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The Clean Development Mechanism and Emerging Offset Schemes: Options for Reconciliation?

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The Clean Development Mechanism and Emerging Offset Schemes: Options for Reconciliation?

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Abstract

During the first Kyoto commitment period, the Clean Development Mechanism (CDM) emerged to be a global standard for the global carbon market. Linking developing and industrialized countries in an international cooperation mechanism, it provided a governance and accounting framework for emission reduction efforts around the world. Not without its own problems, and now suffering from a severe lack of market demand, the mechanism has been subject to substantial criticism from various stakeholders and has made great reform efforts in response. This report shows that, despite these reform efforts, potential sources of new demand such as emerging emissions trading systems have distanced themselves from the European approach of supporting the mechanism through use of its credits as offsets in its trading system. Australia had planned to accept CDM credits, but not exclusively, and distanced itself from the CDM model in the development of its own domestic offset system. California originally considered but ultimately rejected the CDM, instead also electing to launch its own offset system concentrating on North America. Japan, which had been the second largest source of demand for Kyoto units after Europe, has elected to start its own bilateral system, explicitly departing from the multilateral approach. South Korea has made it clear it will not accept international offsets into its system until at least 2020. Despite efforts made to reform the CDM, as its market fades, the international climate regime stands to lose the benefits of the CDM including its input role vis-à-vis the design of new offset policies. This report examines the political context and reasoning of these sources of potential demand to depart from the established system and offers suggestions for further reforms or measures to take to preserve some of the benefits of the erstwhile framework.

Kurzbeschreibung

Der Clean Development Mechanism (CDM) hat sich während der ersten Verpflichtungsperiode des Kyoto Protokolls als globaler Offset-Standard des globalen Kohlenstoffmarktes etabliert. Der CDM verknüpft industrialisierte und sich entwickelnde Staaten in einem internationalen Kooperationsmechanismus und bildet somit einen Referenzrahmen für Governance und Verantwortlichkeiten für globale Minderungsaktivitäten. Hierbei mussten verschiedene Schwierigkeiten überwunden werden, nicht zuletzt die gegenwärtig fehlende Marktnachfrage auf dem Kohlenstoffmarkt. Der substantiellen Kritik am CDM wurden mit verschiedenen Reformbemühungen begegnet, die aber nicht dazu geführt haben, dass dieser im Mittelpunkt des Interesses außerhalb von Europa entstehender Emissionshandelssysteme steht, die für zusätzliche Nachfrage auf dem globalen Kohlenstoffmarkt sorgen könnten. Wie die vorliegende Studie zeigt, beabsichtigen entsprechende Systeme in Australien, Kalifornien oder Japan nicht in gleicher Weise wie das EU Emissionshandelssystem Emissionsgutschriften, die durch den CDM erzielt wurden, als Offsets anzuerkennen. So plant Australien bislang CDM als lediglich eine Quelle von mehreren zu nutzen und hat sich auch bei der Entwicklung des eigenen nationalen Offset-Ansatzes vom CDM distanziert. Kalifornien hat zunächst die Nutzung des CDM erwogen, dann aber ausgeschlossen. Stattdessen wird ein eigenes auf Nordamerika fokussiertes Offset-System vorangetrieben. Japan, als zweitgrößter globaler Nachfrager, hat ebenso beschlossen ein eigenes, bilaterales, System zu installieren und sich somit explizit vom multilateralen Ansatz abzusetzen. Als Folge dieser Entwicklung droht die internationale Klimapolitik die Vorteile des bestehenden multilateralen CDM-Rahmens zu verlieren, obwohl gezeigt werden kann, dass dieser im Rahmen seines Reformprozesses verschiedene Kritikpunkte bereits berücksichtigt hat und neue Ansätze auch verschiedene Elemente des CDM in ihrem Design berücksichtigt haben. Dieser Bericht analysiert die politischen Kontexte von ausgewählten Offset-Ansätzen und die Beweggründe, nicht den etablierten CDM-Rahmen zu

nutzen. Auf dieser Grundlage werden Vorschläge entwickelt, in welcher Weise weitere Reformbemühungen dazu beitragen können, einige der Vorteile des CDM-Rahmens auch in Zukunft für die Weiterentwicklung von Offset-Politiken nutzbar zu machen.

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List of Abbreviations

AWG-LCA	Ad Hoc Working Group on Long-term Cooperative Action
AAU	Assigned Amount Unit
ALP	Australian Labor Party
BAU	Business as Usual
BOCM	Bilateral Offset Credit Mechanism (Japanese)
CalEPA	California Environmental Protection Agency
CAR	Climate Action Reserve
CARB	California Air Resources Board
CCA	California Compliance Allowance
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction (from CDM)
CFI	Australian Carbon Farming Initiative
COP	Conference of the Parties
DBJ	Development Bank of Japan
DECC	Australian Department of Climate Change and Energy Efficiency (until March 2013)
DOE	Designated Operational Entities
ERU	Emissions Reduction Unit (from JI)
ETS	Emissions Trading System
EU	European Union
EUA	European Union Allowance
EU ETS	European Union Emissions Trading System
FSF	Fast Start Finance
GCF	Governor's Climate and Forests Task Force (California)
GDP	Gross Domestic Product
GEC	Global Environment Centre Foundation
GIS	Green Investment Scheme
HFC	Hydrofluorocarbons
IEEJ	Institute of Energy Economics, Japan
IGES	Institute for Global Environmental Strategies
ISO	International Organization for Standardization
JBIC	Japan Bank for International Cooperation

