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# **Carbon Cycling, Privatization and the Commons**

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## **I**

Traditionally, the earth's ability to keep greenhouse gas proportions within the atmosphere within a certain range has been what is known as "open access". Anybody has been free to dump carbon dioxide into the atmosphere, with no rules being applicable except ones incidentally relating to accompanying pollutants. Because nothing has been at stake, the world's carbon-cycling capacity has never until recently been a resource. And it will always remain too unwieldy and unbounded to be treated as, by contrast, a commons.<sup>1</sup>

Yet through familiar processes of overuse and skewed use, global carbon-cycling capacity has recently begun to be treated as economically scarce. For over 150 years, industrial societies have been transferring excessive amounts of carbon from underground deposits of coal and oil, where it is more or less sealed off from the atmosphere, to the air. Today, the amount of carbon in the atmosphere increases by six billion tons every year. The earth's carbon dioxide dump is now perceived as overflowing, with potentially disastrous climatic consequences.<sup>2</sup> Precise quantification is impossible, but it may not be too far off the mark to say that the US alone, with five per cent of the world's people, is hogging roughly all of it. Stabilizing atmospheric chemistry while keeping US access to the dump fully open would leave an enormous majority of the world's people unable to release any carbon dioxide at all.

Given such classic conditions of scarcity and competition, pressures both to restrict use of the dump and to transform it into a privately-owned resource can come as no surprise. Since the late 1990s, the latter has been the dominant theme in international climate politics. Some qualifications aside, moreover, entitlements to the earth's carbon-cycling capacity are being issued to those who already use it most. Billions of dollars' worth of dumping permits are being allocated to the corporate sector by governmental and United Nations agencies under conditions of undemocratic bargaining.<sup>3</sup> These rights have the potential to form the basis for a new wave of accumulation in what may become the largest market ever created.<sup>4</sup>

Hence the journalistic tendency to present the politics of global climate as a conflict between two positions – that of the US, which rejects the 1997 Kyoto Protocol, and that of most of the rest of the world's states, which embrace it – is misleading. From a

commons viewpoint, the two positions are essentially one. The US regime insists on a right to continued disproportionate use of the world's carbon dumps. The Kyoto Protocol -- itself largely a product of US government negotiation and pressure<sup>5</sup> -- formalizes this right, stipulating only that it be provisional and that fairly insignificant flat-rate reductions be made by industrialized countries before other nations. There is a difference, but its immediate relevance to most of the world's citizens is open to question.<sup>6</sup> Nor do the resemblances stop there. US and Kyoto climate politics also both help drive two further important novel movements of privatization. These are the focus of this paper.

## II

If the Kyoto Protocol puts off the problem of the skewed use of the world's carbon dioxide dump, it also fails to tackle the problem of overuse of the dump stemming from transfer of underground fossil carbon to the much more active carbon pool of the biosphere.

Kyoto binds 38 industrialized nations to reducing their emissions by an average of five per cent by 2008-2012. As one observer pointed out in *Science* magazine at the time, 30 such agreements would be needed just to stabilize atmospheric concentrations of greenhouse gases at twice the level they stood at at the time of the Industrial Revolution. That suggests that 300 years of negotiations would be required just to secure the commitments most atmospheric scientists see as necessary by the end of this decade. Yet the last few years have seen the emergence of two technical fixes aimed at helping industrialized signatories to the Protocol avoid cutting their underground-to-atmosphere carbon flows by even these minimal figures. Both are what are known as "end-of-pipe" solutions and are also being pursued independently by many US researchers and firms. The first is an attempt to open up supplementary, proprietary carbon dumps carved out of the biosphere. The second is an attempt to open up additional, notional carbon dumps carved out of the future.

The prospective new biospheric carbon dumps are to be shaped from local land, water and forest commons [Figure 1], soils [Figure 2], even parts of the oceans [Figure 3]. The idea is that, for climatic purposes, where  $s$  is a specific set of fossil-fuel mines,

[1] A world containing closed  $s$  = a world containing open  $s$  + more trees, no-till agriculture, fertilized oceans, etc. [Figure 4].

Up to a point, therefore, a party can avoid keeping fossil fuels in the ground by exercising control over land, trees, oceans, and so forth.

The speculative carbon dumps being fashioned out of the future work in a similar way. Instead of restricting the burning of fossil fuels over a certain period and within a certain administrative boundary to a certain figure, nations or firms (or groups thereof) can invest in greenhouse gas-producing activities outside the boundary, provided those activities are certified as producing less greenhouse gas than would "otherwise" be the case. A party can thus avoid having to keep a certain quantity of

fossil fuels in the ground by exercising control over perceptions of what might be possible in the future. For example, imagine a Netherlands electricity utility wishing to invest in a gas-fired power plant in Brazil. Paradoxically, the utility can gain extra permits to burn fossil fuel in its own country by doing so, as long as the gas plant can be demonstrated to be designed to release less carbon dioxide than a coal-burning plant which might have been built in its absence. It does not matter that energy efficiency measures or solar power would be less carbon-intensive than the gas-fired plant. As long as the company can rhetorically eliminate these possible other “futures” in favor of the single counterfactual scenario represented by the coal-fired plant, it can be licensed to continue transfer of carbon to the atmosphere above its own power stations.<sup>7</sup> The claim that alternative low-carbon futures do not exist becomes a way of dumping carbon in those futures which would otherwise have to be kept in the ground.<sup>8</sup>

Putting all this together, we have

[2] A world containing closed  $s$  = a world containing open  $s$  + more trees, no-till agriculture, fertilized oceans, etc. = a world containing open  $s$  + an indefinite number of foreclosed futures

In the carbon trade, this is known as “fungibility”.

