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LEAD

FROM KYOTO TO COPENHAGEN: RETHINKING THE PLACE OF FLEXIBLE MECHANISMS
IN THE KYOTO PROTOCOL'S POST 2012 COMMITMENT PERIOD

Damilola S. Olawuyi

ARTICLE



VOLUME
6/1

LEAD Journal (Law, Environment and Development Journal)
is a peer-reviewed academic publication based in New Delhi and London and jointly managed by the
School of Law, School of Oriental and African Studies (SOAS) - University of London
and the International Environmental Law Research Centre (IELRC).

LEAD is published at www.lead-journal.org

ISSN 1746-5893

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This document can be cited as
Damilola S. Olawuyi, 'From Kyoto to Copenhagen: Rethinking the Place of Flexible Mechanisms in the Kyoto Protocol's post 2012 Commitment Period',
6/1 Law, Environment and Development Journal (2010), p. 21,
available at <http://www.lead-journal.org/content/10021.pdf>

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INTRODUCTION

The Kyoto Protocol is recognised as the most important global agreement of the late twentieth century, not only for fixing greenhouse gases (GHG) emission limits to be achieved by industrialised nations by 2012, but also for providing three flexible mechanisms through which industrialised countries can achieve their emission reduction objectives. These mechanisms: Joint Implementation (JI), Emission Trading (ET) and the Clean Development Mechanism (CDM) allow industrialised countries to meet their emission reduction targets through joint efforts or through projects abroad rather than through domestic actions alone.¹ They give industrialised countries the opportunity to earn emission reduction credits *anywhere* in the world, at the *lowest cost* possible.² Studies confirm that it requires US \$50 to mitigate one ton of CO₂ eq. in developed countries, while in developing countries the same reduction can be accomplished at US \$ fifteen per ton of CO₂ eq.³

However, the ink with which the Kyoto Protocol was signed had hardly dried when debates began between scholars on whether these market mechanisms have much to contribute to climate

change mitigation efforts. These debates, which have been ongoing since 1997, are even more intense now as scholars analyse the future of climate change mitigation and adaptation in the post Copenhagen era.⁴ The most prominent question on many lips are 'how effective have these mechanisms been and do they represent the best approach to climate change mitigation?'

This paper analyses the debates surrounding the market mechanisms and examines how desirable they are for the post 2012 commitment period. The main finding of this paper is that even though markets are inevitable for climate change mitigation, the current flexible mechanisms have deficiencies which must be corrected if they are to be included in the next climate regime. These include the absence of clear rules on the question of additionality; inequitable distribution of projects amongst developing countries, the problems of leakage, exclusion of viable projects like CCS and afforestation projects; and the concerns on sustainability to mention just a few. While arguing in favor of flexibility, this paper suggests an overhaul of the Kyoto mechanisms to cater for these concerns. To avoid the leakage problem, I suggest the inclusion of a provision in the new climate change regime which will allow the Conference of the Parties (COP) to periodically review the Annex I and II list to include and remove countries based on their current levels of emissions within a five year period. This way, huge emitting developing countries like China would have obligations in the new regime based on their current emission level.⁵ On the issue of inequitable project distribution, this paper calls for the adoption of a quota system to limit the number of projects a developing country can host

1 See Article 3 of the Kyoto Protocol which allows countries to *individually or jointly* achieve their emission targets. *The Kyoto Protocol*, 10 December 1997, U.N Doc. FCCC/CP/1997/L.7/add.1(1998).

2 Emission Reductions credits refer to one metric tonne of CO₂ or its GHG equivalent reduced from the atmosphere by a mitigation activity. There is the Certified Emission Reduction (CERs) given for the generation of credits under the CDM and Emission Reduction Units (ERUs) awarded under JI. Both CERs and ERUs are standardised GHG reduction credits that are becoming commodities that can be bought and sold on the global market, and in some cases banked for the future. A development project is said to be 'Clean' if it leads to the reduction of the volume of GHG emitted into the atmosphere. See UNCTAD Earth Council, Glossary of Climate Change Acronyms and Jargon, available at http://unfccc.int/essential_background/glossary/items/3666.php.

3 CDMINDIA, 'Why CDM', available at <http://www.cdmindia.com/about-cdm.aspx>.

4 There are currently over 200 studies including articles, conference papers and reports on this debate. See Karen Olsen, The Clean Development Mechanism's Contribution to Sustainable Development-A Review of the Literature, available at http://www.cd4cdm.org/Publications/CDM&SustainDevelop_literature.pdf.

5 Statistics show that China now emits more CO₂ than the United States. China overtook the U.S. in emissions of CO₂ by eight per cent in 2006. While China produced 6.2 billion metric tons of CO₂, the U.S. produced 5.8 billion metric tons. See the Netherlands Environmental Assessment Agency, China Now No. 1 in CO₂ Emissions, 2007, available at <http://www.pbl.nl/en/news/pressreleases/2007/20070619Chinanowno1inCO2emissionsUSAinsecondposition.html>.

at a given time such that projects can spread across developing countries. This paper also calls for the clarification of issues relating to additionality. It is advocated here that additionality should be strictly defined in the new regime to mean investment additionality such that free rider projects or projects that do not come under any of the mechanisms should not be relabeled as clean projects for the purpose of claiming credits. Finally, this paper calls for the recognition of afforestation projects and the CCS as eligible projects under the mechanisms.

This paper is divided into three parts. Part one provides the background on the flexible mechanisms and the reasons for their adoption during the Kyoto negotiations. Part two examines the merits and shortcomings of the mechanisms under six headings: instrument choice, sustainability assessment, additionality assessment, other projects, carbon leakage and equity issues regarding the geographical distribution of projects. The paper ends in part three with recommendations on what should be done if these mechanisms are to contribute meaningfully to climate change mitigation.

