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ECOLOGICAL IMPERIALISM  
The Prospective Costs of Kyoto for the Third World

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## ABSTRACT

This paper critically evaluates the current move to include developing countries -particularly India and China - in the negotiations at Kyoto on reductions in carbon emissions to abate global warming. It argues that this will prevent the alleviation of poverty in the Third World. A survey of the costs and benefits of emission controls is included, and it is argued that given the grave ambiguities surrounding the science of climate change it would be immoral for the West to impose these emission controls on the Third World as the transformation of their historical agrarian economies into mineral energy based economies is the only way in which structural poverty in these countries can be removed.

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## INTRODUCTION

At Kyoto Third World countries are going to face their first serious confrontation with the growing ecological imperialism of the international green movement which has already succeeded after Rio in getting the developed countries to agree to reductions in carbon emissions to control the so-called greenhouse effect. These Annex 1 countries were the only ones to have agreed to limit their emissions, but there are already signs that they will now also seek to get emission targets imposed on the non-Annex countries, that is mainly the Third World. This is partly due to the so-called 'carbon leakage' problem, whereby with the limits on emissions from developed countries, production of carbon-intensive goods shifts to the developing world. Along with the emissions associated with the acceleration in growth rates of two of the largest Third World countries - India and China- it is expected that by 2010 the Third World will account for almost half the global emissions compared with less than one third today.

Though, at the recent Earth summit, the US government failed to endorse the European Union's proposal for a 15 per cent reduction of greenhouse emissions below their 1990 level in industrialized countries by 2010, the White house issued a statement on June 26 stating that the Kyoto accord must include "language that makes it clear " that developing country obligations

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<sup>1</sup> This paper is based on Lal (1990), (1995), (1996).

under the pact will increase over time "and will include binding targets". The US also committed itself to foreign aid to developing countries to deal with these emissions of \$1 billion over five years- a derisory sum as we shall see.

#### I. EFFECTS ON THIRD WORLD DEVELOPMENT OF CO2 ABATEMENT POLICIES

As David Montgomery has shown in his paper even the effects of implementing the emission limitations on industrialized countries in the Berlin mandate will have deleterious effects on many Third World countries (of the order of 1 % of GDP) because of the income and terms of trade effects arising from the reduction in developed country growth rates that the Berlin mandate will induce. A few countries- mainly major oil importers- could gain from the lower energy price (particularly for oil) that would result.

But these imminent indirect losses in Third World GDP and growth will be dwarfed by the much larger direct losses that will result from any Kyoto pact which commits developing countries to a reduction in their own emissions. The IPCC (1996) provides a survey of various model based estimates of the GDP losses in various regions of the world under two scenarios :I- a reduction in the rate of growth of emissions in each region by 2% per annum and II- a stabilization of emissions at 1990 levels in each region. (Table 9.18, p. 326) Amongst the various non-developed country regions, the losses in GDP are large (particularly for China which range from a 4-13% GDP loss in 2019 over the business as usual scenario).

Given the great uncertainty surrounding the estimates of the costs of abating greenhouse emissions, particularly in developing countries, it is perhaps better to keep a ball-park figure that Schelling (1992) has derived from the various model estimates made till that date. To delay the doubling of CO2 emissions by four decades will cost roughly 2 per cent of gross world product in perpetuity. While this might appear a trivial cost for developed countries, it is not for many poor countries. More seriously, any limits to their use of fossil fuels for development in the near

future poses serious threats to their possibility of developing at all.

For as economic historians have emphasized it was not till the Industrial Revolution that mankind found the key to intensive growth -- a sustained rise in per capita income -- which, as the example of the West and many newly industrializing countries have shown, has the potential of eradicating mass structural poverty -- the scourge which in the past was considered to be irremediable (pace the Biblical saying that the poor will always be with us). For in the past most growth was extensive -- with output growing in line with (modest) population growth (Reynolds, 1983). As pre-industrial economies relied on organic raw materials for food, clothing, housing and fuel (energy), whose supply in the long run was inevitably constrained by the fixed factor, land, their growth was ultimately bounded by the productivity of land. For even traditional industry and transportation -- depending upon animal muscle for mechanical energy, and upon charcoal (a vegetable substance) for smelting and working crude ores and providing heat -- would ultimately be constrained by the diminishing returns to land that would inexorably set in once the land frontier was reached. In these organic economies (Wrigley, 1988), with diminishing returns to land conjoined with the Malthusian principle of population, a long run stationary state where the mass of the people languished at a subsistence standard of living seemed inevitable. No wonder the classical economists were so gloomy!

But even in organic economies there could be some respite, through the adoption of market "capitalism" and free trade defended by Adam Smith. This could generate some intensive growth as it would increase the productivity of the economy as compared with mercantilism, and by lowering the cost of the consumption bundle (through cheaper imports) would lead to a rise in per capita income. But if this growth in popular opulence led to excessive breeding the land constraint would inexorably lead back to subsistence wages. Technical progress could hold the stationary state at bay but the land constraint would ultimately prove

binding.

