DITHERING ON CLIMATE CHANGE AT DELHI

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Some nations acquire empires in a fit of absent mindedness, others simply host conferences. From October 23 to November 1 this year, India hosted the eighth annual meeting of 185 countries that are signatories to a non-binding 1992 UN convention on global warming. In the jargon-ridden world of international diplomacy, this was the eight annual Conference of Parties (COP 8) to the UN Framework Convention on Climate Change (UNFCCC).

Deep inside Lutyens' New Delhi in the cloistered confines of Vigyan Bhavan, over 4000 government and non governmental delegates from the North and South expended hot air for 10 days debating passionately 'bracketed text' and parsing the distinction between 'adaptation' and 'mitigation'. Outside, for the people of Bharat and India preoccupied with Kaveri, Kashmir and cricket, respectively, the climate shenanigans barely registered a blip on their consciousness. Apart from the predictable editorials and op-ed pieces in newspapers and familiar faces of 'experts' doing the rounds of television channels, COP 8 might have well been held on Mars.

This is not to argue climate change (global warming for the scientifically challenged) is not serious business. To the contrary, it is possibly the most serious environmental challenge humanity has ever faced and for which global collective action is imperative. While the extent of climate change and its environmental and economic impacts are subject to debate, it is, nevertheless, clear that humans are altering the earth's climate in profound ways through burning fossil fuels that produce carbon dioxide, and from activities such as cutting of forests and agriculture that produces methane another greenhouse gas[1]. It is too much, however, to expect a well thought out, coherent and long-term climate strategy from a government that cannot see beyond the next round of elections and its narrow parochial interests. Therefore, India missed an opportunity to jumpstart the climate change negotiations that have been stalled since the last important milestone at Kyoto, Japan five years ago.

The tortured path from Kyoto to Delhi

At the COP 3 meeting at Kyoto in 1997, 34 of the world's industrialized countries agreed to cut their emissions of greenhouse gases (GHGs)—mainly carbon dioxide or CO_2, by 5.2% from 1990 levels, over a five-year period from 2008-2012. Much attention since has been focused on making the so-called Kyoto Protocol happen. In order to make the targets legally binding, at least 55 countries among 185 signatories to the UNFCCC have to ratify the Protocol. In addition, these must include industrialized countries (Annex I Parties to UNFCCC in climatespeak) accounting for 55% of that group's carbon dioxide emissions in 1990. So far, 96 countries have ratified the Protocol including 25 Annex I Parties that account for about 37.4% of total Annex I carbon dioxide emissions. (See the Kyoto Protocol 'thermometer' at http://unfccc.int/resource/kpthermo.html)

In addition to the incorrigible United States that accounts for 36% of Annex I emissions, other important holdouts in this group are Russia (17.4%) and Poland, Canada and Australia (about 2-3% each). While the oil lobby dominated Bush administration has flatly refused to sign the Protocol on the specious plea that it is "fatally flawed" and would harm the US economy (!), other laggards, Russia in particular, are simply manouevring for the maximum concessions they can extract. Though it seems likely that the Kyoto Protocol may yet come into force if Russia can be cajoled to join, the road from Kyoto to Delhi and beyond

has been slow and tortured. The nadir was reached at COP 6 at The Hague in November 2000 when a sensible compromise offered by the Clinton administration was rejected by the European Union. Soon after, the Bush nightmare started with the United States pulling out of the Protocol completely in March 2001. Ironically, the compromise hammered out at Bonn later that year (aka COP 6 *bis*) watered down the Protocol to include carbon "sinks" (forests and such like that absorb or 'sequester' carbon dioxide) and dropped any requirement of "supplementarity"—that is, the limits on the extent to which a country's commitment to reduce GHGs could be met through various flexibility mechanisms. In the ultimate analysis, the agreements at Bonn (COP 6 *bis*) and at Marrakech (COP 7) looked very much like the version that America could have signed on to[2].

