

Collective decision-making and South-North equity

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NEED FOR COLLECTIVE DECISION MAKING FOR CLIMATE CHANGE

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1. Introduction

The problem of climate change is discussed mainly from the point of view of Annex I countries, as the viewpoints of others are not expressed often in the literature. Their contributions in terms of published papers in the literature compared to non-annex I countries is greater by one or two orders of magnitude. This is partly due to the preoccupation of non-Annex I countries with problems of an immediate nature such as poverty, development and local environmental issues. Moreover, some complacency is due to the fact that their GHG emissions are low and actions from them are not yet warranted. However, this does not mean that decisions taken today do not affect them. In fact, most studies show that they will be severely affected from damages due to climate change; adaptation and later abatement efforts are required from them. This article shows the interface of non-annex I interests with several issues that are being discussed today viz:

- Collective decision making needed for choosing levels of concentrations for stabilisation.
- Efforts needed by Annex I and non-Annex I countries in abatement.
- Required North-South transfers.
- Nature of global policy instruments and arrangements concerning AII.

First, some facts need to be brought upfront.

Currently, the CO₂ concentration levels are about 360 ppmv (parts per million by volume). However, in the future this may rise to 450 ppmv and even reach 550 ppmv - a level referred as "doubling of preindustrial CO₂ levels (-285 ppmv)". We shall consider each of the above in turn in the context of collective decision making framework.

While the emissions by non-annex I countries are rising, for the next 50 years historically cumulated emissions (i.e. from 1950 to 2050) of Annex I countries, despite their low population, may be larger than the non-annex I countries.

We recall that historically 77% of cumulated emissions uptill now are due to annex I countries (developed) and the remaining by non-annex I countries (developing). Their share appears to be still large in the "committed doubling" (which means that till we reach the levels of 550 ppmv in the business as-usual scenarios of the IPCC somewhere around 2050 or 2060).

With this backdrop, we examine each of the above issues.

2. Collective Decision Making

2.1 *How and Why Collective Decision Making*

The Conference of Parties (COP) is the apex forum which makes the collective global environmental decisions for global welfare within constraints set by equity and efficiency. Climate change means different things to different people. To Annex I countries, it is the cost of abatement, to non-Annex I countries it is the burden of adaptation, and concern for vulnerability, irreversible damages, rise of frequency of extreme events and, most of all, costlier development. Although these issues concern Annex I countries also, it is shown that the welfare loss in percentage terms could be higher for non-annex I countries. (Fankhauser 1995, Parikh 1995). To island states, it is their existence and to oil exporters, it is their revenue loss, if fossil-fuel demand drops. Again, it concerns economists and environmentalists differently. All these concerns need to be voiced in a comprehensive and well-balanced manner.

A conservative choice for levels of concentration for stabilisation reduces the adaptation burden on all, but especially non-annex I countries. On the other hand, assuming the same effort by the annex I countries, higher stabilisation levels can give the South the space it needs to grow and develop, and future generations more options to choose from. Thus, it can be neither too conservative so as to deprive the present generation, nor too generous. In both cases, if restraints are exercised by the annex I countries in carbon emissions, more options are available to the developing countries. There is a hierarchy of decisions involved here.

The first stage, involves decisions at the global level, such as choosing concentration levels for stabilization and emission growth paths and their interregional allocations. These decisions have to be taken collectively by the COP. Utility based criteria would be quite inadequate for this purpose. Global climate change will affect each country differently. Their risks and welfare costs are different. At the same time, those who have to take major abatement actions and therefore bear the costs of abatement are in general different countries from those who are at the largest risk from climate change. We do not have a global welfare function that integrates the utilities of different stakeholders.

Since global climate change affects every country, each country is a stakeholder. Since developing countries are more vulnerable and have contributed little to the pollution so far, they could have unequal rights, and could have more say in this matter. It is seldom that polluters decide what level of pollution could be tolerated, particularly when they are less vulnerable to the possible impacts of pollution. Yet, their difficulties in responding quickly have to be kept in view.

The second stage of decisions are at national levels, about how best to meet international obligations with efficiency and equity according to national priorities. As they are national strategies, we need not discuss these in this paper. Therefore, we return to the collective decision making to be done at the global level.

