respective national databases in this region. In India, there have been some attempts to develop green accounts at both the national and sub-national levels (see <http://www.gistindia.org/>). The Central Statistical Organisation (CSO) is in the process of integrating a number of environmental variables into the National Accounting System. The task of developing a green accounting system has now been entrusted to an expert committee under the chairmanship of Sir Partha Dasgupta, which is expected to provide a framework to incorporate changes in natural capital stocks and flows consistent with the UN satellite System of Integrated Environmental and Economic Accounting.

Networking and Knowledge-Sharing

The Beijer Institute of Ecological Economics, Stockholm pioneered capacity building and networking efforts at a global scale in environmental and resource economics in the South. Karl Goral Maler (Beijer Institute) and Sir Partha Dasgupta (Cambridge University) initiated several regional networks in environmental and resource economics over the last two decades. One such effort is the South Asian Network for Development and Environmental Economics (SANDEE), which completed ten years of capacity building in the region last year. To mark the occasion it organized a conference on "Environment and Development in South Asia" in Kathmandu, which was attended by over 150 economists from all over the world including Nobel Laureate Elinor Ostrom.

SANDEE brings together researchers and builds their research and teaching skills in tackling the problems of development, poverty and the environment in South Asia. SANDEE also conducts training, and has a flagship 3-week course on environment and resource economics every summer. It collaborates with a host of national and multi-lateral agencies including the UNDP, UNEP and the World Bank for various activities. SANDEE has received long term financial support from European donors such as SIDA, and NORAD, amongst others (<http://www.sandeeonline.org>).

In addition to the individual efforts at publishing in peer reviewed journals by the researchers, SANDEE also compiles and publishes good empirical research on environment and development in South Asia. Its most recent research output brings together a set of case studies on environmental valuation (Haque, et al 2011) which follows the earlier volume on common property resource management in South Asia (Ghate, et al 2008).

In addition to SANDEE, there are national professional associations in the region. The Indian Society for Ecological Economics (INSEE) formed in 1998 has attempted to provide a forum for inter-disciplinary interaction on economy, society and the ecosystem (<http://www.ecoinsee.org>). It held the sixth biennial conference, "Nature, Economy and Society: Understanding the Linkages" in October, 2011 at the Centre for Economic and Social Studies (CESS), Hyderabad. Among the international speakers at this conference were Juan Martinez Alier, Ian Bateman, Eduardo Brondizio, John Gowdy and Karl Goran Maler. The Nepalese Society of Environmental Economists (NSEE) is still in nascent stages of formation.

Looking Ahead

In a year's time, India will host the 11th Conference of Parties (CoP) on the Convention on Biological Diversity (CBD) at Hyderabad in October 2012. Dubbed as the "Rio+20" meeting, it will mark two decades since the Rio Earth Summit in 1992 where CBD was adopted. Given that India is one of the 12 mega-diverse countries of the world, occupies about 2.5 % of land surface and is home to 7.8% of recorded species, it is no surprise that India was one of the first countries to place bio-diversity conservation within a national legal framework by enacting the Biological Diversity Act in 2002 (<http://www.nbaindia.org/introduction.htm>). As a build up to the CoP, a study has been initiated by the Ministry of Environment and Forests (MoEF) on the Economics of Ecosystem and Biodiversity in India which is expected to lay a road map for conservation and management of natural capital in the region.

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News from the European Commission

Resource Productivity ▼

*By Stephen White, European Commission**

We depend on resources like metals, minerals, fuels, water, timber, fertile soil and clean air for our survival, and they all constitute vital inputs that keep our economy functioning. Resource efficiency means using the Earth's limited resources in a sustainable manner, within the planet's long-term boundaries. It increases aggregate economic value through more productive use of resources over their life cycle.

What is the problem?

The supply of resources is limited. Rising demand is going hand in hand with scarcities and volatile commodity prices. Global demand for resources is increasing, driven by population growth and improving standards of living. In the 20th Century, the world experienced a 4 fold growth in population and a 23 fold increase in economic output. We increased our fossil fuel use by 12 times, our fishing catches by 35, and our water use by 9. Globally, extraction of material resources grew by a factor of 8, ores and