THE ROLE OF THE CDM IN FUTURE TRADING OF CREDITS FROM AVOIDED EMISSIONS

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Contents

Abbreviations

AAU	Assigned Amount Unit
AWG-DP	Ad Hoc Working Group on a Durban Platform for Enhanced Action
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
COP	Conference of the Parties
EB	Executive Board
ERU	Emissions Reduction Unit
ETS	Emissions Trading Scheme
EU	European Union
IET	International Emissions Trading
ITL	International Transactions Log
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
LULUCF	Land Use, Land Use Change and Forestry
MRV	Monitoring, Reporting and Verification
NAMA	Nationally Appropriate Mitigation Actions
NSM	National Standards Mechanism
OSM	Offset Standards Mechanism
REDD	Reducing Emissions from Deforestation and Forest Degradation
RMU	Removal Unit
UNFCCC	United Nations Framework Convention for Climate Change

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As the first period of the Kyoto Protocol draws to a close, the CDM must be evaluated in the context of an evolving mitigation regime.

New market mechanisms for reducing greenhouse gas emissions are emerging and there would seem to be some role for trade in offsets. Economic principles and experience demonstrate that for trade in offsets to play a productive role in the global mitigation regime, there is a need for an institution that bears responsibility for the measurement, verification and reporting of carbon credits generated as offsets and entering international trade. The same institution should establish the rules and principles that will allow bilateral and plurilateral trading arrangements to move towards a consistent global market in which trade in offsets has a legitimate place. There is a need to expand institutional recognition of avoided emissions from policy and sectoral projects, including reductions in emissions from deforestation and forest degradation. It is possible that the CDM can be re-imagined and transformed in order to fill this role. This role could be filled by a new institution, but with greater risks and costs.

In this paper, the term "emissions entitlements" refers to the amount of emissions that is appropriate for a country. The paper is not concerned with how that amount is determined. International trade can occur between one country with an excess of entitlements over actual emissions, and another with an excess of actual emissions over entitlements. It is also possible to define and create offset credits for "avoided emissions." Credits from avoided emissions can be used to offset excess emissions in countries with entitlements. Trade in avoided emissions or 'offsets' has been the area of operation of the CDM, and is a particular focus of this paper.

All developed countries have adopted notionally binding or voluntary targets under the arrangements agreed at Copenhagen and Cancun. The urgency of the mitigation challenge requires substantial developing economies to take on voluntary, objectively measured mitigation targets at an early date. Most substantial developing countries have already done so. This paper proposes that there is an important continuing role for offset credits after 2012, under arrangements that secure progress towards the internationally agreed mitigation objective. To meet the mitigation objective, the trade in credits from avoided emissions or offsets will need to be selective (limited to least developed countries) or conditional on meeting voluntary targets (for substantial developing economies). The operation of the CDM can be extended productively to a broader range and definition of avoided emission.

Institutional oversight of trade in avoided emissions could be provided by and build upon the foundations established by the CDM. I call this institution the Offset Standards Mechanism (OSM), and it is based on the established CDM. Trade in avoided emissions between countries with targets requires additional dimensions of institutional oversight to ensure that there is no double counting of credits for offsets. This institutional oversight could be provided by merging the established International Emissions Trading and Joint Implementation mechanisms. I refer to the institution formed by this merger as the National Standards Mechanism (NSM).

1. Introduction

The Clean Development Mechanism (CDM) has emerged over recent years as the most important instrument of international trade in avoided carbon emissions. It has also emerged as the main vehicle for international trade in carbon-related instruments generally. The latter development has been a surprise, and is not appropriate if international trade in emissions entitlements is to play a major role in the global mitigation effort. The CDM is not yet part of a framework that will achieve the level of mitigation that is required to meet internationally agreed outcomes. However, the processes and governance arrangements that have been built around the CDM and which have underpinned its expansion are important assets for the global mitigation effort, and should be brought fully to account in that effort.

In the international discussions in Copenhagen, Cancun and Durban, the international community has been transforming old and developing new international trading instruments. We have to think through the role of the CDM in the emerging international climate change policy context.

This paper analyses the economic principles of market trade in emissions entitlements and offsets from avoided emissions, and identifies the desirable features of institutions designed to facilitate trade. One necessary feature of a trading system is a set of standards to ensure the credibility of offsets. The CDM has played that role and could be transformed to fill this role in the expanded system of international trade in carbon instruments that will be necessary in future.

This paper refers to the proposed mechanism as the Offset Standards Mechanisms (OSM). There are practical advantages in institutional continuity, but the analysis does not depend on the continuation of the CDM precisely in its present form. The paper makes suggestions for the role of the OSM in the long term international arrangements for climate change mitigation from 2020, and identifies a path of transition from the present to the optimal future role. In so doing, it discusses the other emerging instruments for trade in emissions entitlements and credits, as a starting point for assessment of the optimal role of the OSM in the international mitigation effort.

Trade in emissions entitlements and credits is only part of the global mitigation effort. International interaction on each country's emissions reduction targets is the central element in the global mitigation story, and financing for developing country investments in mitigation and adaptation is important. These wider parts are merely noted in this paper incidentally to the main focus on trade in emissions entitlements and credits.

The focus of the paper is on the optimality of the arrangements as parts of an international mitigation policy framework, rather than on the likelihood that they will prove to be acceptable to all or any number of national members of the international community. The paper is inevitably an invitation to discuss the practicality as well as the optimality of various approaches to trade in emissions entitlements and credits.

2. The Crisis in Carbon Trading: the Status Quo is not an Option

The CDM Panel is conducting its work at a time of crisis for international cooperation in climate change mitigation in general and for trade in credits for avoided emissions in particular. The crisis in credit trading has come into much stronger focus over the past year. The number of Certified Emission Reductions (CERs) issued under the CDM has increased markedly over recent years, from roughly 138 million issued in 2008 to nearly 315 million in 2011 (UNFCCC, 2012). One consequence of the increase in scale of the CDM has been its contribution to the low carbon price in those developed countries with emissions trading systems—the members of the European Union (EU). Between 2009 and 2011 the number of CERs surrendered for EU annual compliance increased from roughly 77 million to 176 million (Carbon Market Data, 2012). The low European price, in turn, has fed back into a low price for CERs, at a time when the international community is beginning its mitigation effort. This has been one factor in the European Union's decision to exclude CERs from all

but least developed countries if they have been generated from projects registered after the end of 2012. The low price of CERs has become a deterrent to new countries adopting emissions trading systems at all, and where new emissions trading schemes (ETS) are still being adopted, to linking them without qualification to the CDM.

Of course, the increase in numbers of CERs issued under the CDM has been only part of the cause of the recent collapse in permit prices in the European Union. The interaction of excessive domestic allocation of permits, diminished demand in the post-financial crisis stagnation in Europe and increased CERs supply has produced the observed outcome.

The European Union's exclusion of CERs from all but least developed countries has introduced major problems for any other countries seeking to import CERs without restriction. Prices for CERs from other countries can be expected to settle at much lower levels than from least developed countries. Indeed, if newcomers to emissions trading schemes—on current policies, New Zealand, Australia and Korea by 2015—remained open to CERs from all developing countries, their markets would be swamped, and emissions permit prices would settle at derisorily low levels. This would lead either to restrictions of purchases from developing countries or to the discrediting of emissions trading as an instrument for effective mitigation.

Under the status quo, excess supply will continue to be a problem, and developing countries - except the least developed - will be practically if not formally disengaged from the trade in offset credits. This proposal aims to preserve the benefits of the CDM, while avoiding the weaknesses that have generated the current crisis. This proposal preserves avenues for ongoing participation by those countries that are not the least developed. The proposal does this in a way that enhances rather than undermines the global mitigation effort.