In practice, privatization is integral to both of these technical fixes. For private emitters to be able to dump more carbon in the biosphere, they need to exercise new controls over some quantity of tree carbon, soil carbon, ocean space or land. For them to dump it in the future entails restricting its use and appropriating the imagination through technical consultancies’ “baseline” documents.

### III

Technical fixes, a commons perspective tells us, tend to take on two overlapping, heroically repressive tasks. First, they attempt to repress politics by replacing it with allegedly politics-free economic, natural-scientific or other techniques. Second, they attempt to repress the consequences of complexity, nonlinearity, indeterminacy, uncertainty and contextual uniqueness through engineering or management approaches.

As such, technical fixes constantly face something like what Freud called the return of the repressed. Politics, precaution, a safety-first orientation, local exceptions, tests of trust, manipulation of personal relations and the like – all well up in every social landscape as surely as water in a swamp borehole. Which doesn’t mean that nothing can be done to try to keep them out. Something can, even if it can give the illusion of success only temporarily. The ensuing sequence of repression, response, counter-response and counter-counter-response has shaped the history of globalization, international development, cost-benefit analysis, and genetic modification, to name a few.<sup>9</sup> The point is that this cascade is inevitable and that the patterns it forms are unforeseeable and unending.

What remains for this paper is to trace the career of this “double movement”, as Karl Polanyi called one form of it, in concrete case studies of climate change mitigation projects, and then draw some brief conclusions. The following sections will draw on information about three projects which have applied for status in what is called the Clean Development Mechanism, a part of the Kyoto Protocol. One project is being developed in Latin America, one in Africa and one in Southeast Asia. Section IV will concentrate on the dialectic which follows on from these projects’ attempted repression of politics. Section V will sketch the parallel dialectic which results from their attempts to repress the realities of complexity, context, nonlinearity, risk, indeterminacy and uncertainty.

## IV

I said above that both Kyoto and US approaches tackle the problem of the overflowing global carbon dump not by stemming the flow upwards into it but by trying to open up new greenfield dumping sites above ground and in the future. I say “open up”, but perhaps “enclose” would be a better word. Using this word has several advantages. It helps us remember that what is opened up to one person may be closed to another; that, to paraphrase E. P. Thompson, while private property may ensure the sleep of the rich it may not always be so kind to the poor. By reinforcing a commons perspective, the word also reminds us that historically, “private” has been opposed not so much to “state” as to “commons”. It helps us remember that what is happening in contemporary climate politics has happened before in the great ages of enclosure of land, which continue today. Finally, it suggests that the opening up of new carbon dumps, like other forms of enclosure, could be made complete or final only at the cost of what Polanyi called the “demolition of society” which would result from the complete or final relinquishment of land and labor to the market mechanism.<sup>10</sup>

Let us listen to the voices of some of those currently facing CDM projects and see if we do not recognize the classic tones of the enclosed whose livelihoods and control over their most nurturing surroundings are being undermined.

The first port of call is a Brazilian project promoted by the World Bank’s Prototype Carbon Fund (PCF). A corporation called Plantar S.A. is asserting rights to carbon credits generated through 23,100 hectares of eucalyptus plantations near Curvelo, Minas Gerais, and through the switching of fuel used for making pig iron from coal to charcoal made from the eucalyptus.<sup>11</sup>

“We were surprised and bewildered by the news,” a group of over 60 trade unions, churches, local deputies, academics, human and land rights organizations and others protest in a letter of 26 March of this year:

“Corporations like Plantar S.A. installed themselves in our states in the 1960s and 1970s during the military dictatorship, taking advantage of attractive tax incentives. Local communities were never consulted . . . Indigenous peoples . . . Afro-Brazilian communities and tens of thousands of [other] peasants . . . lost their lands . . . , increasing unemployment. . . . the new Plantar nursery . . . , about which no local inhabitant was consulted. . . . , diverted an existing road that has always been utilized by local communities, and extended the travelling distance for local inhabitants by more than five kilometers. . . . Most lands owned by these

corporations are *devolutas*, . . . without land titles, . . . [and] belong to the state. According to Brazilian law, corporations cannot acquire this type of land, only peasants. Even so, with often fraudulent registrations in the registry offices and “hiring” contracts with the state, the corporations succeeded in acquiring hundreds of thousands of hectares of *devolutas* lands. . . . the occupation of [savannah] *cerrado* areas . . . made more difficult the subsistence of these people, which was based on the immense biodiversity of the *cerrado*. The short-cycle eucalyptus monoculture does not allow any other plant or any animal or bird to live within it, and therefore does not possess any biodiversity . . . food products factories closed . . . The pig iron companies still use around 15-20 per cent native *cerrado* vegetation. . . . Plantar does not do anything for its former workers, many of whom are injured or suffering from health problems; many have already died as a result of the very bad working conditions associated with charcoal production and eucalyptus cultivation. eucalyptus plantations result in less jobs if compared with any other agricultural activity.”

Local residents oppose not only Plantar’s appropriation of *cerrado*, farmlands and water for a carbon dump, but also its appropriation of their future:

“The argument that producing pig iron from charcoal is less worse than producing it from coal is a sinister strategy. . . . What about the emissions that still happen in the pig iron industry, burning charcoal? What we really need are investments in clean energies that at the same time contribute to the cultural, social and economic well-being of local populations. We believe that what is really needed is developing other technologies that do not pollute the environment, that do not involve precarious working conditions, that create work and don’t affect local communities. . . . We can never accept the argument that one activity is less worse than another one to justify the serious negative impacts that Plantar and its activities have caused. What we want is to prevent these impacts and construct a society with an economic policy that includes every man and woman, preserving and recovering our environment. That is essential for survival . . . .”<sup>12</sup>

They note further that intimidatory tactics employed by Plantar, which makes many local residents afraid to let interviewers cite their names, are nowhere acknowledged in project documents. Having been thwarted by the PCF, the local movement is now attempting to appeal directly to European investors not to put money into the Plantar carbon project.