JCM	Joint Crediting Mechanism
JCF	Japan Carbon Finance, Inc.
JI	Joint Implementation
JICA	Japan International Cooperation Agency
JISC	JI Supervisory Committee
J-VETS	Japan's Voluntary Emissions Trading Scheme
KEI	Korea Environment Institute
KEMCO	Korea Energy Management Corporation
lCER	Long-Term CER
LDC	Least Developed Countries
L/NP	Liberal National Party, Australia
LULUCF	Land Use, Land Use Change and Forestry
METI	Ministry of Economics, Trade and Industry, Japan
MoE (J)	Ministry of the Environment, Japan
MoE (K)	Ministry of Environment, South Korea
MoFA	Ministry of Foreign Affairs, Japan
MKE	Ministry of Knowledge Economy, South Korea
MRV	Monitoring Reporting and Verification
NAMA	Nationally Appropriate Mitigation Action
NEDO	New Energy and Industrial Technology Development Organization
NEXI	Nippon Export and Investment Insurance (NEXI)
NZ ETS	New Zealand Emissions Trading System
OECC	Overseas Environmental Cooperation Center
PCGG	Presidential Committee on Green Growth
PG&E	Pacific Gas & Electric (California)
REDD	Reducing Emissions from Deforestation and Forest Degradation
RGGI	Regional Greenhouse Gas Initiative
RMU	Removal Units
SBSTA	Subsidiary Body for Scientific and Technological Advice
tCER	Temporary CER
TEPCO	Tokyo Electric Power Company
TMS	Target Management Scheme, South Korea
UCS	Union of Concerned Scientists
UNFCCC	United Nations Framework Convention on Climate Change
WCI	Western Climate Initiative

1 Summary

The global carbon market has undergone increased fragmentation in the past few years as several jurisdictions develop new alternative mechanisms, departing from the erstwhile standard of the Clean Development Mechanisms (CDM). This fragmentation may result in problems of environmental integrity and economic efficiency, but also risks undermining other accomplishments made in the multilateral system. Experts, like the High-Level Panel on the CDM Policy Dialogue, advocate that the CDM should continue to provide the "glue" for the international carbon market by working with emerging systems and trying to harmonise approaches for market-based climate finance.

This report aims at contributing to the reform discussion regarding the necessary steps to build a sustainable international carbon market. To this end, adelphi and the Wuppertal Institute have analysed positions regarding the CDM in Australia, California, Japan, and South Korea and their respective expectations for an offset instrument as reflected in and the decisions they have made in establishing their own systems. The analysis is based on inputs from national experts. The findings were discussed at the 7th CDM Roundtable, a workshop hosted by German Federal Environment Agency in June 2013, and a side event at SBSTA 38 in Bonn. This report summarises the results of the research and discussions.

Background of the report

During the first Kyoto commitment period, the (CDM) emerged to be the global currency for emissions trading. This demonstrated an important accomplishment as it linked developing and industrialised countries' emission reduction efforts, provided a governance and accounting framework to assess the environmental integrity of offset projects, defined a standardised unit to bring to market, and gave both emitters and project developers a variety of options of how to contribute to low carbon development. Demand came primarily from the offsetting provisions in the European Union Emissions Trading System (EU ETS), from Japanese government and industry, from the New Zealand Emissions Trading System (NZ ETS), and to a smaller extent, voluntary markets. However, the CDM has not been without its critics, who have raised questions with regard to the additionality of projects, the mechanism's bureaucracy and transaction costs, and the majority of projects being concentrated in a few, primarily emerging economy countries. Efforts to reform the CDM are underway, but at the same time, the global carbon market faces a prospect of fragmentation as other domestic and international offset systems are developed by various jurisdictions. Prominent examples include the Australian Carbon Farming Initiative, the development of offset protocols for the emissions trading system being implemented in California and Quebec, Japan's Joint Crediting Mechanism and perhaps offset provisions in the planned South Korean ETS. The design of new offset systems can be construed as a reaction to the perceived failings of the CDM and an evaluation of their characteristics may therefore contribute to discussions on how to reconcile the CDM and other instruments in international carbon markets.

Recent developments in Australia

Developments in the offset politics in Australia are a prominent example of these trends. Though climate policy has changed radically with the 2013 elected conservative Australian government, the "Carbon Pricing Mechanism" (CPM) developed by the former Labor government was developed to include provisions not only for international offsets from CDM and the Joint Implementation (JI), but also from a domestic offsetting scheme called the Carbon Farming Initiative (CFI). While engaging with the multilateral framework, Australia also distanced itself with features of the CDM in the creating of its own system domestically. Though

the CFI has its own legislative basis independent of the government carbon pricing scheme, the initiative was expected to provide a supply of domestic, primarily land based offsets for demand created by the policy.

While international offsets are politically controversial in Australia and were mainly supported by the former Labor government, the Conservatives have continued support for the CFI despite their efforts to dismantle the CPM and its provisions for acceptance of the CDM, JI, and later European Union Allowances EUAs. In the design of the CFI, the Australian government explicitly distanced itself from using an ex-post project-by-project approach to additionality evaluation as used in the CDM criticizing it as time consuming and expensive to administer. Instead, Australia took an ex-ante approach to evaluation and developed its own "positive list" approach for entire categories of projects and presented this as more efficient, less subjective, and generally streamlined as it assessed the additionality of activities rather than of projects. Australia also rejected financial additionality tests, arguing that there may be other reasons that a project may be beneficial but still worthy of support because it may not be common practice. A "common practice test" was developed to measure additionality with a general threshold of 5% of a "relevant comparison group" such as "beef producers" or beef producers in a certain region. Though proposals for methodologies could come from anyone, at least in the early stages of the program, they came mainly from the government itself and were dependent on a publicly developed and funded information basis to determine common practice. This reduces transaction costs for project developers ex-post as they no longer need to demonstrate project additionality, enhancing regulatory and thus investment certainty, but which implies a front loading of costs on the public sector to develop the information basis for activities and their commonality.