To sign or not to sign that is (was?) the question

India has not covered itself with glory either in the years since Kyoto. As always, it acted 'a day late and a dollar short'. After waffling for a long time, our Janus-faced negotiators quietly acceded to the Protocol on August 26 this year, presumably as a run up to COP 8. It is a moot point whether an earlier and more enthusiastic reception to the Protocol by India would have made a difference to events as they unfolded, in particular the pullout by the United States from it. Such an endorsement by India, however, would have removed the fig-leaf of 'meaningful participation' by developing countries such as India and China as a prerequisite for action by the US. More important, it took our climate policymakers four long years to figure out that the Kyoto Protocol made good economic sense for India—a decrease in fossil fuel demand by industrial countries (triggered by CO_2 cuts under the Protocol) would lead to a reduction in world energy prices and benefit major energy importers such as India (Babiker *et al.*, 2000). In effect this would facilitate faster economic growth in developing countries other than energy exporters (Chander 2003). In addition, developing countries such as India also stood to gain under the Protocol through the Clean Development Mechanism (CDM)[3]. Now with the United States out of Kyoto and the compromises at Bonn and Marrakech (namely, dropping of supplementarity and inclusion of Article 3.4 sinks), all this may not come to pass. While the first development reduces global demand for GHG abatement drastically, the granting of sinks (combined with Russian and Ukrainian "hot air"[4]) relaxes the abatement targets substantially. If Russia and Ukraine did not exercise market power (e.g., cartelize), Annex I emissions in 2010 would actually *increase* by 9 percent over the 2000 level and the carbon-equivalent price would fall to below $5 per ton C--in effect, not significantly different from zero![5] This is to be expected given a sharp drop in demand for abatement coupled with a huge increase in supply (sinks and hot air). On the other hand, if Russia and Ukraine were to cartelize in order to maximize revenue, Annex I emissions between 2000 and 2010 would roughly remain unchanged and the carbon-equivalent price would be around $25 per ton C (Babiker *et al.* 2002). In either event, despite fungibility of emission reductions under the Kyoto flexibility mechanisms, there do not appear to be many takers for CDM in the short-run. Nor does it seem likely now that the Protocol in its current form, would have any impact on world fossil fuel prices.

Hindutva and climate change

Despite all this, it is desirable that the Kyoto Protocol becomes a reality as the first concrete manifestation of international resolve to address climate change. It is also likely that some countries may choose to meet their original GHG reduction commitments without the many degrees of flexibility (or loopholes as some argue) afforded them. Further, the experience gathered during its implementation would be useful in future rounds of negotiations. But going by India's stance at the Delhi meeting one would have been hard put to believe that this was indeed the case. Thanks to our *netas* and *babus* at the Ministry of

Environment and Forests (MoEF) and elsewhere, the meeting began and ended on a divisive note with not much to commend for itself in the interim either[6].

The first draft of the ministerial declaration (grandiosely titled the Delhi Ministerial Declaration on Climate Change and Sustainable Development) released by the Indian Environment Minister T.R. Baalu on October 28 set off howls of protest among the delegates by omitting any mention of the Kyoto Protocol. Even the final document was a limp one that papered over deep divisions among the parties. It made a perfunctory reference to the Protocol--hardly the stuff to inspire and lead.

The Delhi non-declaration is most generously viewed as the handiwork of an absent minded and rudderless government. At worse, the initial omission of Kyoto in the draft declaration fits into a pattern of kowtowing to the United States. In February 14th this year President Bush came out with a disingenuous proposal on climate change that virtually guaranteed much higher absolute emissions of GHG emissions within a decade in the US. The wording of his proposal, however, was that the US would reduce the GHG intensity of output (that is, the level of emissions per unit of output) by 18 percent over the next ten years. This sleight of hand was so brazen that even the conservative weekly The Economist was compelled to describe the proposal as "all hat and no cattle" (February 14, 2002). While the world was condemning the Bush proposal, the Indian External Affairs Ministry on February 18th came out with an asinine statement welcoming it. Again, this can at best be ascribed to muddled thinking or at worse a *quid pro quo* for American support to the sabre-rattling Hindu fundamentalist government. Again, in April this year India colluded actively with the US in turfing out Robert Watson the head of an international expert panel on climate change, the IPCC (Intergovernmental Panel on Climate Change). Dr. Watson was a marked man by the oil lobby and by the Bush administration due to his perceived anti-industry stance. The bonhomie between the Hindu fundamentalist government and the Bush administration is, of course, well documented and is due to larger geopolitical compulsions. Viewed in this context, the climate shenaningans of our *netas* and *babus* fall into place.