1.1 Background

ET, CDM, and JI were adopted as flexible mechanisms under the Kyoto Protocol to allow developed countries to meet their emission reduction targets by investing in clean projects in other countries of their choice. Mainly because the three mechanisms allow the trading of CERs and the reduction of emissions on a project basis, they are often referred to as 'market mechanisms'.⁶ Under ET, industrialised countries that have been able to meet and exceed their agreed emission reduction targets can sell the excess emissions to countries that find it difficult to meet their own targets. Under JI, two industrialised countries can finance emission reduction projects and then divide the emission reduction credits generated from such a project. JI allows industrialised countries to gain Emission Reduction Units (ERUs) or credits for financing

emission reduction projects in other industrialised countries. Thus, both ET and JI allow joint emission reduction between two industrialised countries.⁷

The CDM is the only mechanism that allows developing countries to be involved in the carbon market.⁸ The CDM allows industrialised countries to gain Certified Emission Reduction credits (Cers) by investing in projects that reduce greenhouse gas emissions in developing countries. The CDM was designed to allow both developed and developing countries involved to benefit from the mechanism. While CDM helps to promote sustainable development in developing countries, it also allows developed countries to attain their emission reduction targets at a cheaper rate.⁹ The carbon market can therefore be classified as both project-based (a baseline and credit system) as exemplified by JI and the CDM; and an allowance market (a cap and trade system) as exemplified by ET.¹⁰

The process leading to the adoption of these mechanisms as part of the Kyoto Protocol was not without controversy. The United States had proposed and argued in favor of the market approach,¹¹ while the Group of 77, an alliance of developing countries (numbering more than 120 countries) and China had constituted a formidable resistance to the US proposal and asked for fixed emission limits and penalties for defaulting

6 Z. Zhang, Estimating the Size of Potential Market for the Kyoto Flexibility Mechanisms, (Proceedings of the IGES International Workshop on the Clean Development Mechanism, 26-27 January 2000, Hayama, Kanagawa, Japan).

7 For an excellent and detailed discussion of the mechanisms, see Jacob Werksman, 'Unwrapping the Kyoto Surprise', 7 *Review of European and International Environmental Law* 147 (1998).

8 See Article 12(2) of the Kyoto Protocol, note 1 above.

9 Jon Rosales and Gao Pronove, A Layperson's Guide to the CDM (Geneva: UNCTAD- Earth Council, 2002).

10 Examples of allowance markets include the Emissions Trading under the Kyoto Protocol (a global market), the EU ETS (regional), the UK and the Danish trading systems (national), and BP and Shell internal trading (firm). See The List of Emission Trading Organisations, available at <http://www.ieta.org/ieta/www/pages/index.php?IdSiteTree=26>.

11 See J. Depledge, Tracing the Origins of the Kyoto Protocol: An Article-by-Article Textual History (Technical paper prepared under contract to UNFCCC, 1999-2000), available at <http://unfccc.int/resource/docs/tp/tp0200.pdf>. See also Michael Grubb, *The Kyoto Protocol: A Guide and Assessment* 29 (London: Earthscan, 1999).

countries.¹² At the end of the negotiations, the US position prevailed.¹³ However, the inclusion of these mechanisms as part of the Kyoto Protocol has pitted the market-based approach against an interventionist approach and has been a subject of debates among scholars. These debates have consequently led to the emergence of a growing literature on whether the market approach should be retained as part of the next comprehensive agreement that would replace the current protocol. I will now turn to the various debates and positions presented by the different scholars.

1.2 An Assessment of the Market Mechanisms

There is currently a divergence of opinion on what should be the most appropriate approach in the next regime for achieving global emission reduction. While scholars believing that markets are the solution to environmental problems argue for the retention of these flexible mechanisms in the Copenhagen agreements, the interventionists¹⁴ argue for their removal and replacement with a regime of setting strict emission reduction and sanctioning states for non compliance. This part assesses the market mechanisms based on their implementation since 1997. This part does not pretend to review all these concerns due to space constraint. I will only discuss six issues which have been at the center of most of the debates: Instrument Choice, Sustainability Assessment, Additionality

Assessment, Definition of Viable Projects, Carbon Leakage, and Equity Assessment.

1.2.1 Instrument Choice

The question here is whether market mechanisms represent the best regulatory instrument suited for GHG emissions reductions. Many scholars have argued that the environment and most especially global warming concerns are too important to be left to market considerations and that adopting a market-based mechanism means conferring a right to pollute on the industrialised countries and permitting industrialised countries to avoid taking domestic action in reducing their emissions.¹⁵ These scholars instead argue in favor of a system of setting emission targets and imposing penalties on defaulting countries.¹⁶

One strong reason to support the argument that environmental protection is too important to be *left out* of markets is that a market system offers the necessary incentives for governments in industrialised countries to achieve emission reduction at the lowest cost possible.¹⁷ Market mechanisms allow industrialised countries to adopt the most flexible approach suitable for them in meeting their remission reduction targets. They also allow industrialised countries the freedom to pursue emission reduction anywhere on earth and at the lowest cost possible.¹⁸ Previous studies have shown that it is cheaper to reduce a ton of GHGs in a developing country than in a developed country.¹⁹ While it might require up to US \$50 for mitigating

12 The G77, backed by the EU, had condemned this US proposal as suspicious and morally objectionable. They argued that agreeing to such proposal would mean conferring on industrialised countries a right to pollute and creating a way for leading emitters to avoid domestic action. See Depledge, note 11 above.

13 Then US President Bill Clinton could not hide his joy on the inclusion of the flexible mechanisms into the protocol when he said, '...we got what we wanted, which was joint implementation, emission trading, a market-oriented approach...', see Cable News Network, Global Warming Accord: 'Tough' or a 'Farce', 11 December 1997, available at <http://www.cnn.com/EARTH/9712/11/climate.conf.reaction.reut/index.html>.

14 This name was coined during the negotiations to describe developing countries that rejected the US proposal. It is used in this work to describe the antagonists of the market system as a regulatory choice for emission reduction. See Depledge, note 11 above.