Now let us listen to voices from a community in Durban, South Africa. Here Durban Solid Waste (DSW), part of the local city council bureaucracy, manages a landfill site called the Bisasar Road dump. Like most such sites, the Bisasar Road dump transfers waste mainly from upper-income to lower-income areas. Some houses are only 20 meters away from the site boundary. In addition, although the site is licensed only to receive domestic waste, medical waste, sewage sludge, private corporate waste and large shipments of rotten eggs have also wound up there. Cadmium and lead emissions are over legal limits, with limits for suspended particulate matter also often exceeded. Concentrations of methane, other organic and inorganic compounds including benzene and toluene, trichloroethylene and formaldehyde are high. Local residents report many health problems, with seven out of ten of the houses in one downwind block on the nearby Clare Estate reporting tumour cases. When, in 1996, the city council reneged on a 1987 promise to close the site and turn it into sports fields, picnic areas and play areas for children, 6,000 local residents signed a petition of protest, with many blocking the dump site entrance and staging demonstrations and marches.

The Prototype Carbon Fund has thrown a lifeline to what it calls this “environmentally progressive . . . world-class site” in the form of support for a project to extract methane from the landfill and use it to generate up to 45 megawatts of electricity for supply to the national grid. Two individuals – Sandra Greiner and Robert Chronowski at the PCF in Washington – have certified, among other things, that this electricity will “replace” electricity which cannot be foregone and which otherwise have been generated only by burning coal.<sup>13</sup> Accordingly, PCF investors – including British Petroleum - Amoco, Mitsubishi, Deutsche Bank, Tokyo Electric Power and Gaz de France, as well as the governments of The Netherlands, Norway, Finland, Canada, Sweden and Japan – will get *pro rata* shares of rights to ignore an increment of their obligations under the Kyoto Protocol to reduce their own mining and burning of fossil fuels.<sup>14</sup>

The PCF asserts that improving the “financial position of DSW” will benefit local people, sending a “clear signal to the local population that the environment is a number-one concern in South Africa and is being dealt with in the best way possible.” Many locals, who have only recently been informed of PCF’s intervention (public consultation was conducted through the internet, to which only a tiny minority of the Bissar Road community have access), have a different view of the institutions involved. One local resident, who was diagnosed in 1996 with cancer, and whose nephew died of leukaemia, has this to say:

“To gain the emissions reductions credits they will keep this site open as long as possible. Which means the abuse will continue as long as possible so they can continue getting those emissions reductions credits. To them how much money they can get out of this is more important than what effect it has on our lives.”<sup>15</sup>

Extracting methane, of course, in addition to preventing quantities of an especially powerful greenhouse gas from being dispersed in the atmosphere, should benefit local air quality. But, local residents point out, clean air is a right South Africans are constitutionally guaranteed anyway. Methane pollution should be prevented whether or not carbon trading is involved. By implicitly asserting that “the” counterfactual scenario without the project would be one in which the constitution is not enforced – that there exists no prospect for the rule of environmental law in South Africa – DSW, PCF and its consultants are attempting to enable foreign fossil-fuel burners to enclose not only the Bissar Road’s air, but also its future.

A final stop on our brief tour of projects being developed for the CDM is Yala province, Thailand. Here a diverse group of companies aim to set up a 22-23 megawatt power plant fuelled by rubberwood waste and sawdust. The collaborators are Gulf Electric, an independent power producer 50 per cent owned by Thailand’s Electricity Generating Public Company (EGCO) and 49 per cent by Japan’s Electric Power Development Company (EPDC); Asia Plywood, a Yala rubberwood processor next to one of whose factories the plant would be located; and Det Norske Veritas (DNV), a Norwegian “risk management” consultancy which plans to parlay its experience in certifying the credibility of pioneer carbon schemes such as Plantar and Yala into a major share in CDM’s future consultancy market.<sup>16</sup>

In exchange for investment, EPDC, which operates 66 coal-fired and hydropower stations and burned US\$652 million in fossil fuels in 2001,<sup>17</sup> would gain so-called

Certified Emissions Reductions<sup>18</sup> to help it, and Japan generally, maintain current levels of fossil-fuel combustion. Also improving their climate profile through the scheme would be EGCO, which operates gas-fired power stations (one of them, Amata Power Bang Pakong, in partnership with UNOCAL, a US multinational fossil-fuel firm that is a member of anti-Kyoto Protocol and climate-skeptic business groups) and Gulf, which recently saw its proposed 734-megawatt Bo Nok coal-fired power plant on the Gulf of Thailand defeated in March of this year by overwhelming opposition from local people concerned about pollution and other potentially destructive effects. While project backers had planned the power plant independently of the CDM, they have been interested at least April 1998, around the height of the Thai financial crisis, in securing supplementary funding from carbon trading.<sup>19</sup> The partnership also benefits from subsidies from the Energy Policy and Planning Office's Energy Conservation Promotion Fund<sup>20</sup> and has won part of both a US\$30 million OECF loan under a 1999 five-year Global Environmental Facility (GEF) project and a GEF outlay of \$3 million toward commercial risk premiums.<sup>21</sup>

As in the Durban case, most residents of the community adjacent to the site of the proposed project have been unaware of its place in the emerging global carbon trade. As of January of this year, even the local Tambon Administrative Authority (TAO) had yet to receive an environmental impact assessment or other documentation from the firms involved. Yet residents oppose the project as being likely to reinforce local imbalances of power over air and water quality. Both ordinary villagers and subdistrict-level officials feel animosity toward Asia Plywood for causing health and other problems through smoke and ash pollution of local air, water and land, and TAO officials also allege that the firm has not paid its full share of taxes.