2.2 *Determining desirable levels of concentrations*

One finds a number of references to CO₂ doubling, i.e., 550 ppmv concentrations. However, one needs to evaluate consequences of other levels also, such as 450 ppmv, 500 ppmv. Typically in the cost-benefit approach, abatement costs to be incurred are weighed against the streams of damages due to future climate change, which are then discounted. Level of abatement is then determined (Nordhaus W. 1994). However, cost-benefit approach

does not guarantee safety given the uncertain cost functions in future. It is even difficult to decide what the impacts will be, let alone cost them. These impacts result in some damages and some can be avoided by adaptation. Adaptation is often assumed to be cost-less. Considering irreversibility of damages, the better approach is to start from safe minimum standards first and then decide cost-effective options to achieve these. In this case, the damages to the developing countries need to be also valued. Preferably, the costs should be compensated. Moreover, it should be realised that the marginal utility of natural capital increases as income levels rise and even more so relative to the marginal utility of manufactured capital. Future generations may have higher utility for environmental capital than what we do today. Considering all the above, it seems more prudent to go for risk minimisation rather than a cost benefit approach based on "valuing damages in the distant future". The "precautionary principle" that minimise risk is also recommended by the IPCC

3. Adaptation Burden Imposed

If abatement is not carried out by those who emit, then the costs of climate change risk are externalised and everybody has to bear the adaptation costs. Adaptation costs by the South include the following elements :

- Incur increased cooling costs
- Face frequent storms, floods and extreme events
- Switch to different crop patterns
- Give up land rights, if they are in submerged coastal areas
- Migrate to alien lands and incur costs of uprooting by those whose lands are under threat of submergence or increased extreme events.
- Faceless of income or livelihoods due to crop or fishery loss.

The consumption of developing countries is very low and, therefore, they do not get as much benefits from fossil fuel-use, as do the Annex I countries. Low income countries may well ask "why do we have to suffer this, when we did not in the past or present benefit as much from fossil-fuel use as the annex I countries". Thus, their requests that the Annex I countries speed up their emission reductions can be seen in their self interest. Alternatively, if the Annex I countries are unable to reduce as sharply as required, some compensation mechanisms are needed such as technology transfer, migration rights, or a risk intensive and compensation funds that could be built up with carbon tax. A country level example of India can clear up some issues.

3.1 India's vulnerability to Global Climate Change[CC]: An Example

Potential Impacts of CC on Coastal Areas of India:

In India, a one meter rise in sea level would place 7.1 million people at risk of displacement or other severe disruptions (Asthana, 1993). Total estimated land loss will be about 5763 sq.km, which is 0.41% of the total area of coastal states. The hardest hit state would be Goa (160 sq.km, or, 4.34% of the total state area), followed by West Bengal (1.38% of the total state area), and Gujarat (0.92% of the total state area). The economic costs associated with this impact alone are estimated to be about Rs. 1847.6 billions. As the impacts would be spread out over a period of time, the annualised costs would be a better indicator of the costs.

Vulnerability of Agriculture System

FCCC suggests that GHG concentration levels should be such that food production systems are not threatened. Recent global studies provide an idea of what is in store for the future due to climate change in terms of food vulnerability. The studies predict that world cereal production is estimated to decrease between 1 and 7%, when atmospheric concentrations (around 2060) double their pre-industrial value. The study also indicates that impacts would be more severe on developing countries, in comparison with the developed countries.

The simulated grain production in the year 2050 for India, under a one degree centigrade rise in temperature and 2% increase in precipitation, is estimated to fall considerably. Seshu and Cady (1984) estimated a fall in rice yield by 0.7 ton/ha with a temperature rise from 18°C to 19°C, and by 0.41 ton/ha with a temperature rise from 22°C to 23°C. Sinha and Swaminathan (1991) have estimated that a 0.5°C rise in temperature would reduce the yield of wheat by 0.45 ton/ha. Thus, carbon dioxide concentration levels of double the value of pre-industrial values in 2060 may cause unsustainable problems for South, which need to be addressed.