15 See, e.g., Michael Sandel, Editorial, 'Its Immoral to Buy the Right to Pollute', *N.Y. TIMES*, 15 December 1997, page A23. See also, T. Jackson, K. Begg, S. Parkinson, 'The Language of Flexibility and the Flexibility of Language', 10/3-4 *International Journal of Environment and Pollution* (1998).

16 See F. Yamin, 'Climate Change Negotiations: An Analysis of the Kyoto Protocol', *International Journal of Environmental Pollution* 428-453 (1998).

17 See, e.g., S. Mathy, J.-C. Hourcade, C. de Gouvello, 'Clean Development Mechanism: Leverage for Development', *Climate Policy* 251-268 (2001).

18 See Michael A. Ridley, *Lowering the Cost of Emission Reduction: Joint Implementation in the Framework Convention on Climate Change* 24 (Netherlands: Kluwer Academic Publishers, 1998).

19 See CDMINDIA, note 3 above.

one ton of CO₂ eq. in developed countries, the same can be achieved in developing countries at the cheaper rate of US \$15 per ton of CO₂ eq.²⁰ Thus, through the CDM, developed countries can achieve GHG mitigation in developing countries at costs three times cheaper than what would have been expended to achieve the same results within their respective countries. This cost saving benefit of the flexible mechanisms is thus a big incentive for industrialised nations for supporting the climate change regime. Leaving the markets out of a climate change regime could therefore mean leaving many developed countries out, as most of them might be unwilling to support a regime that is not cost saving or flexible.

Similarly, because of the nature of GHG emissions, reduction achieved by a developed country through investments in a developing country is as good as a domestic action. In fact, a project that reduces emissions in a developing country may be better because such projects may deliver additional social, environmental and economic benefits.²¹ For a global problem like climate change, prevention is a global concern. A market-based approach enables countries to pay for emission reductions anywhere on the planet. Weiner points out that, because climate change is a global problem, emission reductions are equally good for the climate no matter where they occur.²² Weiner also argues that a good GHG reduction instrument should be cost effective,

as there is a need for achieving GHG mitigation at the very least cost. He believes that any GHG mitigation option which does not stimulate cost saving and which does not provide incentives and flexibility to industrialised countries will not work and should not be supported.²³ Describing the market as an important quantity-based instrument and as a vehicle for 'joint implementation with credit',²⁴ Weiner maintains that such quantity-based instruments are very effective in achieving global protection as they serve as incentives for developed countries to achieve steady progress in emission reduction.

One of the main arguments against utilising market mechanisms is that the Kyoto Protocol might become solely a means of managing the global carbon trade with the issue of emission cuts neglected, or at least delayed. According to Meinhard Doelle, emphasis on carbon trading can distract and delay the difficult decisions that major emitters have to take in order to reduce their longer-term emissions.²⁵ He instead argues in favor of a system of setting emission targets and imposing penalties on defaulting countries. Imposing penalties on industrialised countries alone as argued by Doelle may not be a comprehensive solution due to compliance and enforcement concerns. It is a different thing to impose targets and penalties; it is another for the countries concerned to comply. Adopting realistic targets and endorsing flexibility will not only encourage industrialised countries to meet up with their targets, it will also lessen the problem of enforcement as industrialised countries will have enough incentives to pursue emission reduction.

Market mechanisms can also bring about technology transfer from the North to South, a situation which will assist developing countries in solving many of their most pressing social, environmental, and economic challenges. While it can be conceded that it would be counterproductive if too much emphasis is placed on achieving spurious credits at all cost,

20 *Id.* See also Paul R. Portney, 'Counting the Cost: The Growing Role of Economics in Environmental Decision Making', 2 *ENVIRONMENT* 14 (1998).

21 CDM projects have the prospect of contributing to a developing country's sustainable development objectives through: the transfer of technology and financial resources; providing access to sustainable ways of energy production; increasing energy efficiency and conservation; and alleviating poverty through income and employment generation. The CDM can also act as a basis for developing countries to achieve progress in environmental issues such as cleaner air and water, reduced deforestation, soil conservation, and biodiversity protection; it can also encourage private investment and public-private partnerships in economic development. Estimates indicate that by 2010, foreign investments through the CDM in a developing country could be US\$4752 Million annually. See A. Olhoff, *CDM Sustainable Development Impacts 6* (Roskilde: UNEP Risoe, undated).

22 Jonathan B. Weiner, 'Think Globally, Act Globally: The Limits of Local Climate Policies', 155 *University of Pennsylvania Law Review* (2007).

23 Jonathan Weiner, 'Global Environmental Regulation: Instrument Choice in Legal Context' 108 *Yale L.J.* 681 (1999).

24 *Id.* at 682.

25 M. Doelle, *From Hot Air to Action? Climate Change, Compliance and the Future of International Environmental Law* 29 (Toronto: Carswell, 2005).

negotiators can work to ensure that industrialised nations do not lose sight of the main target: reducing emissions.

1.2.2 Sustainability Assessment

The question here is, to what extent have these flexible mechanisms led to emission reductions and the attainment of sustainable development as promised by the Kyoto Protocol? It is currently believed that the market mechanisms have not, and cannot, guarantee both emissions reductions and sustainable development and that there has been a trade-off between achieving emission targets at all cost and real sustainable development. According to Karen Olsen, there is no consensus on whether one instrument can achieve both GHG emission reduction and sustainable development.²⁶

