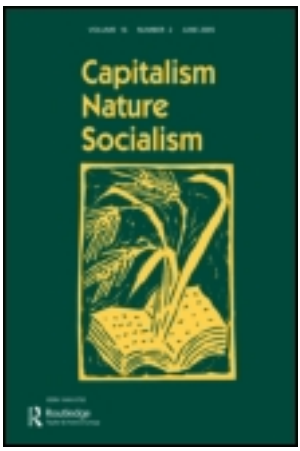

Capitalism Nature Socialism
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/rcns20

Zombie Carbon and Sectoral Market Mechanisms

Oscar Reyes

Published online: 28 Oct 2011.

To cite this article: Oscar Reyes (2011) Zombie Carbon and Sectoral Market Mechanisms, Capitalism Nature Socialism, 22:4, 117-135, DOI: 10.1080/10455752.2011.617508

To link to this article: http://dx.doi.org/10.1080/10455752.2011.617508

Capitalism Nature Socialism volume 22 number 4 (December 2011)

Zombie Carbon and Sectoral Market Mechanisms

*Oscar Reyes**

The global carbon market is in crisis. Proposed emissions trading schemes in the U.S.A., Japan, and Canada have stalled indefinitely; new markets in Australia and South Korea face significant delays; and climate justice activists have successfully blocked the start of a planned scheme in California. Trading has become ever more concentrated around the E.U. Emissions Trading System (ETS), which could well see carbon permit prices drop to zero if the 27-country bloc adopts stricter guidelines on energy efficiency (Harrison 2011). Overall carbon-trading volumes were lower in 2010 than in the previous year. The Clean Development Mechanism (CDM), the carbon offsetting scheme at the heart of the Kyoto Protocol, has declined for four years running, with fewer credits purchased from new projects than at any time since the Protocol came into force in 2005 (World Bank Climate Finance Unit 2011a). The price of CDM credits continues to fall, and they are now "the world's worst performing commodity" (Wynn and Chestney 2011).

Perhaps confusing these contractions for birth pangs, the E.U. and the World Bank are pushing to create new international carbon market mechanisms in the context of United Nations Framework Convention on Climate Change (UNFCCC) international climate negotiations. In particular, there is a focus on creating new "sectoral" carbon markets, which would move beyond the project-by-project basis of the existing CDM and issue carbon allowances in relation to whole economic sectors.

The UN Climate Change Conference in Cancún (COP-16) agreed that one or more of these new market-based mechanisms should be established at COP-17 in Durban. The industrialized countries advancing these proposals want to see them expand upon (and partially replace, in the case of middle-income countries) the CDM, providing a legal framework for continuing the carbon market experiment that began with the Kyoto Protocol, even in the absence of any new "emissions reductions" pledges lodged under that treaty.

With global climate talks showing few signs of progress, the debate on establishing new carbon markets may roll on well past the Durban conference. But the World Bank, in particular, is continuing to push for the expansion of these markets regardless of the Durban outcome, while a series of bilateral initiatives are

*I would like to gratefully acknowledge the support of the Isvara Foundation, which made possible the writing of this article. Thanks to Joanna Cabello, Tamra Gilbertson, and Larry Lohmann for comments and discussion.

ISSN 1045-5752 print/ISSN 1548-3290 online

http://dx.doi.org/10.1080/10455752.2011.617508

Routledge
Taylor & Francis Group

emerging alongside the multilateral framework. This article focuses on ''sectoral'' carbon markets, explaining and critiquing two proposals that are central to the expansion of new carbon market mechanisms. It highlights the role of the World Bank's Partnership for Market Readiness (PMR) as a catalyst for new carbon markets in middle-income countries and uses the same mechanism as a window through which to explore the rise of bilateral initiatives. It concludes that neither failures at the level of international negotiations nor a slump in carbon credit prices have yet stopped the attempts of the E.U. and World Bank, in particular, to roll out new carbon market mechanisms.

Going Sectoral

Deadlock in Durban seems the most likely outcome of climate talks, with the debate on the ''legal form'' of any agreement taking center stage. There are currently two tracks within the UNFCCC negotiations. An Ad Hoc Working Group on Further Commitments for Annex 1 Countries under the Kyoto Protocol (AWG-KP) was established in December 2005. This was later joined by the Ad Hoc Working Group on Long Term Cooperative Action (AWG-LCA), which takes the Bali Action Plan (BAP) of December 2007 as its starting point.

The ''legal form'' debate centers on whether or not to unify the results of these tracks into a single, post-Kyoto treaty. This is an arcane framing for a dispute that is ultimately about power and equity: who should take on responsibility for reducing greenhouse gas emissions, and can states be held to account if they backtrack on their commitments? These are far from theoretical considerations: the U.S.A. wrote carbon markets into the 1997 Kyoto Protocol but then famously failed to ratify that treaty. It has now been joined by Canada (which is almost certain to miss its Kyoto target), Japan, and Russia in rejecting any continuation of the Protocol after 2012. These industrialized countries want to ''kill Kyoto,'' their aim being to get rid of internationally binding climate targets, while keeping hold of the carbon markets. Establishing ''new carbon market mechanisms'' outside of the Kyoto Protocol is part of this package.

To this end, the debate on these new mechanisms mainly rests within the LCA and is being elaborated under Section 1(b)(5) of the 2007 Bali Action Plan, which calls for ''[v]arious approaches, including opportunities for using markets, to enhance the cost-effectiveness of, and to promote, mitigation actions'' (UNFCCC 2007a). The Cancún Accords resulting from COP-16 ask that new market and non-market mechanisms be considered for agreement in Durban. A short consultation was held in early 2011 and consolidated by the LCA Secretariat into a ''Synthesis report on information on various approaches in enhancing the cost-effectiveness of, and promoting, mitigation actions'' (hereafter, ''LCA *Synthesis Report*''), which forms the basis of ongoing negotiations.