Insights from California

California climate policy continues to be particularly ambitious. It started with more internationally engaging discussions in the early days of the Western Climate Initiative (a regional grouping of US States and Canadian Provinces working on emissions trading). However, the state has finally opted for a more limited, conservative approach especially in the area of offsets. This shift is associated with a change of gubernatorial administrations from Republican Arnold Schwarzenegger to Democrat Jerry Brown, a sceptical legislature, and a particularly active local California focused environmental community which has been particularly active with legal challenges to emissions trading and offset policy. Even during the Schwarzenegger Administration, the California Air Resources Board (CARB), the agency responsible for the implementation of emissions trading in California and therefore offsets intended to take a "wait and see approach to the CDM". Though California does not accept any international credits (aside from credits from Quebec after linking), there is a Californian preference for sectoral approaches internationally due to concerns about baseline accuracy and intra-sectoral leakage.

California criticizes the CDM for not having fostered significant policy changes in developing countries and notes questions about the sustainability and additionality of certain projects and project types. Instead, in developing its offset protocols, CARB used a "performance standard approach" noting the differences between the California protocols and the CDM where California relies on standardized assessments of additionality established by CARB through a public process and not relying on project-specific assessments done by project developers themselves. California currently has four offset protocols for livestock (methane from manure management), for ozone depleting substances projects, for urban forest projects, and for U.S. forest projects. A further protocol for mine methane is expected to be approved shortly. California draws on methodologies developed for the voluntary market and develops them

further for compliance, again using an ex-ante approach to categories of projects which front loads methodology development, transaction, and procedural costs. California similarly has provisions for land based offsets, sharing with Australia interest in land use and forestry, which has not played a significant role in the CDM market.

The offset landscape in Japan

Japan's energy and climate policy has been in a state of flux at least since the Tohoku Earthquake and Tsunami of March 2011. In spite of the highly carbon efficient economy, it was long expected that Japan would meet its Kyoto obligations only through relatively large scale Kyoto Unit acquisition. The country as a whole, including both the government and private firms, was an early large source of demand for AAUs; ERUs, and CERs before the EU ETS overtook its importance as a buyer. Despite legislative proposals for an emissions trading system and the implementation of a voluntary cap and trade system, a mandatory system has not emerged on the national level. Private firms have acquired Kyoto Units as part of an agreement to help achieve the national target between the Japan Business Federation (Keidanren) and the government.

Particularly critical of the CDM, Japan considers the CDM rules on additionality and MRV as excessively strict and complex, with insufficient consideration given to project operators and excessive lead times required by the CDM process. Further criticisms comprise the exclusion of nuclear power, the sectoral distribution of projects, the geographical distribution of projects, the lack of contribution to sustainable development, and the changes made to proposed methodologies during the approval process. Japan has advocated a fundamental shift from judging to checking, moving to a positive list approach, or where this is not possible increased use of default parameters. Japan has also been investing increasingly in the development of a Joint Crediting Mechanism (JCM) bilaterally outside of the multilateral system. It has Memorandums of Understanding with a number of countries including Mongolia, Bangladesh, Ethiopia, Kenya, the Maldives, Vietnam, Laos, and Costa Rica, which define how the program will operate in those countries. Borrowing heavily from CDM practices, Joint Committees made up of Japanese and host country representatives will: adopt rules and guidelines for the implementation of the JCM, approve methodologies, designate third party entities, register projects, and establish and maintain registries. Contrasting with the CDM project cycle, validation and verification can be conducted simultaneously by the same third party entity. Methodologies may be proposed by either of the two governments, by the Joint Committee itself, or by project participants. Third party entities rely on CDM and ISO accreditation.

South Korea's focus on domestic reduction

Though a non-Annex 1 country, with no reduction obligations under the Kyoto Protocol, Korea passed legislation for an emissions trading system in 2012. South Korea developed quickly in the 1980's and 1990's and the country joined the Organisation for Economic Cooperation and Development in 1996. Probably the fastest growing emitter among industrialized countries, South Korea has the distinction of being a highly successful host country for CDM projects rather than an original source of potential demand. As a CER source, South Korea has generally been a CDM advocate, but elected to exclude international offsets from its domestic system for at least the first five years 2015-2020. What role so called Korean CERs may play remains to be precisely defined, but these are likely to be credits coming from stranded CDM projects. The motivation for excluding international offsets from the ETS in its initial period comes from an intention to focus on domestic reductions. South Korea's criticisms of the CDM are more along the lines that projects are concentrated in a few countries and a few sectors. In addition, the country argues that the mechanism generally does not provide the scale to generate the

financial flows needed to support a global climate agreement. International submissions therefore are highly favourable to NAMA crediting and considers the CDM as a possible basis for scaling up mitigation action through NAMAs, to be carried out in a multilateral framework under the UNFCCC. The reform process has however been slow, and other critiques have emerged for example the need for net mitigation benefits.