The current implementation of these mechanisms suggests that they have not guaranteed both emission reduction and sustainable development as promised in the Kyoto Protocol. So far, most sustainable solutions are not necessarily the most cost-effective as they often require new and more expensive technologies. Thus, projects that may lead to cleaner air, fewer emissions, and better health require new and costly technologies, while the affordable and less costly projects may not have meaningful sustainable impacts on the host country of the project.²⁷ Developed countries currently have to choose, therefore, between investing in projects involving expensive and new technologies which will lead to greater sustainability or settling for cost effective projects that lead to an emission reduction but that do not lead to real and lasting sustainable development for the host country. Most developed countries have settled for the latter.²⁸ As such, when a cleaner technology, with more cost and more sustainable development prospect, will result in the same level of emission reduction as a dirtier and

cheaper technology which has adverse environmental effects and lesser sustainability, there is a tendency for most developed countries to settle for the most cost effective project, irrespective of its sustainable development prospects and its long-term effect to the host country.²⁹

A good example of this scenario is the hydro electricity CDM project in Brazil. While this biomass thermoelectricity project was appealing from a cost-benefit perspective, it was not attractive from an environmental sustainability perspective. The negative environmental impacts of the project, coupled with the high carbon price, made this kind of project the least attractive in terms of sustainable development. Wind power, although more expensive, had no environmental side effects and was more attractive in terms of sustainable development. It was however not adopted because of its cost.³⁰

Commenting on this trade-off, Christoph Sutter maintained that no registered CDM project is likely to fulfill the Kyoto Protocol's two-fold objectives of delivering GHG emission reduction and contributing to sustainable development at the same time.³¹ According to Sutter:

...we see a clear tendency of the CDM, to deliver likely emission reductions but not to contribute towards host country's sustainable development. The portfolio is dominated by a few large projects with a high likelihood to reduce emissions but no relevant contribution to host countries' sustainable development. This is evidence that the trade-off in the current CDM between the two objectives is done strongly in favor of the cost-efficient emission reduction objective, resulting in neglecting the sustainable development objective...³²

²⁶ See Olsen, note 4 above at 1. See also S.D. Cohen et al., 'Climate Change and Sustainable Development: Towards a Dialogue', 8/4 *Global Environmental Change* 341 (1998).

²⁷ The term 'Host Country' refers to the country where a project is located or carried out while the industrialised country carrying out such a project is described as the project proponent. *Id.* at 342.

²⁸ See Anne Olhoff et al, *CDM Sustainable Development Impacts* 10 (Roskilde: UNEP Risoe Center on Energy, Climate and Sustainable Development, 2004).

²⁹ See David Freestone, 'The Challenges of Implementing the Kyoto Mechanisms', 2 *Env't. Liability* 52 (2007).

³⁰ *Id.*

³¹ Christoph Sutter and Juan Carlos Parreño, 'Does the Current Clean Development Mechanisms Deliver its Sustainable Development Claims: An Analysis of Officially Registered CDM Projects', 75 *Climatic Change* 76-77 (2007).

³² *Id.* at 13.

It is thus obvious that there is currently a trade-off and that most developed countries are attempting to generate cheap credits without being mindful of the sustainable development implications. This kind of trade off must be avoided in the new climate change regime. Generating credits that would later harm the environment would be tantamount to transferring problems from one media to another. There is a need to impose certain sustainable development standards on all market based projects to avoid the proliferation of cheap but dirty technologies through these mechanisms. Currently developing countries have raised the alarm that the mechanisms could lead to the transfer of cheap and dirty technologies into their countries to generate cheap CERs while leaving long term environmental problems in the host countries.³³ A new regime must ensure that a common sustainability standard is agreed on by industrialised countries to avoid problems like this.

1.2.3 Additionality

The concern here is whether projects registered by developed countries under the mechanisms are additional. Additionality is the crucial test of whether a project results in emission reductions that are in excess of what would have occurred under a 'business-as-usual' scenario,³⁴ and thus whether the project should be awarded carbon credits that can be used by an Annex I party to meet its Kyoto commitments. The Kyoto Protocol does not provide any standard method for assessing the additionality of a project. This fundamental oversight has led to a situation where industrialised countries re-package and claim credits for projects

that were ongoing or that existed even before the Kyoto Protocol was negotiated.³⁵

This problem of determining additionality has been a major shortcoming of the market mechanisms. In the absence of clear provisions on additionality in the protocol, scholars have proffered two different perspectives on the best way to test additionality. While the proponents of the market system have interpreted additionality to mean environmental or emissions additionality, the interventionists insist that additionality in the protocol should logically be interpreted to mean financial or investment additionality.

The environmental additionality test requires that a project must result in more emissions reduction than what would have occurred without the project. This test, also known as the 'but for' test suggests that the best way to ascertain if a project is additional is to create a baseline of what would have occurred without that project, and any emission additional to what would have occurred without the project should yield credits.³⁶ This definition is the most widely adopted by project proponents and developed countries to assess the additionality of projects. According to the World Business Council on Sustainable Development, '... it is now very clear that additionality refers to environmental additionality'.³⁷

The proponents of the financial or investment additionality however disagree with the above definition and its adoption in assessing projects. They

³³ Most developed countries see these mechanisms as cost saving mechanisms; hence, they tend to settle for cheaper and dirtier technology which will only lead to immediate emission reduction and cost savings leaving the host countries with long term problem of sustainability. See Sutter, note 31 above at 2.

³⁴ The phrase 'business as usual projects' or 'free rider projects' refers to those project investments which could have been carried out even if the flexible mechanisms were not a part of the protocol. They are mostly foreign direct investment projects which could still be carried out without doing so under the mechanisms. See UNCTAD Earth Council, note 2 above.

³⁵ The interventionists have blamed this oversight on the fact that the current CDM is a product of rushed negotiations and a last minute addition to the protocol, and that the Estrada led committee, while hurriedly adopting the CDM left unresolved so many important issues which may determine the eventual success or otherwise of the CDM. See Barbara Haya, *Damming the CDM: Why Big Hydro is Ruining the Clean Development Mechanism 1* (Berkeley: International Rivers Network, 2002).

³⁶ See Anja Kollmuss, Helge Zink and Clifford Polycarp, *Making Sense of the Voluntary Carbon Market: A Comparison of Carbon Offset Standards* (Stockholm: Stockholm Environment Institute, 2008).