The Industrial Revolution led to the substitution of this organic economy by a mineral based energy economy. It escaped from the land constraint by using mineral raw materials instead of the organic products of land. Coal was the most notable, providing most of the heat energy of industry and with the development of the steam engine virtually unlimited supplies of mechanical energy. Intensive growth now became possible, as the land constraint on the raw materials required for raising aggregate output was removed.

Thus the Industrial Revolution in England was based on two forms of "capitalism", one institutional, namely that defended by Adam Smith -- because of its productivity enhancing effects, even in an organic economy -- and the other physical: the capital stock of stored energy represented by the fossil fuels which allowed mankind to create in the words of E.A. Wrigley:

a world that no longer follows the rhythm of the sun and the seasons; a world in which the fortunes of men depend largely upon how he himself regulates the economy and not upon the vagaries of weather and harvest; a world in which poverty has become an optional state rather than a reflection of the necessary limitations of human productive powers.

(Wrigley, 1988, p. 6)

The Greens are of course, against both forms of "capitalism" -  
- the free trade promoted by Smith, as well as the continued burning of fossil fuels -- leaving little hope for the world's poor.

## II. COSTS OF GLOBAL WARMING TO DEVELOPING COUNTRIES

The IPCC (1996) surveys the studies which have tried to estimate the costs to different regions from a doubling of CO<sub>2</sub>. There are differential benefits with some regions gaining and others losing. Most of these studies have focussed on the effects on agriculture and the rise in sea levels. The most extreme estimates of the damage to agriculture are Cline's (1992). But in

view of his debate with Mendelsohn and Nordhaus (MH) (1996) (and Cline (1996)) on the effect of climate change on American agriculture, where MH convincingly defend their view that "moderate global warming and carbon dioxide accumulation is likely to benefit American agriculture ", it would seem that we also need to dismiss Cline's "gloomy prognostications" (MH, p. 1314). The best estimates of the aggregate effects on agriculture of global warming are that it will be favorable.(see Beckerman(1995), Nordhaus(!991)). Moreover, as Schelling (1992) has emphasized industrialization and urbanization- the two great forces of economic progress in this century- have made making a living in developed countries virtually climate proof. The same process of economic growth will do the same in developing countries. Whilst the fact that millions have voluntarily moved from colder northern to warmer southern climates in the US shows that even a sudden rise in temperature will not lead to a more drastic change in their local climates than in involved in this voluntary migration.

On the rise in sea levels- again these represent distributional effects. <sup>2</sup> Even if the projected rise in sea levels, which along with so many of the scientific predictions is now estimated to be much less than originally predicted- leads to the erosion of many coastal areas, this is in itself no worse than what is happening normally through sea-erosion. (see Beckerman, op.cit). Of the costs to the Netherlands, Bangladesh and various Pacific islands, the costs of adapting to the changes in sea level are trivial compared with the costs of a global limitation CO2 emissions to prevent global warming. One constructive suggestion in

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<sup>2</sup> As I had argued in Lal (1990), the externality associated with global warming looks more like a Pareto-irrelevant pecuniary externality, in which there is in effect a worldwide redistribution of agricultural resources. It is also akin to the pecuniary externalities associated with for instance the development of synthetic fibers which adversely effected the incomes of natural fibre producers. As is well known (see Buchanan and Stubblebine (1962)) pecuniary externalities are Pareto-irrelevant and do not require any countervailing action.

case there are serious worries about the poor developing countries threatened with these prospective costs is for the US and other donors to put the foreign aid money they are currently committing to persuade developing countries to reduce their carbon emissions, into a trust fund to be paid out for adaptation by the victims of sea-level rises in these countries if the worst does come to pass.

### III. THE COSTS AND BENEFITS OF AVOIDING A CLIMATIC CATASTROPHE

This will not satisfy the Greens, who will say that we cannot wait for the scientific uncertainties surrounding the greenhouse effect<sup>3</sup> to be resolved before taking action. For if there is even and infinitely small chance that doing nothing now could lead to Apocalypse, then analogous with Pascal's wager on the existence of God, we must act now to stop global warming- even though this action may in time be shown to be futile.

But even if we take the Green fear of a small probability of an apocalyptic greenhouse effect (which all the current evidence shows is even on the worst assumptions unlikely to be apocalyptic (see Lal, 1990, 1994; Beckerman, 1995; Ridley, 1995), is current action to curb greenhouse gasses rational as an insurance policy. Fortunately, a sophisticated cost benefit study which quantifies the various alternative scenarios and the uncertainties surrounding both the extent of the likely climatic effects of the increase in greenhouse gasses following from continuing economic growth -- not least its acceleration in countries like China and India which contain the bulk of the world's poor -- as well as the effects of this climate change on the economies of different regions of the world is now available (see Nordhaus, 1995).