Prospects for the CDM reform process

Traditionally relying on a project-by-project evaluation approach, the CDM has made some efforts to reform and address criticism with some moves towards increased use of a common practice test and baseline standardization, positive lists under certain circumstances, and some automatic additionality for small and micro scale projects. It is clear however that despite the CDM's reforms, the approach taken by Australia, California, and Japan explicitly rejects the CDM's project by project evaluative method and instead established additionality ex-ante for entire classes of projects. They all consider this approach to be not only more efficient and cost effective but also to be more objective, with a higher degree of environmental integrity. All three jurisdictions further take a more positive and open approach to land use and forestry projects, in comparison with the CDM rules which have limited such projects to afforestation and reforestation, but which have not been popular methodologies.

It is likely that the CDM will not be able to reform itself sufficiently to address all critiques of these prominent market players. The issue of standardization not only applies to additionality, but also to baseline setting, monitoring, and issuance. However, CDM reform is still a worthy cause and there are many achievements and experiences that remain useful, but with a view to new offsetting mechanisms, attention must also be paid to how different systems will interact with each other. Developing countries especially may find it a challenge to apply a multitude of instruments and a shift to an ex-ante evaluation process will likely front load costs for methodology development: another significant challenge for some countries already struggling to cope with building capacity for low carbon development.

In order to avoid a complete splintering of the international carbon market, at a minimum, efforts must be made to maintain a semblance of comparability, transparency and avoid other issues such as double counting. In the meantime, CDM reform efforts should continue and go further in the standardization efforts already taken which may help attract buyers for certain classes of projects, such standardization can also extend to monitoring and issuance. Developing countries, especially least developed countries, will require increased support to accommodate the front loading of costs associated with an ex-ante approach. The CDM has served as a kind of open sourcebook, from which many new offset instruments have borrowed. But given the state of the CDM market, the CDM is in danger of fading away before further reform efforts have a change to run their course; the open sourcebook role would disappear as well. It is therefore important that the remaining Kyoto parties make an effort to maintain the CDM as an instrument, particularly its methodology development function, until the increased ambition can provide new demand and the multilateral landscape becomes clearer. For the interim, this would require public funding of new projects and the development of new methodologies.

International fora and networks

Increased international exchange and discussion in international fora can help address fragmentation and avoid further barriers to a more harmonized global carbon market. The CDM roundtable is an important forum for discussion of such issues, but important stakeholders, including jurisdictions such as California are not represented. Fora such as the International Carbon Action Partnership (ICAP), a policy network to facilitate harmonization

among established and emerging emissions trading systems includes those at the sub-national level, may offer another venue to this end. Finally, if offset considerations are to be embedded in broader carbon market related activities, initiatives such as the World Bank's Partnership for Market Readiness or the International Partnership on Mitigation and MRV may be viable options. Ultimately, it is important that the results of discussions and exchange in these fora flow back to the multilateral level at the UNFCCC in order to inform the on-going reform process of the international regime.

2 Zusammenfassung

Während der ersten Verpflichtungsperiode des Kyoto-Protokolls haben sich die Zertifikate des Clean Development Mechanismus (CDM) zur globalen Währung des Emissionshandels entwickelt. Der Mechanismus stellt nicht nur eine Verbindung für die Anstrengungen zur Emissionsminderung von Industrie- und Entwicklungsländern dar, sondern erfüllt eine wichtige Funktion für die internationale Verwaltung und Berechnung der Emissionsminderung solcher Klimaschutzaktivitäten. Auf diese Weise kann die Vergleichbarkeit der Projekte sichergestellt und die Umweltintegrität von Projekten beurteilt werden. Zudem hat der CDM für Emittenten und Projektentwicklern eine Vielzahl an Möglichkeiten gegeben, um eine kohlenstoffarme Entwicklung voranzutreiben. Zugleich wurde er aber auch vielfältig kritisiert, so dass in verschiedenen Jurisdiktionen in den letzten Jahren alternative Offset-Politiken entwickeln worden sind.

Die vorliegende Studie von adelphi und dem Wuppertal Institute analysiert diese Entwicklungen im Offset-Bereich und stellt dar, in welcher Weise der CDM gegenwärtig und zukünftig als Bindemittel für den internationalen Kohlenstoffmarkt fungieren kann. Im Mittelpunkt der Untersuchung steht die Frage nach den Motiven für das Entstehen neuer dezentraler Offset-Systeme. Inwieweit unterscheiden sie sich vom CDM? Und welche Aussichten bestehen, durch eine Reform des CDM einen globalen Mechanismus zu schaffen, der die weltweiten Bemühungen um Emissionsreduktionen verbindet? Auf der Grundlage einer Analyse der Entwicklungen in Australien, Japan, Kalifornien und Südkorea werden hierfür mögliche Ansatzpunkte identifiziert. Die Analyse basiert maßgeblich auf den Einschätzungen nationaler Experten. Zudem wurden die Ergebnisse der Untersuchung während des 7. CDM Roundtable im April 2013, einem Workshop des Umweltbundesamtes im Juni 2013 und einem Side Event während des SBSTA-Meetings 38 in Bonn im selben Monat diskutiert. Die Ergebnisse sind in den vorliegenden Bericht eingeflossen.