³⁷ Submission by the IETA, 11.7.02, cited in Ben Pearson and Yin Shao Loong, 'The CDM: Reducing Greenhouse Gas Emissions or Relabelling Business As Usual?', available at <http://www.twinside.org.sg/title/cdm.doc>.

have argued that the environmental additionality test does not screen out business as usual projects as it does not ask if the project would have happened without the Kyoto Protocol, but only asks if there would have been more emissions had the project not been implemented. Scholars in support of the financial or investment additionality test have maintained that the relevant question in testing additionality should be 'would this project have occurred in the absence of the Protocol or in the absence of the ability to register the proposed project activity as a credit generating project activity?'³⁸ To them, if a project would have been carried out even if the market mechanisms were not part of the Protocol, then such a project is a business as usual project and it is not additional.³⁹

I agree with the financial or investment additionality test. Developed countries should not be allowed to claim CERs for Foreign Direct Investment (FDI) projects or projects which would have taken place without the Protocol. Allowing them to do so will mean that the mechanisms, instead of mobilising additional capital and financing for new projects, will only enhance the re-labeling of existing projects, completion and benefits of which are already assured. This re-labeling will continue to undermine the effectiveness of the market mechanisms as there would be few new development projects in developing countries. If this continues, developing countries will turn out to be the CDM big losers as normal FDI projects which have been going on before Kyoto will simply be relabeled as clean projects for the purpose of claiming credits. This will mean that instead of developing countries getting new and additional projects as promised under the Kyoto Protocol, they will only watch the same old FDI projects some of which would have been nearing completion relabeled for generating cheap credits.

Negotiators have the best opportunity in their hands to resolve this puzzle once and for all. Negotiators in Copenhagen should agree on the investment additionality test as the standard test for evaluating whether, and to what extent, a project is additional.

³⁸ See, e.g., Down to Earth Group, 'Issues: Flexibility Mechanisms' *Down to Earth Magazine* (November 15, 2005) Please check)

³⁹ *id.*

1.2.4 Exclusion of Other Projects

Perhaps due to the hurried adoption of the Kyoto Protocol, certain GHG reduction projects were excluded from the portfolio of eligible projects; it is believed that these projects could add to the emission reduction and sustainable development goals of the mechanisms.⁴⁰ Examples are the Carbon Capture and Sequestration Projects (CCS), Reducing Emissions from Deforestation and Forest Degradation (REDD) and Afforestation projects. Studies have shown that these projects alone can generate over 30 per cent reductions in the current level of GHGs.⁴¹ For example, carbon emissions from deforestation represent 18-25 per cent of all emissions.⁴² It is thus believed that afforestation projects (i.e. planting of trees) and projects that avoid deforestation should be included as eligible projects under the mechanisms.⁴³ Thus, there have been calls for the inclusion of Reducing Emissions from Deforestation and Forest Degradation (REDD) in the next regime.

⁴⁰ The Kyoto Protocol has been described as a product of rushed negotiations. See Grubb, note 11 above.

⁴¹ See William F. Laurance, 'A New Initiative to Use Carbon Trading for Tropical Forest Conservation', 39(1) *Biotropica* 20-24 (2007). See also Andrew Mitchell, Katherine Secoy and Niki Mardas, *Forests First in the Fight Against Climate Change* 2-3 (Oxford: Global Canopy Programme, 2007).

⁴² Deforestation refers to the cutting, logging or burning of trees in a forested area. Scientific studies show that trees absorb CO₂ thereby preventing its release back into the atmosphere. When trees are logged, a main absorber of CO₂ is removed thereby increasing the level of atmospheric CO₂. Also, when trees are burnt or allowed to rot, they release the carbon stored in them back to the atmosphere as CO₂. This, in turn, leads to greater concentrations of CO₂ in the atmosphere. It is predicted that deforestation alone will account for more carbon emissions in the next five years than emissions from all aircraft since the Wright Brothers until at least 2025. See G. Bala et al, 'Combined Climate and Carbon-cycle Effects of Large-Scale Deforestation', 2007, available at http://www.junkscience.com/PNAS_Deforestation_4-9-07.pdf.

⁴³ The Forest Now Declaration put together by the Coalition for Rainforest Nations to press for the inclusion of forests in the next climate regime has been signed by over 300 NGOs, business leaders, and policy makers. The declaration emphasises that since approximately 17 per cent of greenhouse gas emissions originate from deforestation and forest degradation, mitigation of climate change will not be achieved without the inclusion of forests in an international regime.

One major criticism of the REDD however is the enormous monitoring effort needed to ensure that projects are leading to increased carbon storage. This aside, there is also opposition from the indigenous groups from around the world who believe that putting a commercial value on forests neglects the spiritual value they hold for indigenous peoples and local communities.⁴⁴ As viable as these arguments may seem, it should be noted that climate change might do more damage to these communities in the long run than allowing trade in credits generated by planting of more trees will do.

Also the CCS technology has been tipped as an innovative technology which could yield up to 15 per cent to 55 per cent reduction in CO₂ emissions within the next ten years (roughly 220 to 2200 GtCO₂). CCS involves the use of technology, first to collect and concentrate the CO₂ produced in industrial and energy related sources, transportation to and permanent storage in geological formations.⁴⁵ By capturing CO₂ using this technology, the world might achieve a significant reduction in the level of CO₂ in the atmosphere.

However, the Kyoto Protocol and the Marrakech Accords⁴⁶ do not define in clear terms, whether CCS projects can be executed under the Kyoto mechanisms. It has thus remained a subject of debates amongst scholars on whether such a viable project should remain excluded. Antagonists of the CCS have pointed to the absence of a clearly defined legal and regulatory framework in which CCS is to operate, the absence of global mandatory standards

or guiding principles for CO₂ capture; transport; storage site selection; injection; assessment of project boundaries; accounting for leakage and permanence as main issues that must be resolved before the CCS can be considered as a viable instrument in a climate regime. Though it can be conceded that these criticisms must be addressed for CCS to be included in the portfolio of clean projects, they may not be good enough reasons to argue for the outright exclusion of CCS technologies. All that is required is for the COP to lay down concrete rules and baselines that must be met by industrialised countries who wish to propose these projects.