Various proposals remain on the table, but they center on sectoral carbon markets, following considerable efforts by the European Commission, in particular, to promote them. These come in two main variants: ''sectoral crediting'' and ''sectoral trading.'' The former would issue ''credits'' for reductions in pollution relative to a projected baseline, based on measurements over an agreed time period. The latter would issue ''permits to pollute'' up front in relation to a target level of emissions.[1]

The new schemes are presented as distributing the ''benefits'' of carbon finance more evenly in the South, but it is likely that the main winners would be large (often transnational) corporations operating in middle-income countries. The reasons for this relate to the market fundamentals of key economic sectors as well as inequalities of information and capacity to engage in non-project-based trading systems. Beyond the ''development financing'' rhetoric, an intended effect of sectoral markets is to draw so-called ''major emitters'' into climate change mitigation obligations, and so redress perceived trade imbalances resulting from measures to tackle greenhouse gas emissions. Climate negotiations have long been treated as trade negotiations, so this should come as little surprise. More noteworthy, perhaps, is the increasing tendency to double count carbon market revenues as sources of ''climate finance.'' It forms part of a growing tendency to conceive of such financial flows as little more than ''leveraging'' international private finance—a polite way to describe corporate welfare schemes with little visible benefit (and the potential for considerable harm) to the majority of people in Southern countries.

Sectoral Crediting

The *Synthesis Report* explains sectoral crediting in the following terms:

> On a crediting basis, a reference level for emissions within a boundary (e.g., a sector) would be determined, possibly at a level below ''business as usual.'' The emissions within this boundary would then be monitored during a period of time, known as a ''reference period.'' If, at the end of the reference period, actual emission levels were below the reference level, a quantity of credits corresponding to the difference would be issued. These credits would then be distributed, through a method to be determined, among the emitters within this boundary. The emitters would therefore have an incentive to limit their emissions, as this would enable them to gain credits that could be monetized. A variant of this proposal would be that credits are issued for emissions that are avoided during the period. (UNFCCC 2011a.)

[1]For more details on these proposals, including a critique of their environmental failings, see *More is Less: A Case Against Sectoral Carbon Markets* (Reyes 2011b).

This requires a little decoding, starting with the obvious question of what activities would be covered. Although the precise list of sectors is not yet fixed, it is generally understood to include manufacturing sectors exposed to international competition—including steel, cement and lime, pulp and paper, aluminum, and "upstream" oil and gas production emissions (e.g., from gas venting and flaring)—as well as the power sector. Such crediting may also include economic sub-sectors, such as public transport (UNFCCC 2011b, 52, 45). Separate discussions are being held within the context of UNFCCC negotiations regarding the possibility of new carbon market mechanisms involving deforestation and agriculture. Emissions trading is also under consideration in the aviation and shipping sectors, although these discussions are currently being conducted under the mandate of the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO), institutions that have avoided binding agreements to control climate change for more than thirteen years.[2]

The *Synthesis Report* is deliberately vague on how emissions would be counted and credits issued, although the "baseline-and-credit" system on offer is similar in many fundamental aspects to the CDM. A baseline or "reference level" is a projection of future emissions, which incorporates assumptions about past polluting practice, future economic growth, and the likely trajectory of technology development. Minor alterations to these assumptions can result in major differences in how many credits are issued and, therefore, how much money is generated by the scheme.

One of the most controversial aspects of the proposed mechanism is the suggestion that crediting should start at a threshold that is "possibly at a level below 'business as usual.'" This would require Southern countries to significantly alter their emissions trajectory *before* carbon credits are issued. In this sense, the scheme is said to advance beyond the "zero sum" game of the CDM, where all of the credits issued simply prevent more expensive actions to reduce greenhouse gas emissions in industrialized countries (Lazarowicz 2009, 61).

The move "beyond offsetting" is far from eliminating offsetting or any of the problems associated with it, however. In covering whole economic sectors instead of individual projects, sectoral crediting would increase the volume of carbon offsets generated; in fact, that is one of its main goals.

No penalty is incurred by the Southern country if this threshold is not met, which is why the scheme is sometimes referred to as involving a "no lose" target. But no credits are issued in that case, either. Credits are issued to the Southern country if the emissions threshold is exceeded. These can then be sold back to industrialized

[2]The Kyoto Protocol assigned responsibility for reducing international aviation and shipping emissions to the ICAO and IMO. A number of countries and blocs have expressed frustration at the inability of these institutions to reach agreements on climate change. The E.U. has legislated for the inclusion of aviation in its ETS starting from January 2012 and is also considering including shipping that docks in the E.U. in the scheme.

countries (and companies covered by emissions trading schemes within these countries) as offsets. In other words, these credits are bought so that companies and governments in industrialized countries do not have to reduce their emissions at source.

Limiting the flow of offsets by means of a ''crediting threshold'' is, in part, a measure to ''ensure that the supply of credits does not overwhelm demand'' (Baron et al 2009a, 16). It is, moreover, a proposal that has the potential to displace more of the costs of addressing climate change onto countries of the global South. If the autonomous efforts of Southern countries are linked to an offset market, it is feared that low-cost emissions reduction potential would be counted towards Annex I country targets rather than as part of the effort by countries in the global South to advance cleaner development paths (Third World Network 2009).

Sectoral Trading

Sectoral trading is a type of ''cap-and-trade'' scheme. It aims to apply a cap (or limit) on greenhouse gas emissions relating to a particular economic activity. Companies are issued licenses to pollute ("carbon permits'' or ''emissions allowances") and can then choose to cut their emissions or buy permits from others that have a surplus ("a trade").

There are two key differences between sectoral trading and sectoral crediting. First, the issuance of allowances happens at the start of the period of trading rather than at the end. If an agreed overall target is not met, the government or companies covered by the scheme would have to purchase extra carbon allowances from abroad. With sectoral crediting, by contrast, credits would only be issued at the end of a period of trading if emissions were below an agreed baseline (Lazarowicz 2009, 57).

Second, sectoral trading cannot be operated on a voluntary basis. Or, rather, the ''voluntary'' aspect relates solely to whether countries choose to opt into and create such a scheme in the first place. Once created, the target must be a ''defined absolute target'' if some scarcity is to be maintained, which is a requirement for the permits to retain their monetary value. In this sense, the scheme forms part of an attempt to weaken the ''differentiation'' within the global climate regime between Annex 1 ''developed'' countries, which take on binding emissions targets, and non-Annex 1 ''developing'' countries, which do not.