3. Assumptions and framework

The paper takes as given that the 2012-2020 and post-2020 international mitigation regimes will have certain characteristics that are shaped by on-going international discussions and by the requirements of a regime that has a chance of meeting the international mitigation objective.

The paper takes as given that all countries except the least developed will by 2020 have accepted voluntary emissions targets that are taken seriously domestically. It also presumes that these targets are "appropriate" for the time at which they are operating. That is, it takes as given that the targets will bind a country's emissions below business as usual, and that the sum of national targets is consistent with global objectives to limit global warming. How these targets are set and the levels at which they are set is not a concern of this paper. The process of moving towards national targets will be guided by the Durban Platform.

It is presumed that most if not all developed countries will accept that they should buy international credits to cover any failure to meet their voluntary targets, through agreed international processes. While it would be desirable for these all to be "binding" commitments under international law, we can have a basis for international trade in credits so long as they are accepted as serious domestic policy commitments. Between 2012 and 2020 it is anticipated that we will see gradual convergence towards these types of arrangements. By 2020, it is anticipated that all but the least developed countries will be operating within targets that are taken seriously whether they are formally designated "voluntary" or "binding", and that all developed countries will accept an obligation to purchase international carbon entitlements if their emissions exceed their targets. It does not affect the overall approach of the paper if some countries and sets of countries introduce elements of the post-2020 arrangements ahead of others during the transition years 2012-20.

4. Mitigation performance against objectives

The United Nations Framework Convention for Climate Change (UNFCCC) has indicated support for an objective to limit global warming to 2 degrees Celsius (3.7 degrees Fahrenheit). While the precise relationship between increases in greenhouse gas concentrations and increases in temperature is not known with certainty, the objective carries some clear implications for the constraint that must be exercised over emissions of greenhouse gases. Achievement of the objective will require average global emissions of carbon dioxide-equivalent emissions per person to fall by more than half to around two tonnes per year by around the middle of the 21st Century—or earlier if total emissions do not reach a peak and then start falling before 2020.

It is hard to imagine any stable long-term basis for setting national entitlements to emit greenhouse gases that is not based around equal entitlements per person. If per capita emissions are to fall to the required global average level in each country, emissions entitlements per person in developed countries will need to fall by around 90 percent. Emissions entitlements per person will need to fall substantially in some developing countries in which current emissions exceed the current global average. All substantial developing countries will need to reduce the emissions intensity of economic activity by large amounts.

This is the awful arithmetic of the climate change mitigation challenge. It is no more amenable to political objections or to negotiations amongst States or to the will of the most powerful States or to appeals to justice than are the laws governing gravity and the tides.

The two degrees limit agreed at Copenhagen and Cancun reflects the thinking of the international community. It may be objected that the objective is too ambitious given the costs of its achievement. That is not my own view. In the first Garnaut Climate Change Review for the Federal and State Governments of Australia, I look in some detail at whether the benefits from reduced risks of dangerous climate change justify the costs of Australia doing its fair share in a global effort to reach a quantitative target of greenhouse gas emissions that broadly corresponds to what is now the international objective. I conclude that they do (Garnaut, 2008, Chapter 11). Stern reached a similar conclusion for the world as a whole (Stern 2007). Stern's analysis suggests that the benefits of climate change mitigation are likely to be greater in developing than developed countries.

It may be objected that these outcomes are unacceptable or even impossible to the developed countries, and therefore impractical, because they involve such large changes in established economic structures. The objection will not change the reality, that in the absence of achieving the objective, climate change is likely to force even more disruptive and costly adjustments. Fortunately, the objection is not soundly based in economic analysis; the use of sound policies will allow the mitigation objective to be met without seriously damaging global economic development in the early years, while preserving the prospects for continuing global development in the longer term.

It may be objected that these outcomes are unacceptable to developing countries, either because the international discussion of the 1990s assured them that they would not be required to make adjustments at a cost to themselves until the developed countries had reduced emissions by more than they have yet done; or because it is unfair that their economic development should have to carry a carbon cost burden that was not imposed on developed countries at earlier stages of their development. None of these objections will be noticed by the laws of physics that govern climate change; and the disproportionate damage to developing countries of weakly mitigated climate change will be even more unfair than developing countries making contributions to the global mitigation effort.

There is a place for diplomacy, negotiations, and considerations of fairness in determining each country's mitigation effort. The reduction in emissions to achieve the international objective can be achieved with a slow and gradual or a more vigorous start; and with moderately larger or moderately smaller contributions by developed countries. It can in principle be achieved either through international agreement on allocation of the global mitigation effort amongst countries, or through

each country making what it considers to be a fair contribution--in the latter case with room for adjustment in response to peer pressure within the community of nations or domestic pressure from concerned citizens.

If the start to global mitigation is slow and gradual, the final adjustment to low levels of emissions per person will have to come much earlier, and the adjustment in later years will have to be much faster and more expensive.

If developed countries do more in the early years, there will be some scope for more gradual adjustment to emissions constraints in the developing countries. But there will be no avoiding substantial and early constraints in the developing countries: the developing countries represent too high a proportion of current and prospective emissions for the objective to be achieved by actions of the developed countries alone, even if they reduced emissions to zero at an early date.

In 2000, the Intergovernmental Panel on Climate Change published a range of scenarios for future global emissions. The extreme high emissions scenario was designated A1FI (extremely fossil fuel intensive growth, combined with rapid growth). Since then, actual emissions have actually tracked above the A1FI scenario, largely because economic growth has been higher than anticipated by the IPCC in the large Asian developing countries, because they have been experiencing more energy-intensive growth than anticipated by the IPCC, and because they happen to have relatively abundant resources of coal, the most emissions-intensive of the common sources of energy. The dip in global emissions growth during the 2008-09 global financial crisis was soon reversed as the large Asian developing countries returned to rapid growth (Garnaut, 2008, 2011).

The world is so far performing badly on the arithmetic of mitigation.

There has nevertheless been a substantial and favourable change in the relationship between economic activity and emissions in some developed and some developing countries. In the few years since the Copenhagen meeting, the large developing countries, first of all China, have reduced their emissions trajectories radically from “business as usual” and undertaken to reduce them more. An immense task remains ahead of the international community, in going much further in changing radically the relationship between emissions and economic activity, but recent changes show that more can be achieved without disrupting modern economic development.

This paper does not seek to draw conclusions about the global emissions budget in the years ahead, or about the allocation of a limited budget amongst countries. Nevertheless, it should take note of the reality: achievement of the international community’s objective on avoiding dangerous climate change will require a sharp increase in the mitigation effort in all substantial countries from an early date.

Despite the absolute declines in emissions in line with Kyoto commitments of Annex 1 countries taken as a whole, and despite the emerging evidence that United States emissions have passed their peak and may meet that country’s commitment to reduce 2020 emissions by 17 percent from 2005 levels, there are no practical prospects of global emissions reaching their peak before 2020. That places a heavy burden of rapid emissions reduction on later years.

5. Economic principles

It is economically efficient for reductions in emissions to take place in the processes, industries and countries in which this can be achieved at lowest cost. It is also environmentally efficient for mitigation effort to be allocated across processes, industries and countries in an economically efficient way: the lower the cost of achieving an emissions mitigation outcome, the greater the political acceptability of an ambitious target.