Is there life after (and despite) Kyoto?

Be that as it may, if our policymakers were upto the task, it is imperative for India to look beyond Kyoto and COP 8 and to take a long-term view on climate change. After all, this problem took decades to manifest itself and its magnitude and dimensions are still not well understood. Also, it will remain with us through the current century and beyond—as yet there is no magic bullet for global warming. Thus, whether Kyoto happens or not India must look ahead especially beyond 2012 when the Kyoto agreement (if it were to happen) would end. International negotiations to decide on the architecture of the GHG abatement regime beyond the first round of efforts (2008-2012) will start in earnest by 2005. Even though India's annual per capita emissions for 1998 of 0.3 tonnes of carbon are well below the global average of 1.1 tonnes per capita, in the aggregate its emissions are large and growing rapidly—it is the world's fifth-largest emitter of fossil-fuel-derived carbon dioxide, and its total emissions grew at an average annual rate of almost 6 percent in the 1990s (Marland *et al.* 2001). Thus, it is quite likely that India in particular (and developing countries in general) will have to take on some commitments to reduce GHG emissions. In fact, some climate policy experts have argued "the size of its (India's) aggregate emissions makes its participation in any future developing country commitment regime *a foregone conclusion*." (Sagar 2002, p. 3925, emphasis added).

India's strategy seems to be to insist on equity as a basis for sharing the right to emit GHGs. It is evident that a billion or so Indians would collectively garner a big chunk of these rights which it is assumed represents a real transfer of resources from the rich to the poor countries. Thus, high-minded principles

aside, the bargaining is largely about money. In particular, an allocation based on a per capita rule combined with emissions trading in GHGs, would give India permits in excess of its actual emissions (much like Russian "hot air") that would be a windfall. For instance, on the basis of the per capita criterion, India could potentially increase its emissions in 2010 by 722 percent over the 1990 level (Gupta and Bhandari 1999, Table 6). *Actual emissions*, however, according to some estimates (Ellerman *et al.* 1998) are projected to increase less than threefold over the same period[7]. This creation of Indian "hot air" may not be acceptable internationally and some compromise may be required[8].

Another problem with the Indian stand is that the implications of allocations on a per capita basis, on the price of these allocations/permits are not well understood. After all, the revenue earned from selling permits depends not only on the number of permits owned but also on their price. If India cares about how much money it can earn it should presumably care about the quantity as well as the price of permits.

It is all very well to argue from a high moral ground for "equal per capita rights to global environmental resources" as the Indian Prime Minister did at his speech at COP 8. But the rhetoric must be backed up by careful analysis of a global market in these rights. Those who advocate allocations on a per capita basis may want to keep in mind the old Chinese saying "beware of what you ask, for you might just get it". To begin with, it is important to realise that India would not be the only player from the South if global emissions trading were to emerge. China, in particular would also be a major recipient of rights to emit GHGs allocated on a per capita basis. In such a scenario it is crucial for India to analyse likely outcomes of emissions trading particularly with respect to the price of these rights. Any collusion or price fixing in this market would reduce the value of permits. So would technical progress of the kind that leads to a downward shift in the marginal abatement cost (MAC) curve for GHGs in developing countries. As Bertram (1996) shows this could actually lead to a fall in revenue for permit exporting countries. This result is particularly true when quotas are allocated using the per capita rule that gives developing countries such as India a large number of permits. In this context, it is surprising to find no analysis of the kind suggested here. Along similar lines, in the runup to COP 8 an editorial in this magazine (EPW) on August 31, 2002 suggested "the government must have a clear position on emissions trading, make and initiate work on clear guidelines for carbon auditing, certification and trading." But who is listening?