The question of how sectoral trading allowances would be allocated, or by whom, is left unanswered—although the experience of existing cap-and-trade schemes shows a consistent pattern of overallocation (the number of allowances exceeds the ''cap,'' so no pollution is limited) and has tended to involve free handouts of permits to pollute. Nor is it yet established whether the sectors covered would be defined on a sub-national, national, regional, or global basis—although the *Synthesis*

Report claims that Parties have expressed a preference for national or bilateral systems (UNFCCC 2011a, 7).

The World Bank's Push for New Carbon Markets

The UNFCCC climate negotiations are not the only means of advancing new carbon market mechanisms, however. A growing number of initiatives are pushing beyond the official UN framework, in response to the sustained deadlock within the talks. The World Bank is at the vanguard of these measures, and although its "Partnership for Market Readiness" (PMR) involves a relatively modest financial outlay, its potential to catalyze new markets (and serve as a bellwether for national and bilateral initiatives) makes it worthy of critical attention.

Launched at the UN Climate Change Conference in Cancún (COP-16), the PMR is a new carbon fund "aimed at major emerging economies and middle-income countries interested in exploring new carbon market mechanisms, including sectoral crediting mechanism[s]." (European Commission 2010a, 19).

A range of economic activities might eventually be covered by these new markets, with the current (non-exhaustive) list including power generation, iron and steel, transport, construction/buildings, cement, energy efficiency, waste management, and initiatives towards "low-carbon cities" (World Bank Climate Finance Unit 2011a).

Promoting "market readiness" is strategically important for the Bank (and its financial backers) in attempting to open up new forms of carbon markets in countries which until now have not been obliged to monitor their emissions. This activity preempts a political decision within international climate negotiations, despite attempts to dress up the intervention as a merely technical exercise. As the European Commission notes,

> Some countries may perceive the [PMR] project as potentially jeopardizing their negotiation positions and the process under the UNFCCC. However, such risk could be mitigated by focusing on the technical discussions and on-the-ground capacity building. (European Commission 2010a, 23.)

This is by no means the first time the Bank has made such a move. At the UN Climate Change Conference in Bali in December 2007 (COP-13), the World Bank launched its Forest Carbon Partnership Facility (FCPF), a "market readiness" initiative for Reducing Emissions from Deforestation and Degradation (REDD). As Benoit Bosquet, the Bank official who led the development of the facility, put it at the time, "The facility's ultimate goal is to jump-start a forest carbon market." This despite the lack of any UN agreement on REDD carbon markets.

Moreover, the Bank clearly intends to pursue the creation of new carbon market mechanisms irrespective of UNFCCC negotiations. The European Commission points out that "*Regardless if the final decision on the establishment of new carbon market mechanisms will be taken under the auspices of the UNFCCC or via bilateral or multilateral agreements*, demonstration actions like the PMR will improve understanding on the options for practical implementation of new and scaled-up carbon market mechanisms" (European Commission 2010a, 23; emphasis added).

As of June 2011, the Partnership had approved initial grants of $350,000 to Chile, China, Colombia, Costa Rica, Indonesia, Mexico, Thailand, and Turkey (World Bank Climate Finance Unit 2011b). Each of the eight countries will now develop a "Market Readiness Proposal" to detail their plans. Two further countries, Morocco and Ukraine, have been confirmed as participants, while Brazil, Jordan, South Africa, and Vietnam are at various stages of submitting "Expressions of Interest" (World Bank Climate Finance Unit 2011c, 3-4). The initial projects include setting up a carbon offset registry in Mexico and establishing regional pilot schemes for emissions trading in the power sector in China. The largest share of the money will be allocated to creating systems for Monitoring, Reporting and Verifying (MRV) (European Commission 2010a, 25).

Funding pledges so far have come from Australia, the European Commission, Germany, Japan, Norway, The Netherlands, Spain, Switzerland, the United Kingdom, and the United States (World Bank Climate Finance Unit 2011b). A little under $70 million has been pledged to date, with all or most of the money coming from "fast start financing," the package of "urgent" measures announced as part of the 2009 Copenhagen Accord (Australian Government 2010, 10; World Bank Climate Finance Unit 2011b; European Commission 2010a, 18).

A closer analysis shows that the most significant source of money for the new mechanisms proposed by the Fund will come from the countries that are supposed to be its beneficiaries. As the European Commission explains, each "beneficiary country" will initially be allocated $200,000 to identify relevant sectors for the scheme. An average of $5 million will subsequently be spent on "program implementation" in each participating country, $3 million of which will be dedicated to establishing systems for data collection, monitoring, and reporting (European Commission 2010a, 23). In this regard, the program closely follows the format adopted in the development of "REDD-readiness" initiatives, such as the World Bank Forest Carbon Partnership Facility.

However, as the European Commission points out, "US$5 million is not sufficient to bring [the] PMR program to do piloting. The beneficiary countries will be required to allocate human and financial resources to perform all abovementioned tasks" (European Commission 2010a, 26). The scale of this shortfall can be seen when the PMR figures are compared with estimates that appear in a 2009 study commissioned by the U.K. Office of Climate Change Global Carbon Trading

Project. The comparison is especially noteworthy, because it was conducted by Ecofys, a consultancy that is one of the main advisers to the World Bank and OECD on ''market readiness."

Ecofys estimates that the costs of ''capacity building'' for sectoral CDM in Chile—which is likely to be a PMR participant-would be more than $14 million, rising to $25 million if sectoral targets were adopted (Vieweg et al. 2009).[3] In other words, Chile would contribute two-thirds of the overall costs of developing a scheme from which it is supposed to be a ''beneficiary.'' In the case of China, Ecofys estimates that capacity building for ''sectoral CDM'' would cost $26 million, rising to $57 million for the implementation of sectoral targets and $130 million for a scheme linked to national targets.

Each project is expected to last three to five years. The initial $100 million sought to make the Fund operational is also expected to be spent over a timescale of up to five years. However, ''[t]he Partnership itself does not have a sunset clause and will continue to provide support as long as there is demand from countries for market readiness capacity building and piloting'' (European Commission 2010a, 26).