Unlike DNV, and like Bisaswar Road residents, residents of the community around the proposed Yala site view their local company as a political, not just a technical, actor. DNV does acknowledge that disposal of rubber wood residues at Asia Plywood and other installations is "one of the most serious environmental problems in the Yala community". But it sees the CDM project as solving the underlying issue. Similarly, DNV registers opposition to the project as an obstacle resolvable through technical means. The consultancy admits that local residents have suggested that AP solve its existing problems with "noise, wastewater and solid waste" before attempting anything else, and communicate the details of construction to the community as well as involve it in monitoring. Yet when at an August 1999 public consultation few respondents agreed with the project, DNV put it down to "previous dissatisfaction with the dust caused by AP's operation" and claims without providing any evidence that, following the installation of a new boiler which uses sawdust, "Lam Mai [subdistrict] residents no longer disagree with the Project".<sup>22</sup> Local residents, on the other hand, see the issues as institutional as well as scientific, and refuse to abstract from the local political context.<sup>23</sup> Viewing corporate reliability, not new technical plans, as the more realistic guide to environmental improvement, they see technical factors such as new boilers or CDM certification as irrelevant as long as underlying conflicts between company and community are not tackled. "If current problems are not solved," one local health official asked, "how are new problems going to be addressed?" Professing "no trust" in AP, most residents near its factory quietly oppose new development on the Yala site.

By the same token, DNV writes in an anodyne, theoretical way about a “comprehensive public participation program” to “accurately inform local residents, government officials and other concerned members of the public about the Project and expected impacts” and “obtain feedback, mainly from the local communities and concerned government agencies, with regard to their opinions and concerns about the Project”, including the TAO committee and residents in “surrounding villages”.<sup>24</sup> The picture is of a project as black box or neutral machine into which formulas not only for environmental improvement but also for participation and community relations can be fed, with automatic results. To local residents, on the other hand, the contents of the black box are both open to view and of powerful interest. Local residents understand that what DNV calls “public participation”, although it has not involved dissemination of documents, has included expenses-paid tours for local people to biomass power plants in Thailand’s central region. They know that such tours have included hotel accommodation, food and, reportedly for some men, free visits to local prostitutes, but not any close inspection of the plants in question nor chances to meet local people. Local residents are also aware of, because they see it every day, AP’s name on a sala that the company gave to a Buddhist temple adjacent to its factory after temple monks complained about pollution. And they grasp the obligations incurred by such activities. They grasp, too, the more negative powers of persuasion available to powerful actors on the local scene: according to local testimony, one elderly resident has been silenced after receiving three death threats as a result of voicing criticisms of the project.

In all three of the CDM projects discussed above, an attempted technical fix for a problem stemming largely from global inequality of access to one capacity is resulting in reduplicated and reinforced inequality of access to other capacities at the local level. The outcome is opposition not to appropriation of the global atmosphere, but to enclosure of local land, air, water or biodiversity. Such cases are indispensable for helping to bring into focus the full scope of contemporary climate politics, which links the winning of contracts by Norwegian risk consultancies to the drying up of wells in rural Minas Gerais; the release of odorless carbon dioxide from a gas-fired power station in The Netherlands to the stench of hydrogen sulphide in urban Durban; and environmentalist maneuverings at meetings in conference centers in Bonn or Marrakech to the hiring of local gunmen in South Thailand.

## V

As of 2003, the story resulting from local responses to climate mitigation projects’ attempt to repress politics, whose seeds are suggested above, has only just begun to play itself out. The parallel dialectic which results from the new carbon economy’s attempts to repress complexity, nonlinearity, indeterminacy, uncertainty and incommensurability, is further advanced.

As I have argued elsewhere, to construct a hybrid commodity on the basis of a measurable equivalence among actual emissions cuts, hypothetical “avoided” emissions and carbon sequestration in the biosphere (see equation [2]) is impossible for a number of reasons.<sup>25</sup> Accounting obstacles to trading fossil, biospheric and future carbon for each other are insurmountable.



First, the requisite knowledge of carbon flows among the atmosphere, biosphere and lithosphere (see equation [1]) is inadequate “to form the basis for . . . any viable trading scheme”, making the Kyoto Protocol as it stands “completely unverifiable”.<sup>26</sup> The reasons have to do with the fundamental differences between above-ground and below-ground carbon. To sequester means “to set aside or separate” – in this case, to be separated from the atmosphere. But there are many degrees of separation. The carbon in a cigarette, in the fluid in a lighter, in a tree trunk, in furniture or paper, in the top seven inches of soil, in coal deposits a kilometer underground, in carbonate rock dozens of kilometers beneath the surface – all are separated from the atmosphere, but to different degrees and for different average time periods. The task of the trader purveying biospheric carbon is to commensurate or equilibrate all these carbons in climatic terms. The problem is that while it's relatively easy to quantify how much carbon is being transferred to the atmosphere through fossil-fuel mining and burning, measuring flows into and out of the biosphere is immeasurably more complex.

