

Ecological Debt and Property Rights on Carbon Sinks and Reservoirs

The idiom of Environmental Justice has been employed in the United States and throughout the world in the struggle against the disproportionate amount of pollution in areas occupied by people of color and low income people. Environmental Justice is the struggle against environmental racism. The disproportionate emissions of carbon dioxide are an example of environmental injustice at the international level.¹ Another idiom used to discuss “greenhouse politics” is Environmental Security, not in a military sense, but in a sense similar to that of food security. Environmental security refers to the guaranteed access to natural resources (such as water) and environmental services for all, not just for the rich and powerful. Using this notion, the South argues that the North has produced and is producing a disproportionate amount of greenhouse gases. The North’s greenhouse gas production runs counter to environmental justice, and gives rise to environmental liabilities. It also jeopardizes the environmental security of parts of the South.

Per capita emissions of carbon dioxide are very different in the world. Global emissions should be reduced at least by half, in order not to increase carbon dioxide concentration in the atmosphere. Who should make reductions? Who has title to the carbon sinks and reservoirs? Rich countries are not effectively reducing emissions (the vague promises of the Kyoto Protocol of 1997 are now discarded). Therefore rich countries save themselves a lot of money by not making the necessary reductions, which would imply either a decrease in expenditure of fossil

¹Anil Agarwal and Sunita Narain, *Global Warming: A Case of Environmental Colonialism* (Delhi: Centre for Science and Environment, 1991).

fuels in the economy, or a drastic change in energy technologies. This avoided cost is the “carbon debt.”²

Consider the case of the environmental service provided by carbon sinks (oceans, new vegetation, soils) and by the atmosphere as a temporary carbon reservoir. The concentration of carbon dioxide in the atmosphere has increased from 280 ppm to 360 ppm. The European Union (playing a “leadership game”) stated at Kyoto in December 1997 that small reductions were now needed in order to keep the trajectory on a “safe” course of increase to only 550 ppm. (This would possibly involve a two degree Celsius rise in temperature, with much uncertainty on the range, and even more regarding local effects.) That this is a “safe” limit has been strongly disputed.³

We all breathe in and out more or less the same, and it would be impracticable to reduce carbon dioxide emissions by slow respiration. We all eat more or less the same amount of calories per day (though some people starve). Analysts of global warming instead distinguish between livelihood emissions, and luxury emissions. This arises from one characteristic feature of the human ecology, the extreme differences in the use of energy outside the body, depending on our technologies. The differences in the exosomatic use of energy are enormous, they depend not on biology, but on the economy and technology.

The emissions per person per year in the US are of the order of six tons of carbon, in Europe half of this, and in India 0.4 tons. Globally, the average is a little over one ton of carbon per person per year (in terms of global emissions, this amounts to 6000 M tons of carbon). This is already excessive if we want to keep CO₂ atmospheric concentration at its present level, which will normally increase because of population growth and economic growth. In Kyoto, and afterwards, the European Union proposed a slight reduction in emissions for the rich countries (relative to 1990 levels), which the US finds difficult to accept (partly because population continues growing in the US). In any case, as the IPCC stated, the required reduction in order to avoid further increase in concentration in the atmosphere, is on the order of half the present emissions, some 3000 M tons of carbon per year. Although the dynamics of carbon absorption in the world’s oceans, new vegetation and soils depend to some extent on the amounts of carbon dioxide

²Jyoti K. Parikh, “Joint Implementation and the North and South Cooperation for Climate Change,” *International Environmental Affairs*, 7, 1, 1995.

³C. Azar and Rhode, “Targets for Stabilization of Atmospheric CO₂,” *Science*, 276, 1997, pp. 1818-19.

produced (in the sense that a little more is absorbed when concentration increases), it is not disputed that use of the atmosphere as an open-access carbon reservoir is increasing and that this will produce climate change.

The permanent sinks (oceans, soils, new vegetation) are also used on a first come, first serve basis, without payment (except for some minor “joint implementation” experiments).

Before making a commitment to carbon emission reductions, we need to explore reduction of other greenhouse gases, such as chlorofluorocarbons (CFC) (now prohibited because of their effect on the ozone layer), or methane, which (at least in the portion coming from garbage dumps), could be cheaply recycled through combustion, thus greatly diminishing its direct effect, as a greenhouse gas. In the experimental cases of Joint Implementation (or Clean Development Mechanism) which are designed to reduce carbon emissions or to produce additional carbon absorption, the costs per ton of carbon are estimated at a few dollars.