Hintergrund

Die Nachfrage nach den CDM-Zertifikaten stammt bislang überwiegend aus dem Europäischen Emissionshandelssystems (EU ETS), von der japanischen Regierung und Industrie, aus dem neuseeländischen Emissionshandelssystem (NZ ETS) sowie zu einem kleinen Teil aus dem globalen freiwilligen Markt. Der CDM ist vielfach wegen Fragen der Zusätzlichkeit von Projekten, dem großen Verwaltungsaufwand und hohen Transaktionskosten sowie der starken Konzentration der Projekte auf wenige Schwellenländer kritisiert worden. Diese Kritikpunkte waren Ausgangspunkt verschiedener Reformbemühungen. Derzeit sieht sich der Mechanismus mehreren Herausforderungen gegenüber: Zum einen einer sinkenden Nachfrage als Folge der globalen Finanzkrise und den niedrigen Ambitionen für Emissionsreduktionen in vielen Ländern. Zum anderen einer Fragmentierung des Marktes, weil viele Systeme eigene konkurrierende oder alternative nationale Offset-Standards entwickeln. Dies gilt besonders für die Ansätze, die in dieser Analyse im Mittelpunkt stehen: die australische Carbon Farming Initiative, die Entwicklung von eigenen Offset-Protokollen in Kalifornien, den Joint Crediting Mechanism Japans sowie die Offset-Bestimmungen im geplanten Emissionshandelssystem Südkoreas.

Jüngste Entwicklungen in Australien

Obwohl sich die Klimapolitik Australiens mit der Wahl der konservativen Regierung 2013 radikal verändert hat, stellt der “Carbon Pricing Mechanism” (CPM) einen interessanten Fall für die Betrachtung von Offset-Politiken dar. Entwickelt unter der scheidenden Labor-Regierung, bietet er sowohl die Möglichkeit internationale Offset-Zertifikate der projektbezogenen

Mechanismen Joint Implementation (JI) und CDM zu verwenden als auch Zertifikate des nationalen Offset-Systems, der Carbon Farming Initiative (CFI). So wird auf der einen Seite einen Bezug zum multilateralen Rahmen hergestellt, auf der anderen Seite distanziert sich Australien durch die Schaffung eines eigenen nationalen Systems vom CDM. Obwohl die CFI über eine eigene, vom CPM unabhängige rechtliche Grundlage verfügt, zielte die Initiative darauf, ein Angebot an nationalen, hauptsächlich im Bereich der Landnutzung erzeugten, Zertifikaten für den CPM zu schaffen. Während internationale Offset-Zertifikate in Australien umstritten sind und vornehmlich von der Labor-Regierung unterstützt wurden, wird die Entwicklung der CFI auch unter der neuen konservativen Regierung fortgesetzt – trotz ihrer Bemühungen den CPM und die Bestimmungen zur Verwendung von Zertifikaten des CDM, JI und des EU ETS abzuschaffen.

Bei der Ausgestaltung der CFI entschied sich die australische Regierung bewusst gegen den projektbezogenen ex-post-Ansatz zur Bestimmung der Zusätzlichkeit des CDM, weil er hinsichtlich Verwaltung und Kontrolle zu zeitaufwendig und kostspielig sei. Stattdessen entwickelte Australien einen eigenen ex-ante-Ansatz in Form einer Positivliste für ganze Projektkategorien. Der Ansatz sei effizienter und weniger subjektiv. Die Bestimmung der Zusätzlichkeit auf Ebene der Aktivitäten und nicht auf Projektebene erlaube grundsätzlich eine Straffung des Prozesses. Australien lehnte außerdem die Prüfung der finanziellen Zusätzlichkeit mit dem Argument ab, dass auch von sich aus rentable Projekte unterstützenswert sein könnten, wenn sie in der Praxis sonst nicht realisiert werden. Es wurde ein Test der gängigen Praxis („Common practice test“) entwickelt, mit dem die Zusätzlichkeit mit einem allgemeinen Schwellwert von 5% einer „relevanten Vergleichsgruppe“, wie beispielsweise Rindfleischerzeuger einer bestimmten Region, bemessen wird.

Obwohl Methodologien von jeder Seite vorschlagen werden können, kamen die meisten Vorschläge in der Anfangsphase von der Regierung selbst. Sie beziehen sich auf eine öffentlich finanzierte Datenbasis um eine gängige Praxis zu bestimmen. Auf diese Weise werden die Transaktionskosten für Projektentwickler reduziert, da sie nicht im Nachhinein die Zusätzlichkeit nachweisen müssen. Außerdem haben sie mehr Sicherheit bezüglich des regulatorischen Umfelds und ihrer Investitionen. Andererseits fordert dieser Ansatz, dass der öffentliche Sektor anfänglich Kosten für die Erstellung der Datenbasis für Aktivitäten und deren „Gängigkeit“ („commonality”) übernimmt.

Die Rolle von Offset-Ansätzen in Kalifornien

Die kalifornische Klimapolitik bleibt weiterhin besonders ambitioniert. Die Diskussionen haben sich jedoch mit der Zeit von der internationalen Ebene in den Anfangstagen der Western Climate Initiative (einem regionalen Zusammenschluss von US Bundesstaaten und kanadischen Provinzen zur Zusammenarbeit im Emissionshandel) hin zu einem eigenen, beschränkten und konservativen Ansatz im Umgang mit Offsets entwickelt. Diese Verschiebung hatte mehrere Ursachen und ging einher mit dem Regierungswechsel vom Republikaner Arnold Schwarzenegger zum Demokraten Jerry Brown, einer skeptischen Legislative und einer besonders aktiven lokalen Umweltgruppen, aus der mehrere Anfechtungsklagen zur Gesetzgebung im Bereich Emissionshandel und Offsets initiiert wurden. Bereits während der Amtszeit von Gouverneur Schwarzenegger nahm die, für die Umsetzung des Emissionshandels zuständige Behörde (California Air Resources Board – CARB), eine abwartende Haltung gegenüber dem CDM ein.