Avoided Responsibility Mechanisms

Various rationales have been offered for ''scaling up'' carbon markets. The *Synthesis Report*, for example, introduces sectoral carbon markets as ''mechanisms to broaden the scope of mitigation'' (UNFCCC 2011a, 7). In the context of this debate, it is frequently claimed that the Kyoto Protocol's flexible mechanisms, most notably the CDM, are unable to achieve the levels of emissions reductions needed to stop runaway climate change.

This is undoubtedly the case, although not necessarily for the reasons put forward by proponents of expanding carbon markets. Richard Baron of the International Energy Agency (IEA), for example, points out that the CDM covers less than 1.5 $GtCO_2$ of electricity production (with claimed ''reductions'' of 400–600 $MtCO_2$) in ''developing'' (non-Annex I) countries, out of a total electricity sector that generates 60 $GtCO_2$ in the 2000-2012 period that he analyzes. The sector alone has seen an 8 percent annual increase in CO_2 emissions. On this basis, Baron concludes that the CDM is ''structurally unlikely to deliver needed mitigation'' and that new mechanisms are therefore required (Baron 2010).

Fundamental questions of equity are overlooked here. While the rise in emissions in countries of the global South is noted as a potentially alarming trend

[3]The figures quoted for Chile are a like-for-like comparison with the capacity building estimates given by the PMR—both assume sectoral crediting and exclude implementation costs.

by the IEA, the historical and present emissions of industrialized countries are not addressed. In detaching emissions trajectories from a broader view of global emissions, the implication is clearly made that climate mitigation actions should be targeted on the global South. This fails to deal with the underlying *structural* factors contributing to an increase in emissions in Southern countries—which include export-led development models that have seen a significant proportion of emissions rise as a reflection of outsourced emissions from Annex I countries (Peters et al. 2011).

The distribution of responsibility for climate action is directly tied to the context in which new market mechanisms are being proposed. "Scaling up" markets in the global South is conceived as a means to draw non-Annex I countries into engaging in more widespread mitigation actions. Such proposals assume a "high-ambition" world in which industrialized countries take bold actions to cut their emissions domestically. As the UN Climate Change Conferences in Copenhagen and Cancún made abundantly clear, this ambition is resolutely lacking.

Carbon Financing: Sending the Wrong Kind of Money to the Wrong Places

New market mechanisms are being proposed with the aim of pushing an increasing proportion of climate financing through the carbon market. Such a conclusion was, for example, reached by the UNFCCC secretariat when looking at the "investment and financial flows" associated with climate change mitigation. In 2007, it estimated that $90–100 billion per year would need to be invested in developing countries by 2030, while the value of the carbon market was estimated at $10–100 billion (UNFCCC 2007b). On this basis, it concluded that the carbon market "would have to be significantly expanded to address needs for additional investment and financial flows" (UNFCCC 2007b, par. 6).

Yet carbon market revenues are far from the only financial flows available to address climate change—and, in fact, tend to provide an extremely poor source of financing. Carbon market-related investments are often accompanied by significant flows of money and resources out of the host country that are not accounted for within climate finance frameworks, and can have broader destabilizing effects on the financial system. The increasing reliance on private equity, for example, encourages risky investments that are subject to a far higher failure rate than public finance—a poor basis for the infrastructure investments that climate finance purports to encourage. This tends not to show up in the economic modeling surrounding carbon market financial flows. Such models also exclude the significant pressures that carbon markets bring to bear in terms of resource extraction and land expropriation.

Widening the Gap

A further problem with new market mechanisms is that they reinforce and possibly exacerbate distortions in how climate financing is distributed—first, by according a greater proportion of money to mitigation efforts than adaptation and, secondly, by concentrating financial incentives in the hands of large corporations in middle-income countries. As the Center for European Policy Studies puts it,

> There is a risk that credits would most likely end up with already dominant companies in emerging economies, because of, for example, their size, technical and/or political savvy, access to resources and management, and sheer economic weight ... This risk is even greater if companies continue to be state-owned or close to the government. (CEPS and WBCDS 2008, 34.)

More importantly, with these new mechanisms targeting major polluting industries and manufacturing for support, local communities would again be the losers—faced with subsidies to significant polluters that often have a long record of disregarding local health and environmental pollution issues (Gilbertson and Reyes 2009, 53–87).

Such markets are also a poor means of driving long-term finance. Relatively high transaction costs mixed with significant investment risk make carbon-crediting mechanisms a poor source of such money (Sterk 2010, 7). While the market does, in theory, offer a means to address this by the "forward-selling" of credits, the cure is in many ways worse than the disease—since it implies gambling on yet-to-be issued credits. This speculative market, which mostly involves trades made "over the counter," not only tends to be a source of short-term profit for financial institutions rather than a stable income stream for project building, but also contributes to the formation of destabilizing speculative bubbles (Kill et al. 2010, 87–106).

New Mechanisms in a Contracting Market

For now, though, the carbon market looks less like a bubble and more like a "busted flush." Even proponents of such markets have noted the dangers of advancing new mechanisms in this context. As the IEA pointed out in January 2010,

> Current estimates show that the supply of credits through scaled-up market mechanisms could be significantly larger than demand ... Some observers point to the risk of market flooding, resulting in lower carbon prices and slower mitigation efforts in Annex I countries. (Aasrud et al. 2010, 118.)

These risks continue to increase.

In the immediate aftermath of the Copenhagen conference (COP-15), Bloomberg New Energy Finance, a major carbon market consultancy, estimated that demand for international offsets would reach 4,280 $MtCO_2$ over the eight-year period from 2012–2019, equivalent to an average of 530 $MtCO_2$ per year (Turner 2010, 96). By way of comparison, Bloomberg estimated the supply of international offsets from existing CDM and Joint Implementation (JI) schemes ranges from 2,480 Mt (310 Mt/yr) to 4,460 Mt (560 Mt/yr).