A single price being applied to all reductions in emissions and increases in emissions and sequestration of emissions will assist in securing a specified degree of emissions reduction at the

lowest possible cost. Global trade in credits and entitlements will move the carbon price in all countries towards a similar level. There are large advantages in an integrated global carbon market with a single carbon price, and that should be an ultimate goal.

That is not to say that international trade in entitlements and credits is the only way of achieving an efficient allocation of the global mitigation effort. The alternative would be to agree on the application of similar carbon tax rates in all countries. This has not been the subject of international negotiations. It is likely that the achievement of comparable carbon pricing would be more difficult to achieve through an attempt at agreement on the application of carbon prices at similar rates in all countries, than through trade in emissions entitlements.

It is critical that the presence of multiple markets operating on different rules does not undermine prospects of a robust global market. The avoidance of this unhappy outcome requires the following:

- That the units that are traded in the different markets comply with common standards and rules.
- That markets adopt common measurement and accounting standards and rules.
- That linking of markets supports convergence towards similar prices in many countries, preceding the establishment of a single global market with full participation.

The design of markets' monitoring, reporting and verification (MRV) of emissions will have a crucial effect on the prospects for movement towards a single carbon market with one price. If we start out with common units of measurement for emissions and their sequestration, and these are applied in consistent ways in all carbon markets, there are good prospects for the proliferation of market initiatives and trade leading to convergence towards an integrated market with a single price.

There are some obvious dangers in the current absence of clear agreement on compatible systems. If one developed country applied less rigorous standards to the carbon units that it accepted for acquittal of its mitigation obligations, it would attract low quality carbon units from many countries. The price of carbon credits in its own market would be below those in the markets of countries maintaining high standards. There would undoubtedly be pressure for the operation of a carbon market version of Gresham's Law, with countries seeking to import carbon credits coming under pressure through their own domestic political processes to lower the quality of credits and therefore the cost of mitigation. It would be difficult to avoid a general breakdown in the quality of the global mitigation effort.

In contrast, if similar standards were applied across countries, trade within any set of countries can be expected to contribute positively to movement towards an integrated global market. The necessary additional condition is that each member country of a bilateral or plurilateral carbon trading area be free to buy and sell carbon units to the global market or in other markets. A member country will have no incentive to sell or buy within the bilateral or plurilateral area at a price that is higher or lower than it can obtain through sale or purchase in a third market.

There is an additional advantage in using common governance mechanisms as well as common accounting standards for international trade in carbon credits. There are substantial costs in running the type of governance arrangements now applied to the CDM. To have a proliferation of verification mechanisms would increase transaction costs well beyond the increases that are inevitably associated with increases in volume. Even more importantly, transactions costs of compliance will increase disproportionately with variations in rule-making and rule enforcement arrangements across the world. To the inevitable transaction costs of governance and compliance must be added the losses from rent-seeking behaviour if differences in rules across jurisdictions encourage business investment in political processes to weaken the rules of stronger systems, or to weaken requirements of compliance with the rules.

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Sovereign risk as perceived by private investors—a major cost of investment in some and especially the poorest developing countries—is reduced by application of a standard methodology, with compliance directed from an international body.

Many developing countries simply do not have the administrative capacity to develop their own effective MRV systems: for them, absorption of international norms and institutions is a precondition for trade.

It is important that we do as much as we can now to expand the chances of moving towards a single global price for carbon, across sectors and countries, and reduce the chances of market fragmentation and persistent price differentials.

6. The Kyoto mechanisms

The Kyoto Protocol ushered in the main international instruments for trade in avoided emission credits through its provisions for Joint Implementation (JI) and the CDM. The Kyoto Protocol also introduced provisions for International Emissions Trading (IET), which allows Annex-1 countries to trade Assigned Amount Units (AAUs).

The CDM is an offset mechanism that allows developed countries to be credited in a disciplined way for project-based emissions reductions in developing countries.

In this context, it is important to see the CDM for what it is and for what it is not. As an offsets mechanism, the CDM does not directly lead to emissions reductions for the world as a whole. As an offset instrument, it reduces the cost of mitigation in countries with targets.

The CDM may have various indirect benefits to long-term mitigation. It familiarises Governments and enterprises and communities in developing countries with the idea of reducing emissions. It introduces new business institutions and technologies that help to reduce domestic emissions. These external benefits are especially large in the least developed countries which are relatively unfamiliar with international developments in these fields. All of these things may be of great assistance when the developing country comes to accept domestic mitigation goals. These indirect benefits are the subject of research for the Panel.

The scale of activities under the CDM has increased rapidly in recent years—most dramatically in 2011. This is partly the result of learning by doing and the spread of knowledge to new participants in developing countries. There has been reform of the CDM instrument itself to broaden eligibility from narrowly defined projects to programmes. These are natural and rational developments for the CDM. There has also been a rush to have projects accepted from developing countries that will be excluded after 2012.

The success of the CDM demonstrates that international markets can identify low-cost carbon abatement projects. The opportunity to purchase carbon reductions in developing countries at lower cost than they can be secured at home in developed countries has served the purpose for which the CDM had been established: to lower the cost of meeting emissions reduction targets in the developed countries. But the CDM has not directly reduced emissions of greenhouse gases. Any net mitigation contributions are the result of the external benefits described in the immediately preceding paragraphs, which may cause indirect contributions to emissions reductions to raise total “additionality” above one hundred percent.

JI is an offset mechanism that allows project-based investments between Annex-1 countries with targets: between countries whose emissions are above their targets and others whose emissions are below their targets. These are measured against baselines established in the Kyoto Protocol. JI includes mechanisms to ensure that there is no double counting of carbon credits—that if one country (the “home” country) receives a credit for reductions of emissions in another (the “host” country, the credits are “added back” into the emissions of the host country. Through the Track-2 process, the JI

Supervisory Committee (JISC) supports the JI mechanism by facilitating the creation of Emissions Reductions Units (ERUs), rather like the CDM Executive Board (EB) issues CERs. Indeed, the JI Supervisory Committee (JISC) procedures borrow from and make reference to the CDM.

7. The emerging global mitigation regime

In the December 2011 meeting of the parties to the United Nations Framework Convention, the Durban Platform for Enhanced Action was agreed. Parties established an Ad Hoc Working Group on a Durban Platform for Enhanced Action (AWG-DP). The AWG-DP has the mandate to develop "a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties." The Platform provides a path to a legal commitment in which all countries reduce their carbon emissions. The instrument is to be agreed by 2015 and operational from 2020. In addition, negotiators agreed to a second commitment period under the Kyoto Protocol. The second commitment period runs from 2013 through 2017 or 2020.

The international policy regime that has emerged from the Conferences of the Parties under the UN Framework Convention in Copenhagen in 2009, Cancun in 2010 and Durban in 2011 is – for the time being – based on voluntary agreements enforced primarily by domestic political commitments. This is a marked departure from approaches taken at Kyoto and once considered to be essential for an effective global mitigation effort. However, experience since Copenhagen demonstrates that this new approach provides a basis for progress. It can also provide a basis for widespread use of international trade in emissions credits to reduce the costs of meeting the global mitigation objective.

There is a great deal of theology about the importance of binding targets. In truth, in the current international system, the distinction between legally binding and voluntary targets is artificial. Canada's repudiation of its notionally legally binding Kyoto commitments undermines any proposition that there can be meaningful legally binding commitments in today's world.

We do not yet know whether voluntary commitments can achieve large enough emissions reductions for the international community to reduce the risks of dangerous climate change to what informed and rational people would judge to be acceptable levels.