Need for a holistic view on climate change

In addition to a long-term view, we also need a holistic approach to climate change that encompasses, *inter alia*, the effect of our energy use on the health of Indians alive today and on our agriculture. Burning of fossil fuels on a large scale (see previous section) not only produces greenhouse gases but also local pollutants like particulates. A recent UN report documents the harmful effect of these local pollutants on the health of Indians and on our agricultural output (UNEP and C^4, 2002). This careful study conducted by over 200 scientists documented the pervasive presence of haze—a brownish layer of pollutants and particles from burning of biomass and vehicular and industrial emissions, in many regions of Asia including India. Preliminary assessments of the impact of this haze (termed Asian Brown Cloud) include a decrease in rice yields in India by 5-10 percent and extensive health impacts[9]. If we continue to use energy inefficiently as we do at present because we distort prices and use outdated technologies then we endanger the health of our own citizens and threaten our food security. To insist that we continue to be profligate in using energy in the name of development is cutting our nose to spite our face.

In this context, a study using a computable general equilibrium (CGE) model focuses specifically on ancillary benefits of limiting carbon dioxide emissions for India (Bussolo and O'Connor 2001). Ancillary

benefits are defined in terms of reduced mortality and morbidity due to reduced particulate concentrations and are estimated at 334 lives saved per million tonnes of carbon abated (or in monetary terms $58 per ton of carbon emissions reduced). These benefits are juxtaposed against the welfare costs of CO_2 abatement by means of imposing a tax. This enables the authors of the study to arrive at the level of "no regrets" abatement (that is, the level of abatement where ancillary benefits are at least as much as the cost of abatement). This level ranges from 13-23 % of baseline CO_2 emissions in the year 2010 depending on the values of statistical life and elasticities of substitution used in the analysis. In other words, just on the strength of ancillary benefits CO_2 emissions could be reduced by at least 12-13% over the baseline in the year 2010 without any net cost.

These benefits must be juxtaposed against energy subsidies that still exist in India as in many other countries. It is true that these subsidies have been declining—during the first half of 1990s total fossil fuel subsidies in 14 developing countries declined by 45 percent, whereas in OECD countries subsidies declined by 21 percent (Reid and Goldemberg 1998). In India, with the dismantling of the Administered Price Mechanism (APM) for petroleum products and ongoing economic reforms, these subsidies are set to decline even further. In general, energy price reforms in developing countries should be acknowledged as positive steps towards addressing climate change (*op. cit.*). There is, however, still a long way to go--the International Energy Agency estimates that in eight largest energy producing countries outside the OECD (China, India, Indonesia, Iran, Kazakhstan, Russia, South Africa and Venezuela), end-use energy prices are about 20 percent below their opportunity cost (Fischer and Toman 2000).

A study for coal-based electricity generation in India also shows that policies that remove price distortions (namely, marginal cost pricing and elimination of subsidy to producers) combined with freer imports of high quality coal, could reduce carbon emissions by 6.6 percent (Khanna and Zilberman 1999). Further, this reduction in carbon emissions was accompanied by an increase in the volume of electricity generated, lower coal consumption and an increase in social welfare by 8.6 percent. This reinforces the beneficial impact of the removal of trade and domestic policy distortions on carbon abatement.

Finally, petroleum imports continue to be a major component of our import bill (about two thirds of our petroleum consumption is imported). Thus, reducing the energy intensity of the economy through continued economic reforms and use of tried and tested methods such as emissions trading for local pollutants (as shown by the sulphur dioxide trading program in the US) would be in our own interest. It would also pre-empt those who demand action by India on the climate change front. In the world of *realpolitik* making a virtue out of necessity is a good idea. On the other hand, while US-bashing may make good copy it will not reduce load-shedding in Indian cities nor make our local pollution problems go away.