Fast forward eighteen months, and the estimated demand for carbon credits has fallen even further. The World Bank's *State and Trends of the Carbon Market 2011* estimates a demand of between 2,920 $MtCO_2$ and 3,910 $MtCO_2$ of offset credits for the 2013 to 2020 period (World Bank 2011, 66, 63). This range includes an estimated demand of 1,750 $MtCO_2$ of offset credits from within the E.U. if it sticks with its current 20 percent emissions reduction target (compared to 1990 levels), or 2,550 $MtCO_2$ if the E.U. adjusts its target to 30 percent. The World Bank optimistically speculates that Australia will start purchasing carbon credits in 2015 and that none of the large surplus of "hot air" Assigned Amount Units (AAUs, a unit of emissions reductions issued under the Kyoto Protocol) will be rolled over for use by governments attempting to meet emissions reduction targets in the post-2012 period. Its figures, moreover, reflect a "maximum theoretical demand" (World Bank 2011, 66).

By comparison, the World Bank estimates that 2,500 $MtCO_2$ offsets will be generated, with 50 to 70 percent of these coming from CDM projects registered before 2012 (World Bank 2011, 67). The reduction in the projected supply of credits factors in the impact of new restrictions imposed by the E.U. in the third phase of its ETS, which begins in 2013. The E.U. ETS will restrict the use of CDM credits to those issued by projects registered prior to 2013, with the exception of projects undertaken in Least Developed Countries (LDCs). It will also disallow the use of credits from hydrofluorocarbon (HFC) and nitrous oxide (N_2O) industrial gas projects, which account for 67 percent of the total issued to date (World Bank 2011, 48). This reflects the stated strategy of the E.U. for the future of the global carbon market: restricting the CDM to LDCs and developing new market mechanisms in its place to draw middle-income countries into cap-and-trade schemes related to binding emissions targets. With 97 percent of demand for carbon credits primarily driven by its ETS, the E.U. can, to a significant extent, force through its position on the future of carbon markets by means of domestic rule changes, irrespective of international climate negotiations (World Bank 2011, 9).

Comparing these supply-and-demand projections shows that even with the E.U.'s rule changes factored in, the World Bank's "optimistic" estimate still leaves just 400–1,400 $MtCO_2$ of demand that is unmet by the existing CDM in the 2013 to 2020 period—at the low end, just 50 $MtCO_2$ per year. By way of comparison, the emissions from the largest single power plant within the E.U. ETS (Elektrownia

Belchatw in Poland) are currently almost 90 $MtCO_2e$ per year (European Commission 2011).

The World Bank does not follow through on its exercise to estimate the potential supply of credits from new sectoral market mechanisms. The submissions to the UNFCCC consultation and the *Synthesis Report* are similarly silent on the supply-side question. However, an IEA/OECD study gives an overview of projections as to the potential scale (Baron et al 2009b, 16). It estimates that sectoral crediting in the power sector could amount to 465 $MtCO_2$ annually, or 3,700 $MtCO_2$ from 2013–2020. Other studies cited by the IEA and OECD project a potential supply of 110–560 $MtCO_2$ annually for a multi-country power sector scheme including China, India, South Africa, South Korea, Mexico, Indonesia, and Thailand; 154–767 $MtCO_2$ annually if it were to cover only the power sector in China; an additional 460–720 $MtCO_2$ annually if the cement sector in China, Mexico, and Brazil were to fall under a sectoral crediting scheme; and 1 $GtCO_2$ if the iron and steel sectors in non-Annex I countries were to do likewise (Baron et al 2009b, 16).

Serious questions therefore need to be raised about the potential demand for the credits generated by new market mechanisms. Without additional restrictions on the use of carbon credits, it is likely that the creation of new market mechanisms would create a surplus of credits that could collapse the price of carbon—undermining the purported rationale of the scheme.

Climate Financing: A Disappearing Act

There are many good reasons why a further collapse in the carbon market would not be mourned by observers interested in addressing climate change equitably and justly. It is, however, worth noting that the creation of new market mechanisms risks a contagion that would spread beyond carbon trading to climate finance more generally.

To more fully appreciate this, the new market mechanisms should be seen in the context of a far broader shift from public to private climate finance. Industrialized countries in the North have disproportionately contributed to causing climate change, and therefore face obligations to tackle it. This is often referred to in the UNFCCC debate under the rubric of ''common but differentiated responsibilities,'' while climate justice activists refer to it as ''climate debt'' (Working Group on Climate Debt 2009). Insofar as the differentiated responsibilities for climate debt imply financial transfers, they have typically been conceived of as involving public money.

Many industrialized countries now face significant debt burdens as a result of bailing out their financial sectors, with the IMF estimating an increase in industrialized country debt-to-GDP ratios of 110 percent by 2015 (IMF 2010).

In the face of such projections, these countries are failing to take responsibility for the climate problem and are searching instead for "innovative" sources of financing, with particular emphasis on the private sector.

Counting carbon market revenues as "climate financing" conveniently bridges the funding gap on paper but does so by removing the element of obligation. Private money is assumed to take the place of public investment, yet this is likely to result in a bias towards projects that both have a high risk of failure and that are premised on a high rate of return for (Northern-based) investors—the full costs of which are not factored in when considering these new forms of financing (Bretton Woods Project 2010). The "readiness" mechanisms preparing countries to receive such financing tend to involve an economic liberalization that has a destabilizing effect on economies.

This represents a financialization of climate change mitigation; ironically, the same processes in the global economic arena—an overly financialized economic model-created the public debt crisis now facing industrialized countries.

These measures also introduce a significant risk that the projected carbon market revenues that are being put at the heart of climate finance will fail to materialize. The UN Secretary General's High Level Advisory Group on Climate Change Financing (AGF) suggested that $30 to $50 billion per year in climate financing could be achieved from additional carbon market financial flows by 2020 (Secretary General's AGF 2010). However, if the forecasts are re-run using the demand estimates and carbon prices from the World Bank's *State and Trends of the Carbon Market*, the figure is very different: financial flows related to carbon offsets could amount to just $3.99 billion per year.