Obwohl Kalifornien selber keine internationale Offsetzertifikate akzeptiert (mit Ausnahme von Zertifikaten aus Quebec nach der Verknüpfung beider Systeme), gibt es in Kalifornien aufgrund von Bedenken bei der Genauigkeit bei der Baseline-Bestimmung und der Gefahr von

Verlagerungseffekten zwischen verschiedenen Sektoren, eine grundsätzliche Präferenz für sektorale-Ansätze im internationalen Kontext. Die kalifornische Kritik am CDM bezieht sich vor allem darauf, dass mit dem CDM kein signifikanter Politikwandel in Entwicklungsländern stattgefunden habe sowie offene Fragen zur Nachhaltigkeit und Zusätzlichkeit bei bestimmten Projekten und Projekttypen bestünden. Im Unterschied zum CDM setzt das CARB in der Entwicklung eigener Offset-Protokolle einen Performance Standard Ansatz ein, der auf einer standardisierten Bewertung der Zusätzlichkeit durch einen öffentlichen Prozess vom CARB und nicht auf einer projektspezifischen Bewertung durch die Projektentwickler basiert.

Kalifornien hat gegenwärtig vier Offset-Protokolle: für Viehzucht (Methan aus der Düngewirtschaft), für ozonschichtschädigende Substanzen, für städtische Waldprojekte und für US-Wald-Projekte. Es wird erwartet, dass in Kürze ein weiteres Protokoll für Grubengas-Projekte (mine methane) genehmigt wird. Kalifornien hat dafür Methoden, die ursprünglich für den freiwilligen Markt konzipiert wurden, weiterentwickelt. Dabei wurde ein ex-ante Ansatz für ganze Kategorien von Projekten verwendet, sodass die Methodenentwicklung sowie Transaktions- und Verfahrenskosten vorgezogen werden konnten. Ähnlich wie Australien gibt es in Kalifornien Bestimmungen für Offsets aus der Land- und Waldnutzung, die im CDM bisher eine untergeordnete Rolle spielen.

Japans Perspektiven

Japans Energie und Klimapolitik befindet sich seit dem schwerwiegenden Tohoku Erdbeben und dem hiermit verbundenen Tsunami von 2011 im Umbruch. Es wurde seit langem erwartet, dass Japan als hochgradig CO2-effiziente Wirtschaft seine Verpflichtungen im Kyoto-Protokoll nur mit einem großen Ankauf von Kyoto-Einheiten erbringen kann. Nimmt man die Regierung und Unternehmen zusammen, hat Japan die größte Nachfrage nach AAUs, ERUs und CER geschaffen, bevor das EU EHS zum größten Nachfragemarkt für solche Zertifikate wurde. Obwohl es bereits Gesetzesvorschläge für ein Emissionshandelssystem (EHS) sowie ein System auf freiwilliger Basis gab, wurde in Japan kein EHS auf nationaler Ebene eingeführt. Im Rahmen eines Abkommens zwischen einem Verband japanischer Unternehmen (Keidanren) und der Regierung kauften japanische Firmen Kyoto-Zertifikate, um damit zur Erfüllung des nationalen Ziels beizutragen. Besonders kritisch werden in Japan die Regeln des CDM erachtet – dies gilt insbesondere für die als übermäßig strikt und kompliziert geltenden Regeln für Zusätzlichkeit und MRV. Hier werde unzureichend auf Projektentwickler und die ausufernden Vorlaufzeiten im CDM-Verfahren Rücksicht genommen. Weitere Kritikpunkte aus japanischer Sicht sind der Ausschluss der Nuklearenergie, die regionale Ungleichverteilung, der fehlende Beitrag zu einer nachhaltigen Entwicklung und die Änderungen, die während des Genehmigungsprozesse an den vorgeschlagenen Methoden vollzogen werden können.

Japan tritt daher für einen fundamentalen Wechsel ein, indem der Prozess weg von der Beurteilung von Maßnahmen hin zu Überprüfungsverfahren ausgerichtet wird. Ferner wird für die Verwendung einer Positivliste plädiert. Wo dies nicht möglich ist, sollen aus japanischer Sicht Standard-Parametern verwendet werden. Japan hat weiterhin zunehmend in die Entwicklung eines bilateralen Joint Crediting Mechanism (JCM) außerhalb des multilateralen Systems investiert. Es gibt bereits Memoranda of Understanding mit einer Anzahl an Ländern, darunter die Äthiopien, Costa Rica, Laos, die Malediven, Mongolei und Vietnam, in denen die bilaterale Zusammenarbeit festgehalten wird. In Anlehnung an bestehende Praktiken im Rahmen des CDM werden gemeinsame Komitees etabliert, die aus japanischen und Repräsentanten der Kooperationsländer bestehen und welche die folgenden Aufgaben wahrnehmen: Beschluss von Regeln und Guidelines für die Umsetzung des JCM, Genehmigung der Methodologien, Benennung von unabhängigen Prüfern („Third Party Entities“), Registrierung von Projekten und Einführung und Unterhalt eines Registers. Im Gegensatz zum

CDM-Projektzyklus können die Validierung und Verifizierung gleichzeitig von ein und derselben unabhängigen Prüfinstitution vorgenommen werden. Methodologien können von beiden Regierungen, vom gemeinsamen Komitee oder von Projektteilnehmern selber vorgeschlagen werden. Die Unabhängigen Prüfinstitutionen sind CDM und ISO akkreditiert.