There is no reason in principle why "concerted unilateral mitigation commitments", or "pledge and review" - as the regime has been described since Cancun - cannot get us to a sound end point. To reach the shared objective, each country's commitments would need to evolve over time, becoming more ambitious as each polity becomes more confident that it is not taking action alone, that strong mitigation is not associated with unmanageable economic adjustment costs, and as elements of the domestic polity apply pressure for a larger contribution to the global mitigation effort.

It is possible that a "bottom up" approach based on voluntary domestic commitments may actually deliver stronger results than an attempt to place legally binding obligations on all countries. Some political systems—especially those in the strongest countries—are reluctant to enter notionally binding international agreements, and yet have been prepared to make ambitious voluntary commitments and to take them seriously. Chinese and United States policy announcements and performance since the Copenhagen meeting make the point eloquently.

In any case, concerted unilateral action is all that we have. It is that we will have until 2020 in the best of circumstances. It may be all that we have for a time after 2020. It is to be hoped that confidence in progress on global mitigation - alongside growing practical demonstration that this is consistent with continuing economic development - will allow international agreements to take stronger legal forms in future. But the chance of meeting the international mitigation objective will be abandoned by default if we do not make a start now on the basis of the system of voluntary agreements that has been established in recent years.

Of course, it is possible that the international mitigation objective will not be met: that the sum of the voluntary targets will fall short of what is required to meet the objective, or that emissions outcomes

will exceed stated voluntary targets to an extent that leaves the world exposed to dangerous climate change. These outcomes would condemn to failure our hopes for global development. The possibility and important consequences of failure are beyond the scope of this paper.

8. The evolving carbon market

The post-Copenhagen international discussion of new mechanisms for trade in emissions credits has encompassed a wide range of sectors for the issue of credits. It has encompassed projects, sectors, programmes and nation-wide policies. It has covered and bilateral, regional and other plurilateral arrangements. There has been much discussion about these new mechanisms in the context of the "pledge and review" framework.

Countries are undertaking unilateral mitigation commitments and seeking ways to reduce the costs of meeting them through international trade in credits. Developing countries with rich opportunities for reducing emissions at low cost have been exploring new mechanisms for trade with developed countries.

Much of the energy in expanding carbon markets in the period immediately ahead is likely to emerge in movements towards bilateral and regional trading agreements for carbon. Recent discussions between Indonesia and Japan, and Korea, Australia and New Zealand, are particular examples of a widespread phenomenon. If these are to make unambiguously positive contributions to mitigation of climate change, it is essential that they apply international standards of measurement, verification and reporting.

The Copenhagen and Cancun meetings of the UNFCCC resulted in the formal recognition of 'NAMAs' (Nationally Appropriate Mitigation Actions). These could, in principle, allow developing countries to earn credits from implementing NAMAs or over-performing against NAMAs. The Green Climate Fund was adopted during the 16th Conference of the Parties (COP) in Cancun, and may serve as an instrument for distributing funds to support NAMAs and policy-based mitigation in developing countries. The international community has also envisaged the possibility of CDM offsets being generated from large sectoral mitigation programmes, including in relation to forestry and other changes in land use. In Durban, Parties agreed to define a new market-based mechanism, to operate under the guidance and authority of the COP.

There are advantages to the short-term proliferation of bilateral and plurilateral markets. They may be more politically acceptable for early steps than a global market. They may create momentum, and familiarity with market mechanisms. They have the potential for productive innovation in market design. Bilateral and plurilateral relationships amongst countries with strong established links—members of a single region, or countries with unusually strong historical and cultural ties—may be more comfortable loci for the transfers of financial support for mitigation, and for technical assistance in building the requirements of an effective market.

As noted, there is also a possibility of unproductive innovation; that the proliferation of trading mechanisms will undermine the mitigation effort through acceptance of credits with low quality. There is a possibility that the proliferation of international trading mechanisms could lead to a long period of differential carbon pricing across countries. Persistent price differentials would exacerbate tensions over what constitutes comparable mitigation efforts in developed countries, over comparable mitigation rewards in developing countries, and over incentives for `carbon leakage.' It would be dangerous if new markets established by bilateral or plurilateral agreements were to create their own units and accounting standards.

9. Credits for avoided emissions and mitigation post 2020

9.1 Mechanisms to support trade in offset credits and entitlements

A robust global market for carbon entitlements and avoided emissions credits will reduce the costs of mitigation and nurture larger mitigation ambitions. Economic principles suggest that credible

standards, a common unit, sound accounting, and broad coverage are critical to the success of the carbon market.

The maintenance of standards requires the establishment of a global body or bodies with responsibility for certifying emissions and sequestration. I suggest that the global mitigation effort be built around two main institutional arrangements to ensure good governance.

The chances of working towards a single integrated system will be greater the more we can build on established mechanisms for monitoring, reporting and verification. There is a case for retaining the expertise and processes developed under the Kyoto mechanisms. However, the governance mechanisms for global trade in emissions credits need to outlast the second Kyoto period and to reflect the changing global context. In particular, these mechanisms need to be decoupled from the Kyoto Protocol and its conceptual framework.

The CDM has provided the blueprint and platform for the majority of carbon credits issued. The CDM has dominated the global market for emissions reductions credits, and competing carbon offset standards are "heavily influenced" by the CDM's rules, processes and actors (Manuel Estrada et al, 2008). CERs are now well-established as a carbon-market unit. The expertise and processes established under the CDM can play an important role in the creation and maintenance of carbon market credibility and consistency in relation to all offset programmes' accounting, market standards, and fungibility. The insurance provided by an internationally recognised entity is of large value when investors are otherwise exposed to sovereign risk. It is desirable that the current CDM governance mechanisms be succeeded by the Offset Standards Mechanism, which can carry the responsibility for certifying emissions and sequestration for international offset programmes within bilateral, plurilateral and multilateral trading systems.

The Offset Standards Mechanism will need to develop standards that encompass the development of (for example) NAMAS and other sectoral mitigation programmes. In particular, the OSM will need to develop standards and reporting and verification mechanisms for forestry and other land use change-connected projects and programmes. Failure to respond to the emerging suite of global instruments will increase the likelihood that countries and/or trading partners develop their own standards. As the safeguard of MRV standards, the day-to-day role of the OSM will differ from that of the CDM. While the CDM involves project-by-project scrutiny and administration, the OSM will retain this capacity but will emphasise the development of standards, processes and procedures. The OSM will – like the CDM EB – formally issue credits. The OSM therefore retains the benefit of third-party, arms-length credibility in cases where sovereign risk is a concern. The OSM will serve as a project auditor, evaluating projects against its own standards and MRV procedures. At the request of participating countries, the OSM will - as per the CDM EB - be responsible for the accreditation of each individual project. This approach is designed to facilitate the trade in credits, while protecting environmental integrity and minimising bureaucracy. The OSM will need to enforce its role as auditor and protector of standards through recourse to penalties.

The JI and International Emissions Trading mechanisms each contribute concepts that have important roles in the post-2012 global mitigation effort. JI has created a framework for purchasing credits for avoided emissions within national targets, while IET allows trade in entitlements between countries with targets. As countries gradually take on objective targets - as provided for in the agreed Durban Platform - it is useful to consider a mechanism that accommodates and oversees the interaction of these two types of transaction. We refer to this institution as a "National Standards Mechanism" (NSM), and it draws on features of the existing JI and captures the objectives of IET. As with the OSM, the National Standards Mechanism would ideally sit under the UNFCCC, be internationally recognized and be decoupled from the Kyoto Protocol.