1.2.5 Carbon Leakage

Carbon leakage refers to the increase in greenhouse gas emissions in one country as a result of a decrease in another.⁴⁷ It is the relocation of emissions from developed countries with strict climate change policy to developing countries with less strict regulations, resulting in redistribution rather than a reduction in climate changing emissions.⁴⁸ Scholars have raised concerns that the market mechanisms of the Kyoto Protocol could facilitate carbon leakage. It is feared that the costs imposed by climate change regulations like emission trading (a cap and trade) could put businesses in countries like the US at a competitive disadvantage making energy-intensive industries to flee the United States for countries like China that do not have similar restrictions. It is believed that these mechanisms cannot be effective unless main emitters like China are involved.

This lack of a level playing ground has been the main reason for President Bush's resistance of the Kyoto Protocol. However scholars like Peters have

⁴⁴ See Down to Earth Group, 'Debates Around REDD, Indigenous Rights and Controls Over Funding', 2008, available at <http://dte.gn.apc.org/76cde.htm>.

⁴⁵ As of 2008, there have been three commercial projects linking CO₂ capture and geological storage: the offshore Sleipner natural gas processing project in Norway, the Weyburn Enhanced Oil Recovery project in Canada and the In Salah natural gas project in Algeria. Each captures and stores 1-2 MtCO₂ per year. See Bert Metz et al eds., IPCC Special Report on Carbon Dioxide Capture and Storage, (Cambridge: Cambridge University Press, 2005).

⁴⁶ Modalities and procedures for a clean development mechanism, as defined in Article 12 of the Kyoto Protocol, in the Report of the Conference of the Parties on its Seventh Session, Marrakesh, 29 October - 10 November 2001, Decision 17/CP.7, Doc. No. FCCC/CP/2001/13/Add.2.

⁴⁷ Carbon leakage may also occur due to an increase in the price for carbon-intensive goods giving countries like China which are without obligations under the Kyoto Protocol incentives to expand their production of these goods and export them to signatory countries. See Christian Ellerman et al, Competitiveness and Carbon Leakage: Implications for China and the World, available at http://www.nccr-climate.unibe.ch/conferences/climate_policies/working_papers/Ellermann.pdf.

⁴⁸ For an excellent and detailed discussion of this, see Carrado Di Marria and Edwin Van der Werf, *Carbon Leakage Revisited: Unilateral Climate Policy with Directed Technical Change* (The Netherlands: Tilburg University, 2005).

countered that industrialised countries like the US bear most historical responsibility for climate change and based on the Common but Differentiated Responsibility (CDR) principle of the UNFCCC, they ought not to ask for a level playing ground in the first place. He believes US and other industrialised countries should take responsibility for their historical contributions to climate change while allowing poor countries to pursue economic development.⁴⁹

There is thus a divide between allowing the continuous exclusion of giant GHG emitting developing countries like China under the CDR principle or the inclusion of developing countries in the new climate regime based on their current level of emissions. I support the latter.⁵⁰ Countries should be given mandatory obligations in the new regime based on their current levels of emission rather than historical emissions. Countries like China which have surpassed main historical emitters like the US should not continue to escape mandatory emission reduction obligations under the new regime.

1.2.6 Distribution of CDM Projects

The CDM allows industrialised countries to invest in a developing country in exchange for emission

credits. Due to the heat generated during the negotiations when the G 77 opposed a market approach to emission reductions, the CDM was included to placate developing countries.⁵¹ The Protocol also included a promise that it will assist all developing countries in achieving sustainable development. The protocol was however silent on how the CDM will achieve this in all developing countries. The protocol leaves it to any developed country to choose the developing country it wishes to invest in. Consequently, developed countries, like prudent investors, are always in search of developing countries with the least investment risks. Thus, a country with high mitigation potential, a safe and conducive investment climate, and an appropriate legal framework on CDM implementation will often be considered as a very attractive spot for CDM investments.⁵²

However, due to the distinct economic, social, and administrative conditions among developing countries, 67 per cent of developing nations have so far been unable to meet these requirements and have consequently been unable to attract prospective CDM investors.⁵³ Over eighty per cent of the current CDM projects are clustered in Asian countries, namely, India, China, and Indonesia, while Africa accounts for less than 2 per cent of the entire CDM project portfolio, the same as Latin American countries.⁵⁴ This situation has led to a huge resistance of the CDM mechanism as well as the other mechanisms by the many developing countries that feel left out of the portfolio. Most African countries have argued that the CDM will not lead to sustainable development in all developing countries as promised in the Protocol.

49 Glen Peters, *Reassessing Carbon Leakage* (Paper for the Eleventh Annual Conference on Global Economic Analysis organised by Government Institute for Economic Research, United Nations University / Wider Institute and Center for Global Trade Analysis, Purdue University, Helsinki, Finland, 12-14 June 2008), available at <https://www.gtap.agecon.purdue.edu/resources/download/3751.pdf>.

50 The United States has made efforts to introduce Carbon Tariffs and Border Tax Adjustments on products coming from countries with lax carbon policies as a way of resolving this. Border Adjustments are import fees levied by carbon-taxing countries on goods manufactured in non-carbon-taxing countries. Such effort though good may be counter productive as it might make these products unaffordable for US citizens. It may even deny them the availability of these products if such countries decide to export them to other developed countries instead of the US. See R. Ismer and K. Neuhoff, *Border Tax Adjustments: A Feasible Way to Address Non Participation in Emission Trading* (Cambridge: Cambridge-MIT Institute, Cambridge Working Papers in economics), available at <http://www.econ.cam.ac.uk/electricity/publications/wp/ep36.pdf>.