On top of the issues of environmental integrity and social justice that invariably accompany the carbon market—the need to compare such figures to the flow of resources and finance from South to North, the increased risk that carbon finance entails, the element of "double counting" involved in treating carbon credits as mitigation and finance, and the lack of ambition shown by the AGF (and Green Climate Fund's) $100 billion per year figure—this suggests that a central emphasis on market mechanisms in the provision of climate finance could create a large hole in the figures, with the money failing to turn up.

The Carbon Market Zombies Stumble On

New sectoral carbon markets are presented as a means to "move beyond" the CDM and "scale up" mitigation actions in the global South. However, increasing the size of carbon markets is not the same as reducing emissions. The evidence of the CDM to date suggests that offsetting *increases* rather than reduces greenhouse gas emissions. New sectoral mechanisms risk "scaling up" these failings.

The introduction of new markets in the context of a declining global trade in carbon throws this into sharp focus. If new mechanisms start delivering significant quantities of credits in a market with limited demand for them, the price of carbon would likely collapse. Introducing new markets in a context of unambitious climate action by industrialized (Annex I) countries is likely to undermine both climate change mitigation efforts and flows of climate finance.

These new mechanisms may well help industrialized country governments and corporations to delay meaningful domestic action to reduce their greenhouse gas emissions. An alternative to the standard explanation of the push for new market mechanisms as a means to "scale up" climate change mitigation efforts, or correct the environmental and equity failings of offsetting under the CDM, is therefore that they are primarily intended to address the corporate competitiveness concerns of industrialized countries. In so doing, they are likely to shift environmental and fiscal responsibility for tackling climate change towards middle-income countries in particular, and countries in the global South more generally. The attempt to advance new carbon markets within the LCA track of climate negotiations can also be seen as part of a broader project of international climate change "regime change," embedding carbon trading in this new infrastructure even as the legally binding targets they were initially tied to by the Kyoto Protocol are shed.

The markets themselves seem rather less keen than governments on these new initiatives, however. With E.U. economies slipping into a potentially deeper financial crisis exacerbated by austerity measures, production is expected to flatline—reducing demand for permits and credits from the utilities and industrial producers covered by the ETS. These "compliance" buyers already hold a significant surplus of permits, estimated at up to 1.2 billion between 2013 and 2020 (Environment Agency 2010, 16). At the same time, E.U. measures to limit industrial offset credits after April 2013 have led to their dumping onto the international market, precipitating a price collapse (Wynn and Chestney 2011). As we have shown, the overproduction of emissions allowances looks likely to remain a problem, further undermining the environmental integrity of the scheme, and begging the question: why are governments and international financial institutions still pushing for new markets?

Part of the answer rests with institutional inertia—"new market mechanisms" were tabled when the U.S.A. was planning a federal cap-and-trade market, with an almost tenfold increase in demand compared to the E.U. ETS. The delays and downscaling of expectations for cap-and-trade schemes in other industrialized countries are, in part, a response to the failure of legislation on climate change in the U.S. Whereas carbon markets emerged as a "plan B" for governments and corporations looking to avoid restructuring their power production or industrial base, the "plan A" of not legislating on climate change at all has also regained ground (driven on by a climate-skeptic Right in the U.S.A., Australia, Canada, and Japan, in particular). This manifested itself in the Japanese government's rejection of a second Kyoto "commitment period" at Cancún, which will probably be matched by U.S.

intransigence in Durban, where its delegation is unlikely to countenance any significant moves on the climate ahead of an election year.

The push for new carbon markets, by contrast, is being driven by the E.U. Going into Durban, the rotating E.U. presidency is held by Poland, probably the most climate-skeptic government of the 27-member bloc. Within the European Commission, moreover, there is an internal dispute on the centrality of carbon trading—with two significant departments (DG Industry and DG Enterprise) pushing back against it. But the negotiating agenda on new market mechanisms is largely controlled by DG Climate Action, whose lead officials and official negotiators made their careers off the back of promoting the E.U. ETS.[4] With the centrality of the ETS part of a broader power struggle in Brussels, it is unlikely that DG Climate Action will easily give up on carbon trading.

The ideological commitment to carbon markets also retains a strong grip. Against a growing body of evidence, the proponents of trading continue to present it as the theoretically optimum means to put a price on carbon, and to suggest that such pricing should be central to action on climate change.[5] This is sometimes allied to the view that new programmatic and sectoral carbon market instruments will serve as ''stepping stones'' to a global cap-and-trade system (European Commission 2010b; Lazarowicz 2009).

The less rosy-eyed among them may realize that such a system would entail a patchwork of rules, triggering a race to the bottom in terms of environmental safeguards—although if they do, they are not yet saying so. Either way, we can expect Durban to see a renewed push for the extension of existing carbon markets alongside an increased emphasis on the private sector in climate finance and an expansion from ''carbon'' towards broader biodiversity markets (which may continue through to the Rio + 20 summit in June 2012).

A proposal to include Carbon Capture and Storage (CCS) in the CDM will be tabled for agreement in Durban, introducing a potential new subsidy stream for the oil and coal industries (Reyes 2011a). The expansion of carbon offsets is also likely to continue apace, with the World Bank considering the launch of a new Fund for ''soil carbon'' credits and other ''climate-smart'' measures in Durban. Such proposals are likely to prove a boon for agribusiness but would be of little benefit to small-scale farmers: a BioCarbon Fund-backed pilot project in Kenya anticipates consultants' fees for registering and monitoring the project in excess of $1 million, while each farmer involved would get around $1 per year (Sharma 2011).

[4]DG Climate Action Director-General Jos Delbeke; Head of Policy Coordination Peter Zapfel; and Commissioner Hedegaard's Chef de Cabinet Peter Vis were key figures in the ''policy network'' that promoted the creation of the E.U. ETS. For more details, see Braun 2009.

[5]For extended critiques of this position, see Gilbertson and Reyes (2009) and Lohmann (2009).

Reducing Emissions from Deforestation and Degradation (REDD +) schemes remain a key plank of the climate negotiations, too. These have been conceived of as the basis for a forest carbon market from the outset (Heal and Conrad 2005). The fact that most REDD money is currently provided by the Norwegian sovereign wealth fund (and the aid budgets of other industrialized country governments) does little to alter this fact: even if a "pledge and review" system were to precipitate a collapse of the Kyoto institutions, the Voluntary Carbon Standard (VCS) supported by the World Bank BioCarbon Fund would likely become a de facto basis for a continued voluntary market.