The proposal outlined in this paper is an adaptation of recent suggestions by the JISC that its certification procedures be merged with those of the CDM. While existing JI and CDM processes vary – ERUs are generated within the safety of a national target, and the CDM explicitly acknowledges the importance of sustainable development – there is much in common, and it is worth

capitalizing on this. It is proposed that the OSM becomes the locus of certification of all offsets credits that enter international trade, and that the NSM becomes the locus for the international accounting required to support trade in entitlements and credits. This role includes the adjustment of voluntary targets to take account of trade in offsets. I suggest that administrative functions – offset certification and national accounting – are separated between the OSM and the NSM to reflect conceptual differences.

The UNFCCC maintains the International Transactions Log (ITL) to track the trade of Kyoto units: "The secretariat shall establish and maintain an international transaction log to verify the validity of transactions, including issuance, transfer and acquisition between registries, cancellation and retirement of ERUs, CERs, AAUs and RMUs and the carry-over of ERUs, CERs and AAUs" (13/CMP.1, Annex, paragraph 38). An equivalent to the ITL - formally decoupled from the Kyoto Protocol - is critical under all possible variations on the international mitigation regime. Under the proposal presented here, the ITL would conceptually and practically support the National Standards Mechanism.

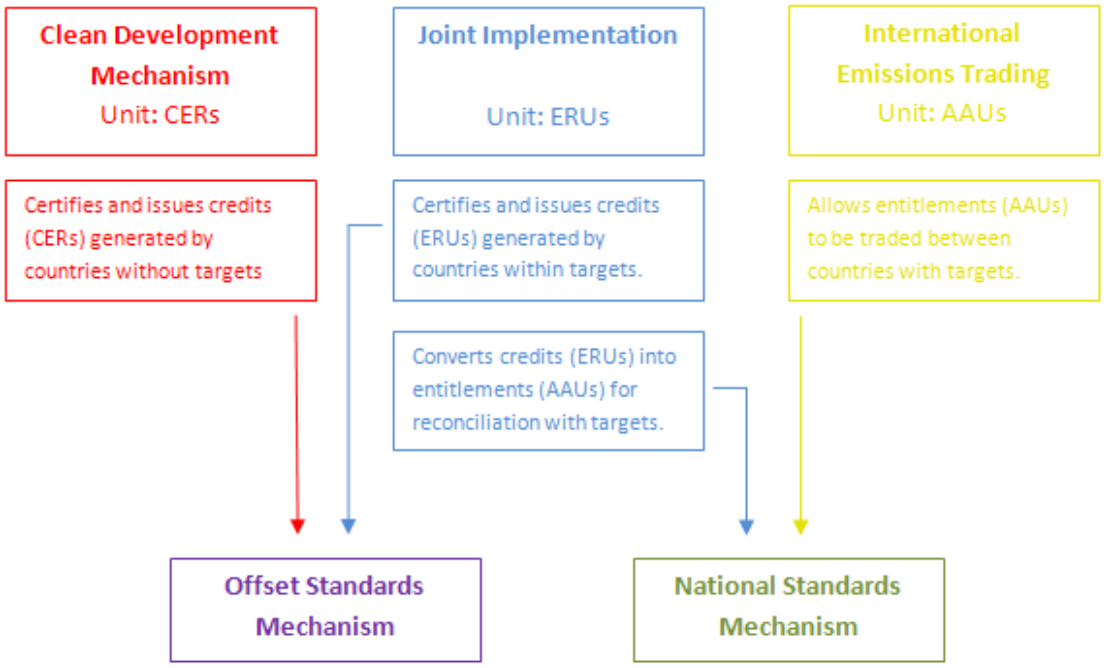

Diagram 1: Mechanisms to support trade in offset credits and entitlements

9.2 Offset credits and mitigation

The CDM has played a useful role in introducing mitigation practices into developing countries. The OSM can continue to play this role for some time yet in least developed countries, where the volume of credits that is generated is small compared to mitigation responsibilities for countries with targets that accept OSM credits. The mechanisms introduced in this paper can also underwrite a continuing role for the OSM in developing countries that are not least developed, if it is integrated into the use and meeting of targets in developing countries beyond the least developed. I suggest that all developing countries be allowed to sell offset credits under the auspices of the transformed OSM under conditions designed to preserve the integrity of the contribution to global mitigation.

The first condition is that substantial developing countries wishing to participate in sale of OSM credits should be meeting their targets. The targets would be voluntary, and for developing countries one-sided (that is, failure to meet targets would not generate penalties); but failure to meet the targets would deny the country access to OSM markets. It is proposed that participation also be conditional on countries complying with any penalties levied for failure to meet OSM standards.

The second condition is that there would be no double counting of emissions credits. If enterprises operating within one project sold credits for a project or programme through OSM mechanisms, the country would have to count the credits back into its emissions targets. The presence of targets will allow international trade through the National Standards Mechanisms, housed under the UNFCCC. The exclusion of double counting means that any failure of complete additionality would reduce the host country's opportunities for sale of entitlements under the National Standards Mechanism. The host Government would therefore be required to certify the eligibility of various classes of project to preserve the country's overall interests in the trade of carbon credits and entitlements. This requirement would serve as another test of additionality, alongside that of the OSM mechanism itself.

For least developed countries, the OSM would operate much as at present. Over time, the international community may come to require mitigation effort within the capabilities and circumstances of the least developed country as a condition of sales of OSM credits. For least developed countries, trade could be conditional on significant mitigation steps being taken, expressed through NAMAs.

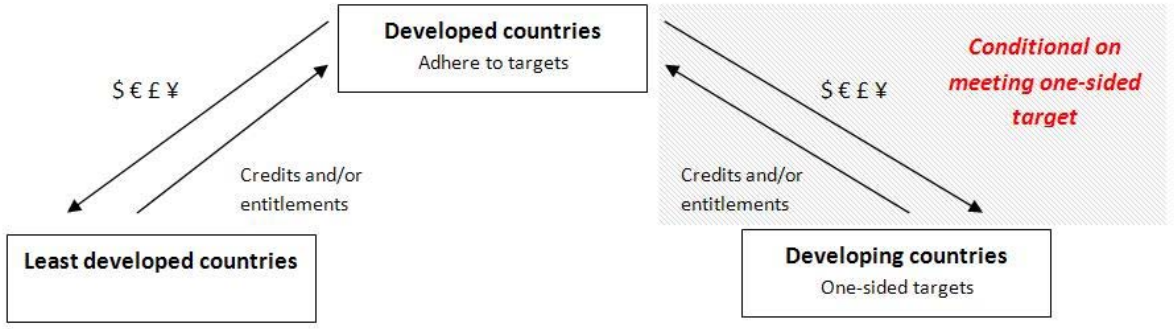

Diagram 2: Interaction between countries under proposed mechanism

There would need to be a clear mechanism for transition from developing to developed country status. For the purposes of an international mitigation regime, one suitable rule would be that the transition should occur when per capita emissions in the developing country exceed the average of developed countries.

Developing nations that meet their targets will still receive benefits from access to the international climate change financing mechanisms as well as access to the OSM. Their targets will be non-binding, with no obligation to purchase emissions to correct any excess emissions, although failure to meet the targets would lead to exclusion from international carbon trade opportunities.

There may be some objection in principle to conditional access to an offsets mechanism. This makes it unlikely that conditional access to the OSM would be agreed with the required unanimity in a Conference of the Parties within the Framework Convention on Climate Change. In practice, however, conditional access for developing countries – other than the least developed – does not diminish their opportunities relative to the de facto reality after 1 January 2013. The European Union's narrowing of access to offset credits to least developed countries is likely to become the common practice, given that region's influence in global trade in avoided emissions. Governments will introduce their own conditions on the credits that they will accept for acquittal of emission reduction obligations. The proposal outlined here expands opportunities for developing countries which do not fall into the least developed category. It creates an avenue for all developing countries to generate offset credits, within a framework that ensures that use of offset mechanisms contributes positively to the global mitigation objectives.