The way forward: implementing a sensible climate policy

In light of the forgoing discussion after the first commitment period (2008-2012) it is likely and perhaps even to India's benefit to engage with the international community in taking some responsibility for reduction in GHGs. After all, howsoever 'common but differentiated responsibilities' may be interpreted, this cannot and should not mean no responsibility, particularly in the long run. Any such commitment will in turn imply reductions of GHG emissions from energy use in transport, industry, power generation and other sectors of the economy. Delineation of policies to achieve such reductions is beyond the scope of this commentary[10]. Suffice it to say that pursuit of enlightened self interest on India's part is fully consistent with shouldering responsibility in providing an international public good, namely, GHG abatement. What is required is careful analysis of our options and strategic thinking. Unfortunately, Theodore Roosevelt's

advice to speak softly and carry a big stick has been stood on its head by our climate negotiators whose shrill rhetoric is only matched by its emptiness.

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Notes

1. The Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), released in 2001, confirms that "an increasing body of observations gives a collective picture of a warming world" with "new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities".

2. In particular, Article 3.4 sinks earlier sought by the United States and others that were vigorously opposed by the European Union were now liberally allocated to Canada, Japan and Russia, and a total of about 70 million metric tons of carbon (MMtC) as sinks have been allowed under the Bonn and Marrakech agreements. See Babiker et al. (2002) for details.

3. Under CDM, developed countries (or firms in those countries) can fund GHG abatement projects in developing countries where abatement costs are much lower. In turn, the developed countries receive credits ("certified emission reductions" or CERs) that can be used to offset their emission reduction obligations (see Toman 2000 and Babu 2003 for details).

4. Of Annex I countries, emissions for Russia, Ukraine and the Baltic states (principal constituents of the former Soviet Union, FSU) in the year 2010 are predicted to be below the aggregate level to which they committed at Kyoto. The difference between the FSU commitment (873 Mton) and predicted emissions (763 Mton) is known as "hot air" (111 Mton), a *de facto* right to emit.

5. These results are consistent with several other studies cited by Babiker *et al*. (2002).

6. Here is a sampling of headlines from some English dailies "Climate meet begins among divisions" (Times of India, 24.10.2002), "Climate meet runs into rough weather" (The Hindu, 1.11.2002), "Positions harden in COP-8 draft wrangle" (Times of India, 1.11.2002), "EU rejects climate meet draft" (Indian Express, 29.10.2002), "After much dissent, Delhi declaration is through" (Times of India, 3.11.2002), "Total COP out" (Hindustan Times, 2.11.2002), "Divisive end to climate summit" (Times of India, 3.11.2002), "India bags 'Fossil of the Day' Award" (Hindustan Times/Press Trust of India, 30.10.2002).

7. In calculating per capita entitlement in year t, population is not pegged at some reference year but is taken at the actual level that prevails in year t. Thus, India with an increasing population gains disproportionately as compared to countries such as China that have stabilised their population. The "hot air" that India would acquire would be less if the reference population level were fixed at year 1990 or 2000.

8. It should also be noted that China's emissions are projected to roughly double (from 833 Mton in 1990 to about 1800 Mton in 2010). Under the per capita criterion, however it can increase its emissions by 162% over the same period (Gupta and Bhandari op. cit., Table 6). Thus, it does not stand to gain as much by creation of "hot air" and may therefore be a less enthusiastic supporter of the per capita rule.

9. Citing Kumar (1997) the study mentions 52,000 deaths in 1995 from levels of outdoor air pollution exceeding WHO standards in Indian cities (UNEP and C4, 2002, Table 9.2). It also cites an estimate of ill health from indoor air pollution that is as high as 4.2-6.1% of the national total, and 6.3-9.21% for women and children under 5 (Smith 2000).

10. See Gupta (2002) for a discussion, particularly on implementation issues.

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