The "+" in REDD+ signals its expansion to encompass a broader array of biodiversity markets, moreover. In the face of potentially low carbon prices, the World Bank (and WWF) have even promoted a Wildlife Premium Market Initiative that would issue additional certificates alongside REDD credits for the protection of "charismatic species" (Zoellick 2010).

Beyond the formal negotiations themselves, the World Bank and Regional Development Banks continue to proliferate their stock of carbon funds. The World Bank Group owns or administers fourteen such funds, at the latest count. Its most recent moves have included a €68 million refinancing of the Umbrella Carbon Fund to "bail out" investments that have been badly exposed by the collapse in post-2012 carbon credit prices (*Business Green* 2011). The IFC's new Post-2012 Carbon Fund serves a similar purpose.

At a bilateral level, Japan consolidated its rejection of the Kyoto Protocol in Cancún with the creation of a 130 billion yen ($1.7 billion) bilateral fund to promote Japanese technology exports in return for voluntary carbon credits that Japan would purchase (Young 2011). Its initial projects include coal and nuclear power plants in Indonesia and Vietnam and a carbon capture and storage project in Indonesia—at odds with the CDM, which currently excludes both. Japan has sought to include these proposals in the LCA negotiations on new market mechanisms (UNFCCC 2011a), but the fund will exist irrespective of the negotiations' outcome.

The proposals surrounding the PMR highlight numerous further bilateral and development-bank-funded initiatives in the pipeline. The PMR itself is backing emissions trading pilot schemes in two provinces (Guangdong and Hubei) and four municipalities (Tianjin, Shanghai, Beijing, and Chongqing) in China, with the E.U. similarly offering "technical assistance" to promote these schemes (NDRC 2011). Turkey is considering establishing a national carbon market as part of a broader strategy aimed at the financialization of its economy (Undersecretariat of Treasury 2011, 4), with technical support from the PMR and UN Development Program. Ukraine is relying on a similar support structure—alongside the E.U., German government, and European Bank for Reconstruction and Development (EBRD)—to develop its own national carbon-trading scheme (State Environmental Investment Agency 2011). Mexico is seeking to develop sectoral Nationally Appropriate

Mitigation Action (NAMA) crediting in the housing, waste, cement, and transport sectors—with the backing of a range of foreign development agencies and consultancies, as well as the PMR (CICC 2011); Thailand has expressed interest in sectoral (or NAMA) crediting; Morocco seeks support for its CDM Program of Activities proposals in the waste sector (which are also backed by the Carbon Partnership, another World Bank Fund); and so on.[6]

Durban may agree to create new market mechanisms, or it may remain deadlocked. The carbon market looks set to continue its price slump, with traders gradually losing interest and diversifying attention to a broader range of biodiversity markets. But at a bilateral and national level, encouraged by the E.U., the World Bank, and other IFIs and development agencies, the zombies of new carbon market mechanisms continue to stumble on.

References

Aasrud, A., R. Baron, B. Buchner, and J. Ellis. 2010. Scaled-up market mechanisms—What is needed to move forward? In *Greenhouse Gas Market Report 2010. Post Copenhagen and climate policy: Where global emissions trading goes from here*, A. Kramer, ed., 115–118. Geneva: IETA.

Australian Government. 2010. Australia's fast start finance: Progress report, http://www.climatechange.gov.au/en/media/whats-new/ ~ /media/publications/international/australias-fast-start-finance-progress-report.ashx.p.10.

Baron, R., J. Newman, A. Aasrud, B. Buchner, K. Inoue, and S. Moarif. 2009a. *Sectoral approaches in electricity: Building bridges to a safe climate*. Paris: IEA OECD.

Baron, R., B. Buchner, and J. Ellis. 2009b. *Sectoral approaches and the carbon market*. Paris: IEA/OECD.

Baron, R. 2010. Proposals for sectoral crediting, sectoral trading and national appropriate mitigations actions in international negotiations. EPRI Greenhouse Gas Emissions Offset Policy Dialogue Workshop 7—Sectoral and International Crediting Mechanisms, Washington D.C., February 25, http://www.iea.org/speech/2010/baron_washington.pdf.

Braun, M. 2009. The evolution of emissions trading in the European Union—The role of policy networks, knowledge and policy entrepreneurs. *Accounting, Organizations and Society* 34 (3–4): 499–534.

Business Green. 2011. World Bank puts up €68 m to avert post-Kyoto carbon market crash, January 14, http://www.businessgreen.com/bg/news/1937059/world-bank-68m-avert-post-kyoto-carbon-market-crash.

Bretton Woods Project. 2010. The private sector turn, http://www.brettonwoodsproject.org/art-567281.

Center for European Policy Studies and World Business Council for Sustainable Development (CEPS and WBCSD). 2008. *Global sectoral industry approaches to climate change*. Brussels: CEPS and WBCSD.

Environment Agency, 2010. *Report on 2009 E.U. Emissions Trading System emissions data*. Bristol: Environment Agency.

[6]The World Bank is publishing PMR background documents at: http://wbcarbonfinance.org/Router.cfm?Page = PMR&FID = 61218&ItemID = 61218&ft = DocLib&dl = 1&ht = 63206.

European Commission. 2010a. 2010 Annual action programme (Part II): Implementing the thematic programme for the environment and the sustainable management of natural resources including energy (ENRTP), http://ec.europa.eu/europeaid/documents/aap/2010/af_aap_2010_dci-env_p2.pdf.

——. 2010b. Linking the E.U. ETS to other emissions trading systems and incentives for international credits, http://ec.europa.eu/clima/policies/ets/linking_en.htm.

——. 2011. Verified Emissions for 2008–2009–2010 and allocations 2008–2009–2010. April 15, http://ec.europa.eu/clima/documentation/ets/docs/registries/verified_emissions_en.xls.

Gilbertson, T. and O. Reyes. 2009. *Carbon trading: How it works and why it fails*. Uppsala: Dag Hammarskjold Foundation.