3.2 Poverty and Climate Change

“Increased extreme events” is one of the major impacts that links poverty and climate change. Due to climate change, an increased occurrence of extreme events such as floods, cyclones, typhoons, hurricanes and so on, are expected. Then, in such a situations, it is the poor who are always vulnerable. Take the case of the 1994 earthquake in India; in this natural disaster, more than 10,000 people died compared to only a few in the earthquake of similar intensity in California¹. In essence, the threshold level to withstand these impacts would be less for developing countries when compared to the developed ones. In such a case, given that the present accumulation of GHGs in the atmosphere is due to industrialised countries, will they be forthcoming to insure the poor against such calamities?

Large scale out-migration from coastal zones is expected due to sea level rises. Intrusion of sea water in the ground water and changes in temperature can reduce agricultural incomes everywhere. This will create a large number of environmental refugees. Will they get migration rights (to the North)? In India, 7 million people may have to move away from coastal zones. Moreover, they will be losing their homes and livelihood.

On the abatement side, we note that the poor, wherever they are, have a very high marginal utility of income. If required to curtail their GHG emissions in a comparable way to the rich, the poor will bear a disproportionate burden of global climate change caused mainly by the lifestyles and consumption patterns of the rich.

4. North-South Transfers

Several justifications for North-South transfers can be given. They are not mutually exclusive. The funds could come through various means, such as JI, tradeable permits, GEF funds etc. Even if the amounts involved are small and gains perceived (in terms of trade) are inconsequential, it would be important to continue efforts to get these funds.

There are different ways of looking at much needed North-South transfers as follows (that is, not all are valid simultaneously):

4.1. Rent for Environmental Space:

Currently, there are many countries whose use of environmental space is far in excess of their justifiable share of that space. Parikh (1993) has indicated that these privileges of emitting 2.8 billion tons of excess CO₂ may be worth US \$ 70 billion per year. Also, the use of environmental space has a temporal characteristic; that is, these emissions will occupy the environmental space for hundreds of years in the future (Smith, 1989). According to the "polluter pays" principle, those who have occupied this environmental space should pay rent for their excess use of the global environment space to those whose use is below their entitlements. In addition, when the later need that space, it should be made available to them.

4.2. Compensation for Adaptation Burdens Imposed:

The consumption patterns of rich countries have put constraints on the development alternatives of the poor countries. Due to the climate change possibility, the poor will be forced to spend more resources for adapting to climate change problems; this will constrain the available resources and divert them from their immediate development priorities.

4.3. Liability Payments for Damages and Excess Past Concentrations:

Those who have emitted more than their share of the absorption capacity of the atmosphere (on per capita basis) and benefited, are liable to others for the possible damages arising from global climate change.

4.4. Lost Opportunities Due to Concentrations after 1990:

The cost of delay in emission reduction (by the North) in terms of the South's foregone opportunities to development is substantial. This will impose many constraints on the way the South decides on policy options regarding issues such as how to generate power, how to use land, and what crops to grow and so on. Hence, North-South transfers of large amounts are needed to compensate the South for the development opportunities foregone. (Lost opportunities due to concentrations cumulated from 1990). These transfers may take place through GEF or AIJ, or different mechanisms which could be thought out.

5. Accelerated Efforts Needed from Annex I Countries

International negotiations and their implementation are difficult and take a long time. In the meantime, emissions continue and concentrations mount. Within the decade of 1990 to 2000 (most years after signing the FCCC), the annex I countries would emit about 40 to 50 billion tonnes of carbon which would have been sufficient for non-Annex I countries to grow and develop for about 20 years. Delay in taking decisions might encourage free riding, as the delay does not involve any cost and the countries would tend to emit more during the negotiating phase. To prevent this cost of delay, which is passed on to the others, it should be agreed that annex I countries would be liable for whatever concentrations are emitted after 1990. Accountability should be on the basis of cumulative emissions from 1990 onwards. This will ensure careful behaviour even during the negotiation phase.