Biophysical uncertainty is the first obstacle. This begins with straightforward inadequacy of data. For example, mean net Russian carbon balance in 1990 can be pinned down only to the range of -155 to +1209 million tonnes per year. This swamps probable changes in total Russian carbon flux balance between 1990 and 2010, which are expected to be only 142 to 371 million tonnes, making the figures useless for verifying compliance with the Kyoto Protocol.<sup>27</sup> [Figure 7.] Even more important, carbon flow calculations involving the biosphere must take into account the complexity and nonlinearity of biological systems, atmospheric processes, and their effects on each other. A useful recent book, in detailing the history of precaution since 1890, shows how specialists using an approach to risk invented by engineers to apply to fairly well-understood physical structures such as bridges and airplanes have consistently underestimated the complexity and nonlinearity of biological systems' response to radiation, asbestos, antibiotics, halocarbons, and so forth, as a result essentially undertaking modeling exercises without data. It is equally instructive to trace the recent history of revisions in estimates of the effects of sequestration attempts on the atmosphere and response of ecosystems to climate change. [Table 1.] Adding to the problem is the limited and uncertain carbon capacity of the biosphere. Geologist Jeremy Leggett has long pointed out that, due to the shortage of above-ground dumping capacity, there is no long-term technical solution to climate change short of leaving the bulk of remaining fossil fuel in the ground. [Table 2.] Robert Socolow observes, moreover, that the

“stock of carbon above-ground in terrestrial vegetation is roughly the same size as the stock of carbon in the atmosphere. So if future carbon (now in fossil fuel resources below ground) that would otherwise double the atmospheric carbon stock were to end up, instead, in forests and grasslands, their carbon stock would become double what it is today. Ecologists warn that such a change is too big and too fast to be consistent with the retention of ecosystem quality. At the local level, it is quite easy to invent ecologically disastrous ways of storing carbon that a poorly-designed incentive system would elicit.”<sup>28</sup>

Because of natural variability and the fact that ecosystems change slowly, moreover, it would often take decades longer to verify that a carbon change had occurred than a carbon trader could wait.<sup>29</sup>

More daunting still, setting up a measurable equivalence among emissions, “avoided emissions” and sequestration would require quantification of the effects of social actions and institutions that mediate carbon flows. Carbon transferred from far underground to the atmosphere enters not only the biosphere but also the social sphere. Physical actions (e.g., planting trees, building biomass power plants, extracting methane from landfill) bring about social effects (e.g., resistance among local farmers, diminished interest among investors in energy efficiency, loss of local power or knowledge) which in turn bring about further physical effects (e.g., migration to cities, increased use of fossil fuels) with carbon or climatic implications. Expressing numerically the effects on carbon stocks and flows of such social actions, as would be required for carbon trading involving the biosphere or “avoided emissions”, is impossible.<sup>30</sup>

Second, story lines describing “what would happen” without a carbon project such as those described in section IV can never be singular. The future is a matter for decision, not just prediction. Hence the “emissions reductions” associated with a project will always be indeterminate, making quantification and accounting impossible and rendering carbon-“neutrality” via a baseline-and-credit trading system unverifiable.<sup>31</sup>

Third, assignment of responsibility for both sequestration and hypothetical emissions reductions is essentially contested. No consensus or clear decision-making procedure has emerged about how causality for “avoided emissions” is to be divided up among states, private entities, and other organizations; nor even to what extent humans in general can be identified as the cause of sequestration in forests, soils and grasslands.<sup>32</sup>

It follows from these impossibilities is that, *pace* the United Nations climate apparatus and US carbon traders, the commodity to be produced by projects such as those mentioned in section IV is not correctly referred to as “emissions”, “emission reductions”, “carbon”, “carbon dioxide equivalent”, or any other entity whose contribution either to climate stabilization or to meeting targets for reducing transfer of fossil carbon to the atmosphere can be measured. If it exists at all, this speculative commodity must be something else. Elsewhere, I have proposed calling this prospective commodity not carbon, but “schmarbon”.<sup>33</sup> Few doubts now remain, even among many brokers, that trading schmarbon is irrelevant, or worse, to mitigating climate change. What is less well-understood is whether schmarbon could even constitute a viable commodity. This is the “Lemons Market” problem<sup>34</sup> canvassed by Nobelist economist George Akerlof. If buyers cannot verify quality,<sup>35</sup> “lemons” will be loaded onto the market, and buyers won't pay the prices demanded by sellers of high-quality products. Good projects will be penalized and bad “free-riders” subsidized.<sup>36</sup> Transaction volume and quality will both decline, further dropping prices and quality in a cumulative process which ultimately destroys the market. Where sellers cannot verify commodity quality any better than buyers, and know it, the situation is in some ways even worse. If buyers are not even concerned about verifiable quality, but only about fulfilling legal commitments at the cheapest possible price, then the future is also bleak for the schmarbon market.

In a way reminiscent of the political realities discussed in section IV, the accounting impossibilities sketched in this section loom in the landscape of the contemporary politics of climate change mitigation like a large African elephant in a suburban back garden. You can look away, you can insist on viewing the beast through the wrong end of a telescope, you can try to keep it happy with a handful of bananas, but one way or another, and sooner rather than later, the situation has to be faced. Hitching their hopes for negotiating progress on the possibility of trading shares in biospheric or future carbon dumps for fossil fuel emissions, the private sector, United Nations agencies, and the growing community of carbon trading experts, including many in the NGO community, tried at first to cope with the elephant by pretending it was not there. Attempts at international meetings to call attention to the troubling presence of the beast were evaded with hopeful cries of “But we need carbon sinks in order to gain ratification of the Kyoto Protocol”, “How can we become a world leader in carbon trading with such restrictions?”, “In the real world business projects aren’t undertaken with the aim of reducing carbon emissions”, “Uncertainty doesn’t matter because climate change is uncertain anyway”, “Sequestration must be a good thing and buy us time”, “You’re just biased against flexible mechanisms”, and “Schmarbon is no more questionable a commodity than ordinary derivatives”.