51 See Jacob Werksman, 'Unwrapping the Kyoto Surprise', 7 *Review of European and International Environmental Law* 147 (1998).

52 Martina Jung, 'Host Country Attractiveness for CDM Non-Sink Projects', 34 *Energy Policy* 2-4 (2006).

53 See Alan Silayan, *Equitable Distribution of CDM Projects Among Developing Countries* (Hamburg: Hamburg Institute of International Economics, HWWA Report 255, 2006) at 1.

54 These Asian Countries are now referred to as the CDM giants. For a breakdown of current CDM projects, see The UNFCCC, *Statistics of CDM Projects*, available at <http://cdm.unfccc.int/Statistics/index.html>.

Scholars have differing perspectives on this equity concern. While scholars like Jung believe it is no concern at all, considering the fact that the CDM is a market portfolio; it leaves developed countries with the freedom to invest where they feel they can get the best returns for their projects. Other scholars like Silayan contend that it is a significant concern that must be resolved in the next regime if the CDM is to be retained.⁵⁵ According to Silayan, applying the economic theory of emissions trade on an international scale involving a variety of nations in varying stages of development manifests a complex equity problem.⁵⁶ To Silayan, imposing a market mechanism on countries with different levels of competitiveness creates a trading environment conducive for imperfect competition whereby only a few nations benefit, and overall social welfare decreases.⁵⁷ Adopting a market based mechanism like the CDM implies that investors in the market must pursue an optimal investment portfolio to maximise profit and minimise cost. As a result, investment trends tend to concentrate to only a few countries. The winners will be those whose national structures are geared towards the development of CDM projects. These countries will reap the full benefits of the CDM, that is, GHG abatement and sustainable development through the transfer of technologies. Losers in the market, on the other hand, will be left behind. He insisted that the end result may be an overall negative effect for developing nations as a whole.⁵⁸

Ritu Gupta while commenting on this maintained that due to the competitive nature of CDM investments, the CDM is not offering sustainable development to all the developing countries which the negotiators of the Protocol promised to *assist* by opting for the CDM. According to Gupta:

...in all this, the basic criterion — CDM must ‘assist’ developing countries for sustainable development — has got lost. Poor countries, with financially-strapped governments, are

forced into a mindless competition to facilitate the selling of credits, cheaply and as fast as possible...⁵⁹

Souba Sokona, arguing in favour of African countries handicapped by this competitive outlook of the CDM, maintained that only a few developing countries stand to attain sustainable development through the CDM.⁶⁰ Sokona condemned the CDM as an unfair approach to emission abatement as it imposes strenuous conditions on developing countries particularly African countries for participation. He sees the issue of host country attractiveness as an indirect way of sidelining African countries from global mitigation efforts.⁶¹

I find strong support for these arguments. The clustering of CDM projects to the same set of developing country undermines the effectiveness of the CDM as global instrument of sustainable development. If truly the CDM was adopted to *assist* weak economies in solving their environmental problems, it is then an irony if these same countries, despite their apparent weaknesses have to engage in an unending contest to capture this ‘assistance’. The word ‘assist’ as used in Article 12 of the Kyoto Protocol already assumes that these developing countries have weak structures and have limited national capacity to solve their environmental problems, and the CDM was supposedly adopted to assist them in achieving sustainability which they have been unable to achieve on their own. One cannot see how the CDM, with its present competitive outlook will usher in such assistance and lead to positive impact on the needs of the least developed countries (LDCs) towards sustainable development and their adaptive capacity to climate change impacts. The current CDM which allows developed countries to neglect weaker developing nations from project participation may not on this score, represent the best mitigation route as the global community may not win its war against global warming if all nations no matter how poor or small are not involved.

⁵⁵ See Jung, note 52 above.

⁵⁶ See Silayan, note 53 above at 56-57.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ Ritu Gupta, Shams Kazi and Julian Cheatle, ‘Newest Big Deals’, *Down to Earth* November 15, 2005.

⁶⁰ Youba Sokona, ‘The Clean Development Mechanism—An African Delusion?’, 54 *Change* 8 (2005).

⁶¹ *Id.*

Secondly, many developing countries especially the African countries have lowered their sustainability criteria in an attempt to attract CDM projects. Since the Kyoto Protocol allows host countries to define what a sustainable project is based on domestic priorities and national plan, many more African countries are opening up their door to all forms of CDM investments by deliberately lowering their sustainability standards to that which can easily be met by developed countries.⁶² This increases the concern on whether these countries will not again turn to dumping grounds for cheap and dirty technologies masquerading as CDM projects. As such, this imperfect competition for CDM projects has brought about new questions on how sustainable the CDM will be at the end of the day for developing countries that are now opening their doors to any form of project.

This equitable distribution concern was given serious considerations by the Conference of the Parties (COP 12) in Nairobi, Kenya as they adopted a decision to consider ways in which this problem of geographical inequity in the distribution of CDM projects could be resolved.⁶³ However, three years after the adoption of this resolution nothing concrete has been done. This concern must be resolved if all countries are to be involved in climate change mitigation efforts. An acceptable regime is that which gives to each nation according to its needs and strengths and not one which sidelines some countries from active participation due to their extreme national conditions. The global community may not win the war against global warming if all nations, no matter how poor or small, are not involved. The issue must be resolved in the next regime to obtain the support of those developing countries currently sitting on the sidelines. The current distribution system which excludes 70 per cent of the developing countries is not only

inequitable; it is also an ineffective approach to emission abatement. It creates a trading environment conducive for imperfect competition whereby only a few nations benefit, while other developing countries are left out from the sustainable development benefits of hosting CDM projects.⁶⁴ The end result may be an overall negative effect for developing nations as they would be caught up in a fierce contest of winning CDM projects at all costs.⁶⁵ If the CDM was indeed adopted to *assist* weak economies in achieving sustainability, it is ironic if these same countries, despite their apparent weaknesses, have to engage in a competitive struggle to capture this 'assistance'.