Südkoreas Fokus auf nationale Maßnahmen

Obwohl Südkorea ein Nicht-Annex 1 Land ist, d. h. ohne Minderungsverpflichtung im Rahmen des Kyoto-Protokolls, wurde 2012 ein Gesetz zur Einführung ein Emissionshandelssystems verabschiedet. Seit 1996 ein OECD-Land, zählt Südkorea unter den Industrieländern wahrscheinlich zu den Ländern, in dem die Treibhausgasemissionen am schnellsten zunehmen. Als erfolgreiches Gastland für CDM-Projekte ist Südkorea ein Anbieter und nicht Nachfrager von internationalen Zertifikaten. In dieser Funktion war Südkorea stets ein CDM-Befürworter, entschied sich aber trotzdem gegen die Möglichkeit, internationale Offset-Zertifikate, zumindest in der Zeit von 2015-2020, in seinem nationalen System zuzulassen.

Welche Rolle sogenannte koreanische CERs spielen werden, ist derzeit noch nicht abzusehen. Es ist aber davon auszugehen, dass es sich um Zertifikate aus koreanischen CDM-Projekten handeln wird, die anderweitig kaum noch nachgefragt werden. Der Grund für die Entscheidung, internationale Offset-Zertifikate in der Anfangsphase auszuschließen, ist, dass sich das Land auf nationale Emissionsreduktionen konzentrieren möchte. Südkoreas Kritik am CDM richtet sich vornehmlich darauf, dass sich die Projekte auf wenige Länder und Sektoren konzentrieren und dass der Mechanismus grundsätzlich nicht in der Lage ist, die für ein globales Klimaabkommen notwendigen Finanzströme zu generieren. In den internationalen Verhandlungen befürwortet Südkorea deswegen ein NAMA Crediting und sieht den CDM als mögliche Basis für ausgeweitete Minderungsmaßnahmen durch NAMAs in Rahmen des UNFCCC.

Perspektiven für weitere CDM-Reformen

Ursprünglich folgte der CDM einen projektbasierten Ansatz. In Reaktion auf die Kritik wurde er aber dahingehend angepasst, dass „gängige-Praxis-Tests“ (common practice test) und standarisierte Baselines eingeführt sowie unter bestimmten Voraussetzungen Positivlisten formuliert wurden. Für Klein- und Kleinstprojekte kann die Zusätzlichkeit automatisch bestimmt werden. Trotz dieser Änderungen des CDM haben sich Australien, Kalifornien und Japan ausdrücklich gegen den projektbasierten CDM-Ansatz entschieden und stattdessen einen ex-ante-Ansatz für ganze Projektkategorien entwickelt. Sie alle bewerten diesen Ansatz als nicht nur effizienter und objektiver, sondern auch als besser hinsichtlich der ökologischen Integrität. Außerdem teilen alle drei Jurisdiktionen einen positiveren und offeneren Umgang mit Projekten aus den Bereichen Landnutzung und Fortwirtschaft, wohingegen im CDM nur die selten umgesetzten Projekte in den Bereichen Auf- und Wiederaufforstung erlaubt sind.

Es ist wahrscheinlich, dass der CDM nicht in der Lage sein wird, sich so weit zu reformieren, dass alle Kritikpunkte unterschiedlicher Marktteilnehmer adressiert werden können Die Herausforderung der Standarisierung betrifft nicht nur die Zusätzlichkeit, sondern auch die Bestimmung von Baselines, Monitoring und die Ausgabe von Zertifikaten. Nichtsdestotrotz ist die Reform des CDM auf Grund der erzielten Erfolge und Erfahrungen wünschenswert. Mit Blick auf die neuen Offset-Systeme muss jedoch besonders darauf geachtet werden, wie die Systeme in Zukunft miteinander interagieren. Besonders für Entwicklungsländer könnte die Handhabung von verschiedenen Instrumenten schwierig sein und die Verschiebung hin zu einem ex-ante-System zu zusätzlichen Kosten für den öffentlichen Sektor führen, da zu Beginn Methodologien entwickelt werden müssen. Dies würde eine zusätzliche Belastung für Länder

bedeuten, die bereits jetzt Schwierigkeiten haben, ausreichend Kapazitäten im Bereich kohlenstoffarme Entwicklung aufzubauen.

Internationale Foren und Netzwerke

Um eine vollständige Fragmentierung des internationalen Kohlenstoffmarkts zu vermeiden, bedarf es weiterer Bemühungen, die auf ein Mindestmaß an Vergleichbarkeit und Transparenz abzielen. Zudem sind Doppelzählungen zu vermeiden. Der CDM-Reformprozess kann weiterhin dazu beitragen, Standarisierungen zu befördern – dies gilt auch beim Monitoring und der Ausgabe von Zertifikaten. Entwicklungsländer und vor allem die am wenigsten entwickelten Länder werden mehr Unterstützung benötigen, um die mit dem ex-ante-Ansatz verbundene Verschiebung der Kosten tragen zu können. Bislang hat der CDM als eine Art Sourcebook fungiert, auf dessen Basis neue Offset-Ansätze ausgestaltet werden konnten.