Inevitably, however, the repressed returned. The fact that it did so, as it always does, in disguised forms, did nothing to diminish its awkward relevance. Today, the uncertainty undermining the validity of Certified Emissions Reductions (CERs) based on biospheric sequestration, while experienced by the technocratic mind as something that can be papered over by “insuring” CERs or making them “temporary”, is at least acknowledged. Similarly, while the fact that social effects of carbon projects have to be quantified used to be denied flatly by carbon consultants who protested that the issue was “not their department” or “could be discounted”, the repressed content soon began to appear in the work of some economists in a restricted form:

“[S]ubtropical emerging carbon plantation establishment reduces the storage of carbon in temperate forests as timberland management declines in these regions . . . relatively small programs . . . have effects beyond the scope of the projects considered . . . carbon may leak from the system . . . policy makers must carefully consider the systemwide impacts of different strategies as they assess the costs. . .”<sup>37</sup>

“Only full accounting on project scale . . . and on national level, including carbon flows in trade and commerce, can avoid the investment in virtual sinks.”<sup>38</sup>

By the same token, consciousness of the indeterminacy of counterfactual baselines and its consequences, including social conflict, was early on repressed by experts in the validation and trading of pollution permits. But since these consequences could not be made to disappear altogether, they resurfaced in economic or technical idioms such as that of “unwieldy transaction costs”:

“Emissions are what damage the environment, and measuring them is . . . a relatively routine engineering problem. Specifying and fixing emissions reductions cannot be done so easily, though, unless it is known in advance what emissions would have been absent the control program being implemented . . . the need for administrative revision and approval of counterfactual emissions baseline increases transaction costs enormously.”<sup>39</sup>

“The question of whether a project leads to ‘additional’ emissions savings is proving to be a

major stumbling block. . . . it is inherently impossible to verify what would have happened in the absence of the project. . . . 'It's almost impossible to come up with a watertight way of ensuring that investment in a project would not have taken place anyway.' . . . even with well-documented projects, the uncertainty in the baseline is at least 45% in either direction. . . . this uncertainty must be managed 'by putting in place safeguards and taking a conservative approach' to minimise overestimation of emission savings."<sup>40</sup>

The notion that there may be questions about who is to be credited for the carbon of any given project has also become more visible recently the technocratic mind, if only as a challenge for bargaining technique or "morality" rather than an issue of politics. In general, impossibilities are become visible as "uncertainties" or "difficulties" to be resolved by "learning by doing" and "best practice", and the fact that the future is dependent on political decisions appears in the guise of uncertainty of prediction.

In practical climate politics, such slippages should not be sneered at. When carbon project proponents respond to the pressure of impossibility, this is the language in which they must articulate it. It is through such idioms that thoughtful economists, foresters or financiers will arrive at the conclusion – if they do – that if anything can be traded in the carbon market, it will be rights to emit, not emissions reductions. Economists at the Tellus Institute, for instance, found in 2000 that the CDM is on course to serve primarily as a source of "free-rider" carbon credits for projects that would have been undertaken without the Protocol.<sup>41</sup> Similarly, Environmental Data Services concluded in 2002 that the UK's fledgling internal carbon trading scheme was simply not environmentally credible, involving "potentially bogus emissions credits" and a "scandalous misuse of public funds".<sup>42</sup>

Of course, like the elephant itself, the attempt to repress consciousness of it – together with the return of the repressed, attempts at re-repression, and so on – can be described in many idioms. None of these, including the ones I use here, are neutral. Yet however the story is told, and with what cast of characters, its final scene remains to be imagined.

## VI

**"It's a working principle of the Head Bureau that the very possibility of error must be ruled out of account. This ground principle is justified by the consummate organization of the whole authority, and it is necessary if the maximum speed is to be attained . . . . Is there a Control Authority? There are only control authorities. Frankly it isn't their function to hunt out errors in the vulgar sense, for errors don't happen, and even when once in a while an error does happen, as in your case, who can say finally that it's an error?"**

**"The Superintendent" in Franz Kafka, *The Castle***

If there were a Head Bureau of Climate, it would today be awash with cash and anticipation at the prospect of managing the largest market ever created. Even the smaller Bureaus that do exist, diverse as they are, are finding it difficult to come to terms with the "possibility of error".

How, then, is the critique of the end-of-pipe technical fixes and new waves of enclosure I have described to be developed and sustained? The situation has already

become too complicated for many critics in “international civil society” to spend time analyzing. Caught between the cynicism of many carbon technocrats and the debunking, “safety-first” attitude of their opponents at the grassroots, many non-governmental climate organizations (NGOs) and concerned academics are in danger of becoming more credulous than either. At a time when what Henry James called the “civic use of the imagination” is more needed than ever, in science, in economics, and in politics, the creativity of multitudes of brains is being privatized as possibly never before. [Table 3].

The question can be answered only by first acknowledging that the intellectual burden of dissent is, as always, likely to fall largely on the grassroots. NGOs and academics should not forget that, despite carbon technocrats’ intimidating jargon of “fungibility”, “additionality” and “reductions credits”, they and their grassroots opponents will be talking always about the same things, and will be engaged in recognizable and familiar intellectual struggles over entitlement, enclosure and accounting fraud. Sympathizers in the global climate intelligentsia cannot afford not to listen carefully to what those opponents will have to say if they are to understand how to make common cause with them in the coming battles over the atmosphere. It is sobering, as always, to remember how many opportunities for such alliances have been missed in the past, even prior to the current age of corporate-funded university science departments and conservation NGOs. Years ago, E. P. Thompson described how, at the beginning of the industrial era, English hand-loom weavers

“met Utilitarianism in their daily lives, and they sought to throw it back, not blindly, but with intelligence and moral passion. . . . In these same years, the great Romantic criticism of Utilitarianism was running its parallel but altogether separate course. . . . In the failure of the two traditions to come to a point of junction, something was lost. How much we cannot be sure, for we are among the losers”.<sup>43</sup>

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<sup>1</sup>I here oppose “resources” to “commons” in the way usefully defined by Ivan Illich in *Gender*, New York, Pantheon, 1983, pp. 18-19. The phrase “common property resources” is an anachronism and a source of some conceptual confusion. In English, the word “resource” did not come into use before the late 18<sup>th</sup> century, the time of the rise of both modern capitalism and the modern nation-state.