Sometimes there are even negative marginal costs of greenhouse gas reduction, called “win-win” opportunities which combine economic savings and diminished emissions, for instance by substituting natural gas for subsidized coal in power stations.

Amusing “lose-lose” situations also exist, as in the FACE project in Ecuador which was planning to plant 75,000 hectares of eucalyptus and pines to absorb carbon dioxide produced by a 650 MW power station in the Netherlands. This is a typical “joint implementation” or “clean development mechanism” experiment. The Netherlands pays for pine plantations in Ecuador, and the carbon dioxide absorbed count as a reduction in the Netherlands’ account.

Instead of reducing carbon dioxide emissions in the Netherlands, carbon dioxide absorption increases elsewhere, at least in theory. The first president of FACE was Ed Nijpels, a former Minister for the Environment. FACE is a consortium of electrical utilities in the Netherlands. The acronym means “Forest Absorption of Carbondioxide Emissions.” The consortium’s ignorance of Andean ecology (e.g., its widely distributed Annual Report of 1995 said that in Ecuador at altitudes of 2800 m agriculture is no longer possible and livestock raising is no longer profitable) led to a fiasco. In late 1999 it became known that by disturbing the rich organic soil of the *paramo* when planting pines, more carbon is released into Earth’s atmosphere than will be absorbed, thus increasing a little the Ecological Debt of the Netherlands. Come to think of it, the FACE project has shown a

measure of euro-racism in its disparaging attitude towards peasant high-altitude farming and livestock raising. The FACE project's failure deserves to be well known.

When a rich nation's commitment to reduce emissions is small, as at present, then the price of a ton of carbon in joint implementation projects will be low because the demand for sinks will be small. The price will be low also for other reasons. First, local negative externalities from the projects themselves are not factored into the price. Second, if the supply of energy and industrial projects in the South is large (whether as additional sinks, especially when conservation of threatened primary forests is also accepted, or as changes in techniques which diminish carbon emissions such as substituting natural gas for coal), compared to the demand, then the price will be low.

However, should rich countries' commitment to reduce be on the order of 3000 M tons of carbon per year, so as to avoid further increase of CO₂ concentration in the atmosphere, then the cost of CO₂ abatement would increase enormously. Perhaps, if the owners of carbon sinks are poor, local selling prices of carbon extra-absorption will still be low. Then, intermediaries would come into play, perhaps southern governments, perhaps northern financial institutions. Instead, if there is no reduction, this implies the persistent and disproportionate use of the sinks and reservoirs as de facto property of the rich ("might" more than "right"), and therefore a continuous increase year after year of the Ecological Debt, at the tune, say, of US\$ 60 billion per year (3000 M tons of carbon which should be reduced at the cost of US\$ 20 per ton). This is a figure which represents the avoided costs.

The Carbon Debt then arises because, by not doing the necessary reduction, rich countries save themselves a quantity which would be roughly of this order of magnitude. One could easily argue that the appropriate average cost of carbon abatement is higher than US\$ 20 per ton of carbon. As a term of comparison, the present accumulated Latin American external debt was in 1999 US\$ 700 billion. By comparison, it would be roughly offset by the Northern accumulated carbon debt over only the last twelve years (only for carbon emissions, at US\$ 20 per ton). The Ecological Debt includes also other items (because of unequal ecological exchange, "biopiracy," etc"). Here attention has been paid only to its carbon component, that it the debt because of disproportionate use of carbon sinks and reservoirs, without any payment.

This line of thinking on "greenhouse" politics is not called the "leadership game" but the "liability game," which up to now Southern governments have been reluctant to play. Oil exporting countries deny

the existence of enhanced greenhouse effects. Other Southern governments do not want to antagonize Northern governments, and are read instead to ask for small sums of money for technology transfer, instead of claiming the Ecological Debt. Perhaps the AOSIS (Alliance of Small Island States) will push the notion of the carbon debt, at the same time deploying also the idiom of their threatened environmental security. The claim of the ecological debt from the South should become an important topic in the international political agenda, and would contribute powerfully to the “ecological adjustment” which the North must make.