Developed countries will need to adhere to targets, with an obligation to purchase credits to offset any excess emissions. But in the nature of things, the bindings are unenforceable for the foreseeable

future, so that international peer pressure and domestic political pressure will be the main instruments for securing compliance.

The NSM needs to document the sale and purchase of offset credits. These credits can be generated by least developed countries, developing countries that meet their one-sided, voluntary targets, and developed countries. The credits can be purchased by developed countries. The NSM would also oversee the sale and purchase of entitlements. Entitlements are generated in developed countries and in developing countries that adhere to one-sided targets. Administrative rules for averaging over time would need to be established for developing countries which are selling excess entitlements.

In addition to its administrative and procedural roles, the National Standards Mechanism can also provide support for countries as they take on one-sided targets. Countries vary in their administrative and technological capacity, and capacity constraints may hinder a country's ability to meet international measurement and reporting standards. Where requested, the NSM can provide technical assistance to facilitate a country's administration of targets and in particular to ensure that national accounts are credible.

All transactions are therefore based either on offsets, or trade against targets. Offsets encompass objectively measured and certified avoided emissions generated under NAMAs, sectoral programs, projects, and programs of activities. These credits are certified by the OSM.

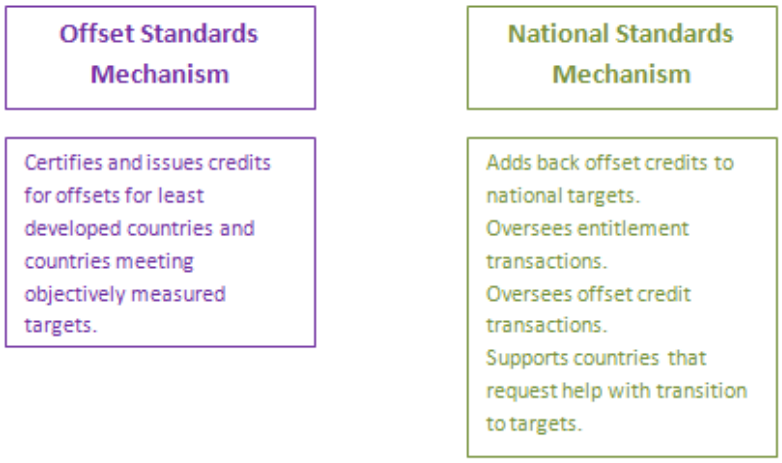

Diagram 3: Mechanisms and their functions

In this world, mitigation goals are met through the use of targets. Least-cost reduction is achieved through:

- An Offset Standards Mechanism: to preserve private market incentives and to preserve the positive externalities that flow from private international participation in the mitigation process.

- Trade in emissions entitlements and offset credits between countries, supervised by a National Standards Mechanism.

- Green Fund and other international financing mechanisms: to address credit-market failures that inhibit economically efficient investment in activities which reduce emissions.

The Offset Standards Mechanism will ideally be an expansion on the CDM we recognise today, broadened to certify REDD, sectoral and policy programs.

For countries that use domestic or multilateral emissions trading schemes to achieve their mitigation targets, private sector trade in credits can be the main vehicle for international trade. Where governments choose to meet their national targets through regulation and other forms of direct action rather than an ETS, this does not preclude the prospect of trade in entitlements or purchase of credits

in the nature of offsets. A government might purchase excess entitlements or avoided emission credits to meet its national targets, through an "official window". Private sector investors and intermediaries can deal directly with governments. Indeed, national governments have purchased CERs since the introduction of the CDM. Alternatively, Governments can trade directly with each other in entitlements.

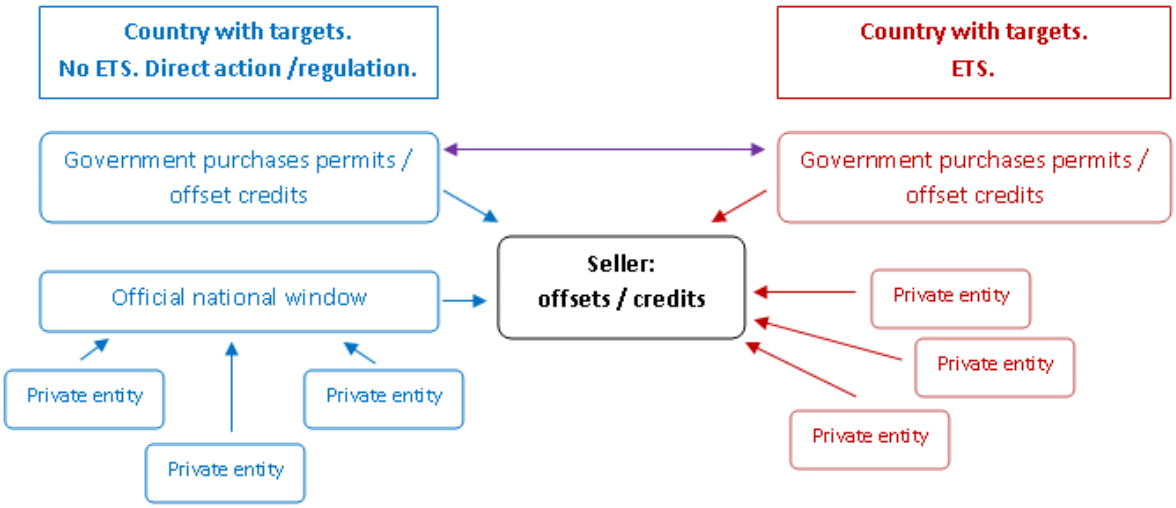

Diagram 4: Transactions under different national mitigation schemes

9.3 Offset credits and environmental integrity

The CDM has often been criticised on the grounds that offsets might not satisfy the 'additionality' requirement, such that the number of credits generated by a project may overstate the true volume of emissions avoided. Establishing additionality is hardest when it depends on measures of financial additionality, where strict application of the term requires examination of the mind of the investor. In practice, and appropriately, rules of thumb have been developed to reduce uncertainty and increase objectivity, inevitably at some cost to accuracy in particular cases.

Projects that generate offset credits within the national targets, as proposed in this paper, will be the subject of scrutiny by the host Government, as any failure of to satisfy additionality will subtract from the country's potential for sales of emissions entitlements. Moreover, appropriate national targets ensure that any failure of additionality results in a reallocation of emissions rather than a net increase in emissions. While it is important to maintain market credibility and to certify these offsets (as per the Track-2 process under the current JI), operation within targets greatly reduces the dangers and difficulties of additionality associated with offsets.

Of course, the notion of international trade in credits and entitlements is a nonsense unless the targets are set appropriately. This paper does not dwell on the question of targets. The discussion operates on the premise that targets will be appropriate relative to a country's "business as usual" emissions. This is not an unreasonable assumption: many of the large developing countries have already made domestic commitments to meaningful emissions intensity targets. International review of targets and peer pressure as well as domestic political pressure will lead to adjustments over time. Ultimately, the success of the global mitigation effort will depend on the extent of these adjustments.