“Commons” goes back to Middle English or before. See Raymond Williams, *Keywords*, Fontana, London, 1976 and Daniel W. Bromley, ed., *Making the Commons Work: Theory, Practice and Policy*, Institute for Contemporary Studies, San Francisco, 1992. On open access, Daniel W. Bromley *Environment and Economy: Property Rights and Public Policy*, Blackwell, Oxford, 1991 is useful.

<sup>2</sup> Basic information is available on the website of the Intergovernmental Panel on Climate Change, <http://www.ipcc.ch>.

<sup>3</sup>Suppose, for example, that Russia doesn't need all of the permits to use the world's carbon dioxide dump which it was granted under the Kyoto Protocol. It can then sell the surplus to other countries which are exceeding their allowed emissions. Allocations of these rights to the global carbon dump were made without consultation with most of the people who use it. Similarly, if Japan finds that cutting its emissions by the six per cent it has promised under Kyoto is too difficult or expensive, it will be able to buy cheap emissions permits from elsewhere to fill the gap. But it won't need to buy permits for the remaining 94 per cent. These it already has free “title” to, at least until 2008. The reason industrialized societies were allowed such extensive rights in the world's carbon dioxide dump while other countries which had made sparing historical use of the dump were given no rights reflects the fact that industrialized countries were using a huge proportion of the dump already. No serious discussion of this controversial, inegalitarian and possessionist approach to property, or of alternatives, has taken place at any time during the climate negotiations.

<sup>4</sup>David Victor, *The Collapse of the Kyoto Protocol and the Struggle to Slow Global Warming*, Princeton University Press, 2001.

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<sup>5</sup>Michael Grubb et al., *The Kyoto Protocol: A Guide and Assessment*, Royal Institute for International Affairs, London, 1999.

<sup>6</sup>A brief example from the the world of US President George W. Bush and ENRON corporation illuminates the issue. While Bush wanted nothing to do with the Kyoto Protocol because it called for cuts in US emissions, Bush's acquaintances at ENRON wanted him to sign because it would speed the development of a market in permits to emit carbon dioxide, with all the rich opportunities for making profits out of derivatives that entailed. The outcome of this cordial dispute, while clearly not meaningless, is equally clearly a family squabble unrepresentative of the full range of possibility in climate politics. See Donald MacKenzie, "Empty Cookie Jar", *London Review of Books*, 22 May 2003, p. 6.

<sup>7</sup>Such projects are also generally supposed to be "financially additional"; that is, requiring carbon finance if they are to be built at all. But this requirement is increasingly scorned by developers and carbon brokers. See International Rivers Network and CDM Watch, "The Good, the Bad and the Dammed Ugly: Status Note on Large Hydro and the Clean Development Mechanism", <http://www.cdmwatch.org>, May 2003, p. 3.

<sup>8</sup>Because biospheric carbon dumps emit as well as sequester carbon, the two types of carbon dumps are not mutually exclusive.

<sup>9</sup>On development, see Larry Lohmann, "Missing the Point of Development Talk: Reflections for Activists", Corner House Briefing Paper No. 9, August 1998; on cost-benefit analysis, Larry Lohmann, "Whose Voice is Talking? How Opinion Polling and Cost-Benefit Analysis Synthesize New 'Publics'", Corner House Briefing Paper No. 7, May 1998; on genetic modification, Viola Sampson and Larry Lohmann, "Genetic Dialectic: The Biological Politics of Genetically Modified Trees", Corner House Briefing Paper No. 21, December 2000; all available at <http://www.thecornerhouse.org.uk>.

<sup>10</sup>Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time*, Beacon, Boston, 2001 [1944]. "What we call land is an element of nature inextricably interwoven with man's institutions," Polanyi explained. Cultivators commit themselves and their communities to improvements fixed in particular places, which must be built up gradually by generations of effort. Not only local food supplies but also the preservation of soils and forests depend on people not constantly exchanging their lands for other lands, or the land constantly exchanging its peoples for other peoples. Of course, there are different degrees and aspects of commoditization of land. In the extreme case, any land can be bought and accumulated in any amount by anybody with the money to do so and then used for any purpose. It can be exchanged for anything with anybody in any amount, making it theoretically possible for one person to own all land and everybody else to own none, for land to be destroyed if that for which it is exchanged is temporarily a source of greater profit, for land to be treated as a mere speculative instrument without even being used in any physical way while people go hungry, and for landowners to be people who never see or understand the land they control. Most cases are less extreme. In the real world, all local communities and states possess rules or unwritten or unstated customs which determine whether and to what extent land can be exchanged, impose limits on how much can be accumulated by one person, restrict what it may be used for, and specify carefully who may buy or acquire it. Even watering down these varied rules or customs – to say nothing of eliminating them – is an enormously difficult and complicated job requiring heavy state or, as is often the case today, international intervention.

<sup>11</sup>World Bank, Prototype Carbon Fund, *Brazil: Sustainable Fuelwood and Charcoal Production for the Pig Iron Industry in Minas Gerais: The "Plantar" Project*, Project Design Document, Washington, 14 March 2002; EcoSecurities with the PCF, *Baseline Determination for Plantar: Evaluation of the Emissions Reduction Potential of the Plantar Project*, Washington, 14 March 2002.