2 THE WAY FORWARD: RECOMMENDATIONS

This paper has summarised the major shortcomings of the three flexible mechanisms of the Kyoto Protocol. It should be noted that the market idea by itself is a good idea as it allows countries to complement their domestic climate mitigation efforts with non-domestic efforts. Considering the flexibility and the cost saving benefits of market mechanisms, it might be unrealistic to expect industrialised countries to support a climate regime without any trading or market mechanism. Even the EU that opposed trading mechanisms during the negotiations became the first to establish an emission trading market. Given this reality, the best way to move forward is to try and make the markets better than they currently are. A disorganised, disjointed, and ineffective market system like we currently have will only undermine and distract the efforts against

⁶² The Kyoto protocol provides that it is within the prerogative of the Designated National Authorities (DNAs) established by each developing country to confirm or decide whether a CDM project is assisting in achieving sustainable development or not. See Article 13 of The Kyoto Protocol, note 1 above.

⁶³ See The Report of the COP acting as the Meeting of the Parties (MOP) to the Kyoto Protocol, Doc. No. FCCC/KP/CMP/2006/10, 26 January 2006, available at <http://unfccc.int/resource/docs/2006/cmp2/eng/10.pdf>.

⁶⁴ These benefits include technology transfer, job creation, solutions to perennial environmental problems and financial gains. See Silanyan, note 53 above at 57.

⁶⁵ Currently, developing countries like Nigeria and Ghana have lowered their sustainable development criteria to allow just every type of investment under the CDM. It is feared that this situation may lead to the proliferation of dirty technologies into these countries using the CDM cover. See Silanyan, note 53 above at 58.

climate change. There is thus a need to block the identified loopholes and resolve some ambiguities in the mechanisms. I believe the mechanisms will lead to phenomenal results in emission reduction if standard rules can be released to clarify issues like additionality and the indicators for sustainability that must be met in projects. Clearer rules on these issues would go a long way in strengthening the markets.

Firstly, reducing the emphasis on clustering projects in few developing countries can be done by allotting country quotas which will limit the number of projects per country, that is, the number of projects that can be carried out in a developing country at a time. This will help in shifting focus from a cluster of developing countries to other developing countries that have not yet exhausted their own quotas, thus ensuring an equitable participation of all developing countries as promised by the Kyoto protocol. Though it might be said that the use of quotas will reduce the market outlook of the mechanisms since investors can no longer invest where they wish; I think there is no market without its own rules, the use of quotas would only make us have a more organised and less disjointed market. A global market would easily lose its global outlook if projects are simply clustered in one region.

Secondly, I am of the view that the rules should define additionality to mean investment additionality; a project that existed or that would have been carried out even if Kyoto Protocol was not negotiated should be excluded from eligible projects for the purpose of credits. Negotiators should define clearly the rules for determining the baseline as 'would this project have occurred in the absence of the Protocol or in the absence of the ability to register the proposed project activity as a credit generating project'. If a project would have been carried out even if the market mechanisms were not part of the Protocol, then such a project is a 'business as usual project' and it is not additional. This will help in differentiating between FDI projects and Kyoto Protocol type projects. This differentiation is essential as Kyoto Protocol projects normally have to pass through close scrutiny by the Executive Boards of the UNFCCC to examine that they will lead to sustainability, without which they would not be approved in the first place. Thus,

allowing FDI projects to be relabeled as clean projects without this scrutiny makes a mockery of the entire climate change regime.

Thirdly, there is a need for tougher rules to exclude unsustainable projects. Projects that generate credits but lead to long term sustainability concerns should be excluded from the mechanisms. Negotiators should lay down a threshold for testing sustainability; any project that does not meet the indicators should never be approved under the mechanisms. Countries should also be made to pay penalties for breaking the market rules. The size of the penalty should be at least \$20 for every ton of emission credits generated outside the rules. Such fines can then be used to fund adaptation in developing countries and small island states. I believe such punitive measure will make countries invest in sustainable and long term projects rather than cheap projects that generate credits regardless of the environmental implications.

Similarly, to avoid the leakage problem, a good idea will be the inclusion of a provision in the new climate change regime which will allow the COP to periodically review the Annex I and II list to include and remove countries based on their current levels of emissions within a five year period. This way, huge emitting developing countries like China would have obligations in the new regime based on their current emission level. Critics might suggest that this is against the CDR spirit under which both the UNFCCC and the Kyoto Protocol were negotiated, but the current levels of emission should also be put into consideration in allotting responsibilities for climate change mitigation. This way, high emitting developing countries like China and India would have emission reduction obligations under the new regime based on their current high levels of emission.

Finally, the next regime should take into account new and efficient technologies that have been developed between 1997 and now, e.g. the CCS technology. The CCS should be enlisted as an eligible project under these mechanisms. Standard rules must however be laid down to ensure its long term efficiency and to prevent leakage after some years. I also think afforestation and REDD projects should no longer be excluded from eligibility. REDD projects would go a long way in contributing

significant GHG reductions and will enhance the overall efficiency of the mechanisms.

3

CONCLUSION

This paper has summarised the major shortcomings of the three flexible mechanisms of the Kyoto Protocol. It should be noted that the market idea by itself is a good idea as it allows countries to complement their domestic climate mitigation efforts with non-domestic efforts. It also allows countries to pursue emission reduction anywhere in the world and at the lowest cost possible. Thus, it might be unrealistic to expect industrialised countries to support a climate regime without any trading or market mechanism. Given this reality, the best way to move forward is to try and make the markets better than they currently are. A disorganised, disjointed, and ineffective market system like we currently have will only undermine and distract the efforts against climate change. The identified loopholes must be blocked as a matter of necessity if these market mechanisms are to be better suited for achieving their dual aims of global emission reduction and sustainable development.

*LEAD Journal (Law, Environment and Development Journal) is jointly managed by the
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