In recognition of the one-sided nature of developing country targets, and the exclusion of least developed countries from target requirements, the sum of appropriate emissions entitlements will have to be less than the sum consistent with a trajectory of emissions declines that is consistent with the 2 degrees objective. Alternatively, and better in principle although drawing more heavily on the scarce resource of international capacity to forge agreements between States, the purchase of avoided emissions credits from least developed countries could be funded out of a Mitigation Credits Fund

established for this purpose. Developed countries' contributions to a Mitigation Credits Fund would be credited against their obligations to contribute to climate change funding for developing countries.

10. Forestry and land-use change in global mitigation

There is a major gap in the current global mitigation effort, which will need to be filled in order to build an environmentally and economically efficient approach to global mitigation.

Changes in land use including deforestation and forest degradation account for nearly 20 percent of global emissions. Substantial reduction of emissions in forestry can be achieved at relatively low cost, and there can be substantial external benefits from conservation. This has been recognised in successive meetings of the United Nations Framework Convention on Climate Change, and considerable effort is now being invested in developing cost-effective mechanisms for measuring and verifying avoided emissions in this sector. In addition, changes in management practices in relation to soils, pastures and woodlands have considerable sequestration potential, which have been recognised in new emissions trading arrangements in Australia and California.

To delay unnecessarily incentives for sequestration of carbon through changes in forest management and other land use is to forego exceptional opportunity to reduce global emissions at low cost.

The principles for accounting for most emissions and avoided emissions in activities related to changes in land use are now well established. More work needs to be done on practical matters of measurement of and accounting for emissions and emissions reduction from land use, land use change and forestry (LULUCF). It is necessary to develop mechanisms for country-wide measurement of emissions from LULUFC. It will be necessary to develop rules of thumb and low-cost mechanisms for measurement on a nation-wide basis. The principles to be applied are analogous to those already applied in CDM projects, so that the CDM governance mechanisms are well placed to develop the required measurement mechanisms and rules of thumb. There are some additional challenges related to assessment of additionality in this sector, for example related to the permanence of emissions avoidance, but these are issues of practice rather than principle.

The international community agreed in Durban on the importance of providing incentives for Reducing Deforestation and Forest Degradation Plus (REDD). A few developed countries are providing funding for REDD under bilateral assistance programmes, and the international agencies are administering programmes of modest dimension. Full utilisation of the mitigation opportunity would require the transfer of resources on a scale that is unlikely to be provided outside the frameworks of trade in emissions entitlements and offsets.

The coverage of REDD and other land use change mitigation within the OSM requires questions to be answered on standards, measurement, reporting and verification. It requires the successful completion of highly technical exercises in establishing baselines for emissions from land use change under business as usual. It requires the development of insurance mechanisms to manage risk to permanence of forest conservation. The intimate relationship between forest and land use and living standards and ways of life in traditional communities requires sensitive assessment of complex issues of sustainability including those related to biodiversity. There are particularly difficult questions about additionality, deriving from the ease with which one land use change can be substituted by another in the same region. Answers are being developed for these questions in national carbon pricing arrangements and bilateral agreements covering forest management.

The additionality challenge argues for providing incentives for forest conservation and other sequestration through land use change on a sectoral basis within a region or a country rather than on a project basis. Inclusion of REDD and other land use change mitigation within OSM arrangements would be best undertaken on such a broad basis. This, however, makes large demands on administrative capacity, and will be feasible only in a few countries for the time being. In most developing countries, it is unlikely to be feasible over a relevant time frame without high quality external technical assistance. In all developing countries, inclusion of land use-related emissions

avoidance and REDD in international trade in emissions entitlements and offsets would require substantial investment in administrative structures. For many developing countries, the required assistance is most likely to be forthcoming in the context of bilateral, plurilateral and multilateral agreements for cooperation on mitigation of and adaptation to climate change.

The potential for large reductions in emissions at relatively low cost is sometimes put forward as a reason for delaying or avoiding application of a single carbon price to REDD+ and to land use change more generally. The worry is that the potential for large credits to be brought onto markets quickly and at low cost would depress carbon prices generally and reduce incentives to reduce emissions in other activities.

This would not be even a possible concern if the sum of the national targets were an adequate reflection of the global mitigation requirements. Concern should be focussed on the inadequacy of the targets, rather than the opportunities for obtaining credits for avoidance of emissions at low cost from changes in forest management and land use practices. In a transition period leading up to the adoption of adequate emissions reductions targets, there is a case for at least part of the funding of incentives for avoiding emissions from land use to come from separately budgeted programs rather than through trade in emissions entitlements or offsets.

In a world of targets calibrated to achieve the mitigation objective, the potential for low-cost reduction of emissions from changes in land use provides a large opportunity to reduce the costs of achieving an ambitious mitigation outcome. This would make the achievement of the global emissions reduction goals more likely.

Judgement will need to be exercised on the appropriate time for full acceptance of land use-related emissions avoidance credits into the international trading system. The judgement should be guided mainly by the development of effective measurement, reporting and verification systems. Pending general absorption of land use-related credits into the trading mechanisms, the necessary institutional development can be promoted by national and international funds that are established to purchase LULUCF credits from developing countries.

In the longer term it will be possible to formalise national baselines for emissions reductions from changes in forest management and land use. These can be aggregated with other emissions, and used to develop national mitigation targets. The National Standards Mechanism can then become the platform that supports the trade in emissions credits related to land use change as well as for other emissions. There will still be a case to retain a role for REDD and LULUCF sectoral programmes—rather more so than for other emissions, because of the complexities of additionality and sustainable community development.

Incentives for avoiding emissions and for sequestration in the land-use sector could make a major contribution to sustainable development in rural communities. This co-benefit for sustainable development is discussed below in Section 11.

11. The Offset Standards Mechanism and sustainable development

What role can the OSM have in facilitating sustainable development, while making the most of its potential contribution to reducing the costs of mitigation?

The CDM contributes substantially to sustainable development in two ways. First, most activities funded by the CDM contribute directly to sustainable development. More fundamentally, to the extent that the CDM contributes to the global effort to reduce the costs of climate change, it reduces a major risk to sustainable development.

There are three ways in which the OSM's contribution to sustainable development could be increased relative to the CDM: improvement in domestic policy and implementation, with international support when this is requested; measures to expand access of least developed countries to the OSM; and systematic support for expanding sustainable development co-benefits of OSM activities. These

measures will not weaken without good cause the OSM's contribution to the mitigation effort or infringe on the sovereign prerogatives of developing countries.

On the first of these ways, greater care could be taken in domestic policy and development implementing agencies to ensure that OSM projects do not introduce unsustainable changes, for example associated with loss of biodiversity, or unproductive disruption of established village patterns of agriculture and life. Some stakeholders advocate increased oversight by the CDM EB as a means of strengthening the CDM's sustainability credentials. This suggestion often arises in response to the failure of some governments to protect vulnerable traditional communities and biodiversity. These issues are likely to arise as a by-product of weak domestic governance including inadequate consultation with affected communities. Tighter regulation of the OSM regarding sustainable development has the potential to choke the CDM's administrative processes, will be politically vexatious, and will slow the flow of funding and knowledge transfer to least developed countries.

Many of the tensions between market-oriented economic activity and sustainable development are present whether or not the CDM is the source of the market opportunity. Any domestic mitigation efforts will encounter these problems, whether or not they are funded through the CDM. These problems are best dealt with through specialist programmes designed to deal with the underlying problems, rather than by applying additional constraints on the CDM. The specialist programmes can be developed locally, or, at the request of the host Government, with the assistance of an international development agency with capacity to do this well.