Harrison, P. 2011. E.U. energy plan threatens carbon billions. *Reuters*. May 30, http://uk.reuters.com/article/2011/05/30/us-eu-energy-climate-idUKTRE74T23C20110530.

Heal, G. and K. Conrad. 2005. A solution to climate change in the world's rainforests. *Financial Times*. November 29, http://www.ft.com/intl/cms/s/1/032d0496-610c-11da-9b07-0000779e2340.html#axzz1UdrLzuit.

Interministerial Commission on Climate Change CICC. 2011. Template for organizing framework for scoping of PMR activities. May 23, http://wbcarbonfinance.org/docs/Mexico_Organizing_Framework_May_30_2011.pdf.

International Monetary Fund, 2010. *Navigating the fiscal challenges ahead*. Washington D.C.: IMF.

Kill, J., S. Ozinga, S. Pavett, and R. Wainwright. 2010. *Trading carbon: How it works and why it is controversial*. Moreton in Marsh: FERN.

Lazarowicz, M. 2009. *Global carbon trading: A framework for reducing emissions*. London: The Stationary Office.

Lohmann, L. 2009. Toward a different debate in environmental accounting: The cases of carbon and cost-benefit. *Accounting, Organisations and Society* 34 (3–4): 499–534.

National Development and Reform Commission (NDRC) China. 2011. Template for organizing framework for Scoping of PMR activities. May 19, http://wbcarbonfinance.org/docs/China_Organizing_Framework_May_19_2011.pdf.

Peters, G., J. Minx, C.L. Weber, and O. Edenhofer. 2011. Growth in emission transfers via international trade from 1990 to 2008. *Proceedings of the National Academy of Sciences* 108 (21): 8903–8908.

Reyes, O. 2011a. Carbon markets after Cancún: Carbon capture and storage in the Clean Development Mechanism. Carbon Trade Watch. January 20, http://www.carbontradewatch.org/articles/carbon-markets-after-Cancun-carbon-capture-and-storage-in-the-clean-development-mech.html.

——. 2011b. More is less: A case against sectoral carbon markets. Carbon Trade Watch, http://www.carbontradewatch.org/articles/more-is-less-a-case-against-sectoral-carbon-markets.html.

Secretary-General's High-level Advisory Group on Climate Change Financing (AGF). 2010. Report of the Secretary-General's High-Level Advisory Group on Climate Change Financing. New York: United Nations, http://www.un.org/wcm/webdav/site/climatechange/shared/Documents/AGF_reports/AGF%20Report.pdf.

Sharma, S. 2011, Agriculture in the spotlight at Bonn climate talks. June 16, http://iatp.typepad.com/thinkforward/2011/06/agriculture-in-the-spotlight-at-bonn-climate-talks.html.

State Environmental Investment Agency (Ukraine). 2011. Template for organizing framework for scoping of PMR activities. May 31, http://wbcarbonfinance.org/docs/Ukraine_Preparations_Status_May_31_2011.pdf.

Sterk, W. 2010. New mechanisms for the carbon market? Sectoral crediting, sectoral trading, and nationally appropriate mitigation actions. *JIKO Policy Paper 4/2010*. Wuppertal Institute for Climate, Environment and Energy. June, http://www.jiko-bmu.de/english/background_information/publications/doc/961.php.

Third World Network. 2009. Understanding the European Commission's climate communication. Penang: Third World Network.

Turner, G. 2010. Copenhagen and the implications for supply and demand dynamics in the global carbon market. In *Greenhouse gas market report 2010. Post Copenhagen and climate policy: Where global emissions trading goes from here*, A. Kramer, ed., 94–97. Geneva: IETA.

Undersecretariat of Treasury, Turkey. 2011. Partnership for Market Readiness (PMR) expression of interest in participating in the PMR, http://wbcarbonfinance.org/docs/Turkey_EoI.pdf.

UNFCCC. 2007a. Bali Action Plan, http://unfccc.int/files/meetings/cop_13/application/pdf/cp_bali_action.pdf.

——. 2007b. *Investment and financial flows to address climate change*. Bonn: UNFCCC.

——. 2011a. Synthesis report on information on various approaches in enhancing the cost-effectiveness of, and promoting, mitigation actions: note by the secretariat. March 30. FCCC/AWGLCA/2011/4.

——. 2011b. Market-based and non-market-based mechanisms: Views on the elaboration of market-based mechanisms. Submissions from Parties. March 21. FCCC/AWGLCA/2011/MISC.2.

Vieweg, M., C. Doets, M. Torres, S. Wartmann, P. Oliver, D. Yener, E. Cruz, E. Dalenoord, and N. Valero Esteban. 2009. *Linking developing countries to carbon markets: Cost assessment of capacity building requirements*. London: Ecofys U.K.

Working Group on Climate Debt. 2009. We demand the enforcement of the payment of climate debt. World Conference of Peoples on Climate Change and the Rights of Mother Earth. April. Cochabamba.

World Bank Climate Finance Unit. 2011a. Partnership for Market Readiness (PMR): Update and preliminary insights. March, http://www.oecd.org/dataoecd/55/19/47517775.pdf.

——. 2011b. Partnership approves grants for eight carbon market initiatives. June, http://go.worldbank.org/UOGJZTB2Z0.

——. 2011c. Chair's summary of first meeting of the partnership assembly. June 15, http://wbcarbonfinance.org/docs/PA1_Chair_s_Summary_June_15.pdf.

World Bank, 2011. *State and trends of the carbon market 2011*. Washington, D.C.: World Bank Group.

Wynn, G. and N. Chestney, 2011. Carbon offsets near record low, worst performing commodity. *Reuters*. August 8.

Young, T. 2011. Japan promises $1.6 bn clean tech exports investment. *Business Green*. January 6, http://www.businessgreen.com/bg/news/1935223/report-japan-promises-usd16bn-clean-tech-exports-investment.

Zoellick, R. 2010. World Bank group president Robert B. Zoellick remarks at Cancún summit on REDD+. World Bank Group. December 7, http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/0,,contentMDK:22786625menuPK:258662pagePK:2865106piPK:2865128theSitePK:258644,00.html.