Nordhaus considers seven alternative policies for dealing with climate change:

the first is ... "laissez-faire" ... in which there are no controls on greenhouse gasses ... The second is the

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<sup>3</sup> Balling (1992) provides the most balanced assessment of these. Also see Houghton (1994) for a summary of the IPCC's views.



"optimal" policy, a scenario in which GHG controls are set so as to maximize the discounted value of the utility of consumption. The third is a scenario in which we wait 10 years to implement policies so that our knowledge might be more secure. The fourth and fifth policies are ones that stabilize emissions -- one at the 1990 rate of emissions and the other at 80 percent of the 1990 emissions rate. The sixth proposal is to undertake geo-engineering, while the final approach is to curb emissions sufficiently to slow climate change and eventually stabilize climate. (p. 79)

His results for the best guess case are:

among these seven [policy options] the rank order from a purely economic viewpoint is geo-engineering, economic optimum, 10 year delay, no controls, stabilizing emissions, cutting emissions by 20 percent, and stabilizing climate. The advantage of geo-engineering over other policies is enormous.

(p. 96)

These results are fairly robust and are not changed markedly by the introduction of "uncertainty and realistic constraints on the resolution of uncertainty" (p. 186).

There are two points worth noting about these results. First, the geo-engineering option, which according to a U.S. National Academy of Sciences survey could be implemented "at relatively low costs" (Nordhaus, op cit., p. 81), involves various options including "shooting smart mirrors into space with 16 inch naval rifles or seeding the oceans with iron to accelerate carbon sequestration" (Nordhaus, ibid). But as Nordhaus notes, these technological fixes are opposed by environmentalists "because of the grave reservations about the environmental impacts of the geo-engineering options" (ibid). Whether these reservations are rational is not discussed. My suspicion would be they are not!

Second, the 10 year delay and laissez faire alternatives dominate the various alternatives about stabilizing emissions, the policy alternative endorsed by the Rio conference, and adopted enthusiastically by the U.K. and the EU! Moreover the optimal policy implies a reduction in GHG emissions from their laissez faire level of 21.96 billions of tons of carbon equivalent in 2075

to 19.01 billions of tons of carbon equivalent (a mere 13% reduction from laissez faire)! And the gain from this policy over laissez faire is only an 0.06% annual increase in world annual consumption! By contrast all the alternatives of stabilizing emissions involve losses of from 8 to 1.5% of world annual consumption.<sup>4</sup> Given the political difficulties in implementing the optimum solution (see Swanson), and the trivial gains to be thereby secured, the only rational conclusion is that the only sensible policy on climate change is to let well alone -- that is laissez faire!<sup>5</sup>

But suppose given the eco-fundamentalism sweeping the West that it insists at Kyoto on a limitation of greenhouses emissions from the Third World. The latter has made clear (not least at the latest Earth summit) that it would only be willing to consider this if the West is willing to pay for its dubious eco-morality. If the earlier estimates of a ballpark figure of the costs of such abatement as about 2 per cent of gross world product in perpetuity is correct, this will mean that developed countries would have to be willing to commit themselves to official transfers about four times current aid flows to developing countries in, perpetuity.

This is, however, unlikely to offer much comfort to the poor of the Third World. As a statistical study by Mosley (1987) concluded "foreign aid appears to redistribute from the reasonably well-off in the West to most economic groups in the Third World

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<sup>4</sup>See Nordhaus, op. cit., Table 5.1 and p. 83. The impact on annualized value of consumption for the world in billions of \$ per year is 11 for the optimum; 10 for the 10 year delay; 0 for laissez faire; 224 for geo-engineering; and -283 for stabilizing emissions qt 1990 levels; -501 for stabilization at 80% of 1990 emission levels; and -1639 for stabilizing climate at max of 1.5 degrees C increase. These numbers can be compared to an annual consumption rate of approximately \$20,000 billion in the 1990-99 period of Nordhaus' model.

<sup>5</sup> Nordhaus and Yang (1996) have produced a regionally more disaggregated model of coping with climate change. Again they find "the stakes in controlling global warming are modest in the context of overall economic activity over the next century".

except the poorest" (p.23). Nor has aid promoted growth. Thus a recent study by Boone (1994) found that the effect of aid on growth was often negative. Foreign aid cannot therefore be expected to make up for the poverty alleviation that would occur with rapid growth based on industrialization which uses fossil fuel. To deny this is moral hypocrisy. To subserve some uncertain Green ideal at the cost of leaving the Third World mired in poverty is morally wicked.

Moreover, even if we ignore the patchy record of the effectiveness of foreign aid in alleviating poverty and promoting growth, the likelihood of such transfers finding political acceptance in the aid fatigued climate of Western democracies is remote. This would then open up the real danger of an era of direct or indirect imperialism, to discharge a green variant of the nineteenth century's white man's burden. For one little noticed aspect of the attitudes that underlie greenery is its implicit misanthropy (see Lal(1995)), whose close cousin is racism. Burgeoning third-world populations, polluting the atmosphere and degrading its natural resources and habitats for plants and insects, can easily be turned into the enemy on Spaceship Earth.

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