The second way in which the objective of sustainable development could be strengthened would be to focus investors' attention on those countries that would benefit most from technological transfer, skill development and institution building. This strengthens the case to limit unconditional OSM participation to the least developed countries. It happens that there is an established trend towards offsets with larger development benefits: the shift of focus from individual projects to sectoral and policy-connected activities involving many projects are more readily accessible in least developed countries. The European Union's limitation of access for new projects registered after the beginning of 2012 will further push the focus of the OSM in that direction.

The third way in which the CDM's contribution to sustainable development can be enhanced is through explicit recognition of the value of co-benefits with positive contributions to sustainable programmes, and through facilitation of investment in those activities. The first step would be the identification of activities which make substantial contributions to emissions avoidance and have large co-benefits for sustainable development beyond the general benefits provided by most CDM projects.

Without excluding the possibility of other areas of focus, there is merit in recognising the potential of three categories of avoided emissions with co-benefits for sustainable development: land use change and rural development; energy security; and household activities which reduce emissions of black carbon.

For each focus area, two steps would be taken to encourage activities qualifying for OSM credits.

First, the OSM would put special effort into simplifying administration, reducing transactions costs and bringing OSM opportunities to the attention of potential users.

Second, the OSM could invite other agencies to develop complementary funding mechanisms that increased financial support for avoided emissions credits which also generate sustainable development co-benefits. The OSM would facilitate integration of the support from carbon credits with support from the other mechanisms.

In this context, a Land Use Change and Rural Development Fund would provide technical assistance and funding support for rural development projects. Mechanisms would be developed to measure co-

benefits in such forms as encouragement of biodiversity, improved agricultural productivity and soil conservation. The natural locus for management of the Fund might be the World Bank.

An Energy Security Fund would provide technical assistance and funding support for national programmes to increase energy efficiency or expand availability of low emissions energy. Here the co-benefits would include increased energy security for all countries through reduced pressure on stressed global energy markets. The value of this contribution to energy security would increase as the strengthening of the global mitigation effort forced some high-emissions sources of energy out of the global market.

The co-benefits of reducing black carbon emissions would be especially large in relation to human health. The natural locus of a Black Carbon Fund would be international agency with health and development interests and responsibilities.

12. Transition 2012-2020

How do we move from where we are to the proposed system of international trade in credits for 2020? The transition must be evolutionary. Here I will do no more than sketch a possible evolutionary path that would get the world to where it needs to be in 2020.

A first task is to respond to the immediate CDM crisis, and therefore to the oversupply of credits. One possibility would be to use international financial resources to buy CERs. This could be an additional responsibility of the Mitigation Credits Fund introduced in Section 9, alongside the purchase of avoided emissions credits generated in least developed countries. The OSM would have some discretion on timing of purchases, allowing some consideration of price stability. Fewer credits would be purchased from a given amount of funding to the extent that prices rose in the process of repurchasing them. Credits purchased through the Fund would be cancelled and so excluded from the system of international trade.

Donations to such a fund would contribute to developed countries' commitments to international mitigation financing. While the problem of excess supply of credits is being experienced in the markets of developed countries with emissions trading systems, contributions should not be drawn only from these countries.

The prospective over-supply of credits is of a dimension that makes it unlikely that the Mitigation Credits Fund would be large enough to remove the overhang. Fund purchases will need to be complemented by a concerted tightening of targets in developed countries. This is the direction of change that is necessary to keep alive the prospects of achieving the international mitigation objectives. It would be helpful to the negotiations scheduled to be completed in 2015 as well as to correcting the overhang of credits if developed countries were able to take early steps on tightening targets.

It is necessary to plan for transition within existing international expectations and agreements. The acceptance of national targets is being managed within the architecture of the Durban Platform. The Platform aims for the 2015 agreement on an instrument that commits all countries to reduce emissions, achieved via an instrument to be introduced by 2020. It is reasonable to use this transition period to build the infrastructure that allows trade to minimise the costs of meeting these targets. The period 2013-2020 will be associated with a 'bottom-up' framework of voluntary commitments. It will probably be characterised by market development and fragmentation. 2020 is a natural end point for the consolidation of these markets.

It is desirable that as many countries as possible declare their willingness to participate in international trade in entitlements and credits as early as possible in the transition period 2012-2020.

Participation requires developed countries voluntarily to accept that they will acquit any excess of emissions over targets by purchase of international credits. For countries with emissions trading

systems, full participation in international trade will continue as a normal part of the mitigation policy system.

Participation requires developing countries to accept a serious commitment to reach one-sided targets. For developing countries other than the least developed, registration of new OSM projects should depend on registration of targets with the UNFCCC, and verification that those targets are being met by the National Standards Mechanism. Developing countries that meet their voluntary targets can also sell excess credits as certified by the National Standards Mechanism. These offsets and credits can be purchased by developed countries whose domestic emissions exceeded their own targets.

The National Standards Mechanism therefore must be established as a matter of urgency. Registration of new targets also requires the early establishment domestically of international standards of measurement, reporting and verification. The establishment of international MRV standards will be the main early constraint to participation of many developing countries in trade in entitlements. Bilateral and plurilateral agreements involving technical assistance can play an important role in early establishment of these standards, complementing support provided by the NSM.

For Least Developed Countries, trade after 2012 can proceed as before, with expanding scope in line with the OSM.

The proposal outlined in this paper requires that the JI and the CDM be transformed into the NSM and the OSM. It is important to retain staff with the knowledge and expertise accumulated under the JI and the CDM. A careful transition will be critical, and the planning for this process should begin immediately.

The OSM should immediately be given the role of defining the standard for all offsets entering international trade, whether through bilateral, plurilateral or multilateral arrangements, and including creation of offsets previously supervised by the CDM and under the Joint Implementation arrangements. The OSM can carry the load of CER issuance as soon as possible after the start of 2013, while progressively developing standards that encompass a wider range of forestry and land use change credits, broadening the focus from projects to regional and national sectors, and developing methodologies to encompass a wider range of abatement opportunities.

Countries trading in avoided emissions credits are, of course, free to vary the standard, but all should be encouraged to adopt the international standard. One useful step in encouragement would be a conference of senior officers of the OSM with representatives of countries and regions preparing to introduce either emissions trading schemes or purchases of avoided emissions, to discuss methodologies and the advantages of using common standards.

All member countries of the UNFCCC would be encouraged to enter bilateral and plurilateral trading arrangements that supported deeper cooperation in emissions reductions and adaptation to climate change, and trade in emissions credits. Special encouragement would be given to arrangements which included both developed and developing countries, with the developed countries providing technical assistance for administering emissions measurement and verification as well as providing financial and technical support for mitigation activities. All bilateral and plurilateral trading arrangements would be required to leave members free to sell and buy credits in markets outside the trading arrangement should they find it advantageous to do so.

The remaining foundation stone for a satisfactory evolutionary process is the continuing adjustment of national targets more realistically to reflect the scale of the mitigation challenge. A great deal of discussion is required before the international community has settled upon even a notional allocation of emissions targets amongst countries that goes anywhere near meeting the requirements of the international climate change mitigation objective. I have published thoughts on international allocation of responsibilities elsewhere, and will add to them in other places and at other times. For the moment, it is enough to note that a considerable tightening of national voluntary targets is necessary if we are to see the emergence of a global carbon price that goes anywhere near

encouraging the required level of mitigation; and that a sound system of international trade in credits will encourage greater ambition in setting targets.

The CDM requires reform and over time transformation, along the lines discussed in this paper and more comprehensively elsewhere in the work of the CDM Panel, and this should be taken forward on the earliest possible timetable. The reforms should be absorbed into rules for all trade in offsets as they are implemented in the Offset Standards Mechanism.

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