Is carbon abatement really that difficult when all the benefits of fossil-fuel reduction are internalised? When all the benefits are internalised, more carbon will be saved, even if higher costs are incurred. Indeed, drops in the USA gasoline consumption per mile are attributed to stricter air pollution standards. This means more benefits are immediately achieved when less energy is used than just carbon reduction such as fuel savings, improved

air quality, reduction in the needed infrastructure (e.g., fuel transport, less power plants, less land) and water consumption, and so on. Further, when the damages due to climate change are internalised, higher levels of costs will be acceptable. Avoided adaptation costs, if included, will raise the benefits further. Finally, if compensation and insurance is required to be paid to those who will be affected (e.g., Maldives, Bangladesh), the break-even costs that could be incurred for carbon abatement will rise further.

6. Responsibilities of Non-Annex I Countries

What responsibilities do non-annex I countries have? First of all, over such a long period, many non-Annex I countries will achieve high living standards comparable to Annex I countries. A per capita consumption level can be fixed beyond which they join the club of Annex I countries. The discussions below applies to the remaining countries.

As stakeholders to global welfare, non-Annex I countries can choose energy efficient paths to development. In this endeavour, some help can be given by Annex I countries by transferring energy efficient production technologies to them. This is especially true of energy efficient ways of making steel, aluminium, glass and bricks or energy efficient lamps, motors and so on. However, the same cannot be said about some of the consumer goods, say cars. Despite many technologies (some may say because of them), the annex I countries ended up where we are now. Therefore, technology transfer of existing technologies that cater to the annex 1 countries lifestyles may not be the route that the non-annex I countries can follow sustainably. Particularly since their incomes are lower and population the higher. Therefore, some new solutions and approaches will be needed in addition to technology transfer of the present technology. Non-Annex I countries have their development ahead of them and some of the technologies currently used in the annex-I countries - such as fossil-fuel based cars - are not the right solutions for 4.5 billion people with limited space. New urban designs, modern mass transport and less profligate lifestyles through eco-restructuring, are some of the pointers for sustainable future. Their development has to be on the low GHG path through fossil fuel efficiency without compromising their development goals and poverty reduction.

7. Activities Implemented Jointly

What do developing countries expect from AIJ and how can this instrument be used for promoting North-South cooperation? There has been some debate regarding what type of projects can be considered under AIJ, and whether AIJ can be considered as a new manifestation of neo-colonialism or is it an opportunity for technology transfer and North-South cooperation (Parikh et al 1997 and Parikh 1995). In Elizabeth Dowdeswell's (ED, UNEP) words, "any programme or project (under AIJ) which is not fully consistent with principles of sustainable development must be unacceptable to the Conference of Parties; ... guidelines for AIJ must be clearly set so that the process is one of opportunity and not exploitation".

No project under AIJ should be accepted, if it is not in accordance with development priorities of developing countries. Also, caution should be the key word while considering the carbon sequestration programs (or "sink" projects) under AIJ. Sink projects tend to merely postpone the problem of GHG emissions rather than solve it and, given the conflicts involving surrender of land rights for prolonged periods, such projects need to be handled with great care. Credit for sink projects, if at all to be given, can be on the basis of postponing the problem (this is similar to the role of delayed pregnancies in family planning). The

projects that try to reduce emissions through 'clean' (or efficient) technology transfer should have priority over carbon sink enhancement projects. This is because the problems of uncertainty, asymmetric information, and credit calculations, associated with carbon sink projects, are larger. Though there is clearly an urgent need for preserving forests in non-annex I countries, it would be in the overall interest of the country not to link this with AIJ.

Another concern is that AIJ benefits should be shared equitably and cannot be done on the basis of incremental cost alone. The list of cooperative arrangements is long and can include the energy sector, transport, industry, agriculture sector and even household sector. Potential benefits of AIJ are great in terms of cost reduction for Annex I countries and fuel efficiency, local pollution, capacity building and technology transfer for non-annex I countries.

8. Concluding Remarks

For collective decision making, we need to understand the trade-offs required not only for Annex I, but the world as a whole, in determining what concentration level we should choose. Several scenarios need to be constructed where the full implications for developing countries are identified.

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End Notes

¹Even though no two earthquakes are comparable, there is the additional fact that even in Latur those who lives in better houses survived.

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