<sup>12</sup>Open letter to those responsible for, and investing in, the Prototype Carbon Fund (PCF), <http://www.cdmwatch.org>, 26 March 2003. See also Open Letter to Executives and Investors in the PCF, 23 May 2003, replying to responses received from Plantar.

<sup>13</sup>World Bank, Prototype Carbon Fund, *Durban, South Africa: Landfill Gas to Electricity: Project Design Document*, Final Draft, Washington, January 2003.

<sup>14</sup> <http://www.prototypecarbonfund.org>.

<sup>15</sup>Carbon Trade Watch, "The Sky's Not the Limit: The Emerging Emissions Trading Markets", Transnational Institute, Amsterdam, December 2002.

<sup>16</sup> See <http://www.dnv.com>.

<sup>17</sup> EPDC *Annual Report 2001*, Tokyo, p.27.

<sup>18</sup>According to Electric Power Company Development (EPDC), *Project Design Document for a*

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*Rubber Wood Residue Power Plant in Yala, Thailand*, Tokyo, August 2002, EGCO and EPDC's interest in the project is said to be “predicated on the strong expectation that the project will be designated as a CDM project and will generate Certified Emission Reductions” (p. 18).

<sup>19</sup>Regional Wood Energy Development Programme, Food and Agriculture Organization, *Options for Dendropower in Asia: Report on the Expert Consultation, Manila, 1-3 April 1998*, Bangkok, 2000, p. 29.

<sup>20</sup>Global Environment Facility, *Project Brief* for project THA/99/G31, World Bank, Washington, DC, 1999.

<sup>21</sup>United Nations Industrial Development Organization, *Thailand: Case Study, Capacity Mobilization to Enable Industrial Projects Under the Clean Development Mechanism*, Vienna, 2002; EPDC, op. cit. <sup>22</sup> *Ibid.*, p. 25.

<sup>23</sup>EPDC, op. cit., p. 22.

<sup>24</sup>*Ibid.*, pp. 23-24; a meeting of less than one hour is recorded with the Lam Mai TAO in Appendix E.

<sup>25</sup>Larry Lohmann, “Democracy or Carbocracy? Intellectual Corruption and the Future of the Climate Debate”, Corner House Briefing No. 24, October 2001, pp. 8-16, 26-27, 36-44 and “Carbon Trading: Avoiding Market Collapse”, note for roundtable discussion on “Carbon Trading: Market of the Future or Disaster in Waiting?”, Finsbury Business Centre, London, October 2002; both on <http://www.thecornerhouse.org>.

<sup>26</sup>Nilsson, S., “Editorial”, *Options*, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria, Autumn 2000, p.1. For detail and further references, see Larry Lohmann, “Democracy or Carbocracy?”, pp. 36-37.

<sup>27</sup>Nilsson, S., Shvidenko, A., et al., “Full Carbon Account for Russia”, IIASA Interim Report IR-00-021, p. 115, <http://www.iiasa.ac.at>.

<sup>28</sup>“The Century Long Challenge of Fossil-Carbon Sequestration”, paper prepared for the Second Annual Environmental Policy Forum, “Climate Change – What Next?”, Aspen 13-16 Sept. 2001.

<sup>29</sup>Jonas, M. et al., “Full Carbon Accounting and the Kyoto Protocol: A Systems-Analytical View”, Interim Report IR-99-025, International Insst for Apl Systs Analysis, Laxenburg, Austria, p. 35, <http://www.iiasa.ac.at>.

<sup>30</sup>Lohmann, “Carbocracy or Democracy?”, pp. 8-9, 40-41.

<sup>31</sup>*Ibid.*, pp. 9, 42-43. A system based on hypothetical “avoided emissions” is always unlikely to yield results equivalent to those of a pure cap-and-trade system of type (1).

<sup>32</sup>*Ibid.*, pp. 8-9, 38-39.

<sup>33</sup>Lohmann, “Carbon Trading: Avoiding Market Collapse”.

<sup>34</sup>G. A. Akerlof, “The Market for ‘Lemons’: Qualitative Uncertainty and the Market Mechanism”, *Quarterly Journal of Economics* 84 (1970): 488-500. See also International Institute for Applied Systems Analysis, Interim Report IR-00-043, Laxenburg, Austria, 2000.

<sup>35</sup>Akerlof notes that two ways of developing a market under these circumstances are to sell products for which quality is generally known (such as books) or to create a mechanism that inculcates trust, such as branding or certification. However, the quality (in terms of climatic efficacy or contribution to legislated emissions reductions) of climate projects such as Clean Development Mechanism projects cannot be seen on their face. At the same time, certification is in the hands of consultants who are committed to solving an insoluble problem and whose reliability is in any case currently in some question.

<sup>36</sup>Stephen Bernow et al., *Free-Riders and the Clean Development Mechanism*, World Wildlife Fund, Gland, Switzerland, 2000.

<sup>37</sup>Roger Sedjo and Brent Sohngen, “Forestry Sequestration of CO<sub>2</sub> and Markets for Timber”, Resources for the Future, Washington, September 2000.

<sup>38</sup>Riccardo Valentini et al., *Accounting for Carbon Sinks in the Biosphere – European Perspective*, CarboEurope, European Director General desk, October 2000.

<sup>39</sup>A. D. Ellerman, P. L. Joskow et al., *Markets for Clean Air: The US Acid Rain Program*, Cambridge, 2000, p. 318.

<sup>40</sup>“Emissions trading projects and the ‘additionality’ minefield”, *ENDS Report* 328, May 2002.

<sup>41</sup>Bernow, *Free Riders*.

<sup>42</sup>“Smoke and Mirrors on Emissions Trading”, *Environmental Data Services Report*, London, 326, March 2002, pp. 2, 25-29

<sup>43</sup>*The Making of the English Working Class*, Penguin, London, 1963, p. 915.