Vor dem Hintergrund der derzeitigen Verfassung des CDM-Marktes besteht aber die Gefahr, dass der CDM diese Funktion verliert und als Instrument verschwindet, bevor der Reformprozess des internationalen Kohlenstoffmarktes abgeschlossen ist. Aus diesem Grund ist es wichtig, dass die verbliebenen Kyoto-Vertragsparteien sich um die Beibehaltung des CDM bemühen, besonders wegen seiner Funktion als Treiber in der Entwicklung von Methodologien. Dies gilt solange, bis wieder eine erhöhte Nachfrage aufgrund gesteigerter Klimaschutzambitionen entsteht und sich die grundsätzliche Richtung der internationalen Verhandlungen deutlicher abzeichnet. Diesbezüglich bedarf er in der Zwischenzeit der Förderung neuer Projekte und Methodologien wie auch des Austausches und der Diskussionen auf internationaler Ebene. Auf diese Weise kann ein wesentlicher Beitrag gegen die weitere Fragmentierung geleistet und zusätzliche Barrieren für die Entwicklung hin zu einem harmonisierten globalen Kohlenstoffmarkt vermieden werden.

Der CDM-Roundtable ist ein wichtiges Forum für diese Diskussion, allerdings sind wichtige Stakeholder wie Kalifornien dort nicht repräsentiert. Foren, wie die International Carbon Action Partnership (ICAP), ein Regierungsnetzwerk das sich mit der Harmonisierung von bestehenden und entstehenden Emissionshandelssystemen - inklusive solchen auf sub-nationaler Ebene - befasst, können eine weitere Möglichkeit zu diesem Zwecke darstellen. Schließlich können auch Initiativen wie die Partnership for Market Readiness der Weltbank oder die International Partnership on Mitigation and MRV fruchtbare Optionen darstellen, wenn die Ausgestaltung von Offsets in den größeren Kontext Kohlenstoffmarkt bezogener Aktivitäten einbezogen werden soll. Am Ende ist es wichtig, dass die Diskussionen und der Austausch in diesen Foren wieder in den multilateralen Austausch im Rahmen der UNFCCC eingespeist werden, um so zum anhaltenden Reformprozess des internationalen Regimes beizutragen.

3 Introduction

3.1 The CDM's role in Global Carbon Markets

During the first Kyoto commitment period, the Clean Development Mechanisms (CDM) emerged to be the global currency for emissions trading. The CDM was developed to be an instrument that linked developing countries to industrialized countries in a climate mitigation partnership. Industrialized countries, responsible for the majority of accumulated greenhouse gas emissions, could use their wealth, technology, and know-how to help developing countries, which historically have had less responsibility for the accumulation of greenhouse gases in the atmosphere, with reducing their emissions. The partnership enabled industrialized countries, having already invested in capital stock (energy infrastructure, etc.), to make use of its full useful life, and to help invest in low-carbon technology in countries that had not yet locked in to a dirty development path.

The CDM came to be the primary instrument of global emissions trading, with a secondary market value of a 2.98 billion USD (World Bank 2012) in 2011. The market was in essence 'created' by the emission targets established in Article 3 of the Kyoto Protocol under the UNFCCC, also referred to as "quantified emission limitation and reduction objectives (QUELROs)". According to Article 3, paragraphs 7 and 8, each Annex I Party issues so called Assigned Amount Units (AAUs) up to the level of its assigned amount. With Article 17 of the Kyoto Protocol emissions trading between countries is institutionalized in order to meet the targets over the 2008-2012 commitment period in a cost-effective manner. In addition to AAUs, industrialised countries may use Certified Emission Reductions (CERs) from CDM projects in developing countries as well as Emission Reduction Units (ERU) from Joint Implementation (JI) projects in industrialised countries for their Kyoto compliance. Demand was generated primarily through the offset provisions of domestic cap-and-trade systems such as the EU emission trading system (EU ETS) and the New Zealand ETS (NZ ETS), which allow CERs to contribute to the compliance obligations of regulated entities; by Japan to help meet its global commitments; and to a smaller extent by voluntary buyers. From the EU ETS in Europe to the Regional Greenhouse Gas Initiative (RGGI) in the United States, to emission offset activities in developing countries and voluntary measures across the world, the global carbon market was worth almost $176 billion USD in 2011 (World Bank 2012).

The CDM is important because:

- it gives the global carbon market a mature framework and approval process to assess the environmental integrity of offset projects;
- gives project developers a standardized unit to bring to market to finance their projects; and
- gives both emitters and project developers a variety of options of how to contribute to sustainable development.

The UNFCCC process, the Kyoto Protocol, and as a major part of the protocol, the CDM, hence not only spurred the creation of the global carbon market, but also provided for a kind of glue for various mitigation efforts around the world. But the CDM has not been without its critics who have raised questions with regard to the additionality of projects, the bureaucracy and transaction costs associated with the mechanism, and the majority of projects being concentrated in a few, primarily, emerging countries. Efforts to reform the CDM are underway, but also face a fractionalization of the global carbon market, with competing or at least alternative domestic and international offset standards being developed by various

jurisdictions. Examples are Japan's development of a joint crediting mechanism / bilateral offset crediting mechanism (JCM/BOCM), Australia's Carbon Farming Initiative, and the development of offset protocols in the framework of the ETS being developed by California and Québec. The increasing diversity poses challenges for established mechanisms -such as those of the UN- and requires closer examination with respect to their environmental integrity, transparency, traceability, and role in the global greenhouse gas accounting process. It then becomes pertinent to ask:

- What are the drivers behind the emergence of new decentralised offset systems in several jurisdictions?
- To what extent do the new systems follow or diverge from the CDM?; and
- Is there a prospect for harmonisation or to what extent can at least aspects of the CDM inform the discussion of Monitoring Reporting and Verification (MRV) and accounting issues with a view to a future global, comparable, mechanism that will again help link the world's mitigation efforts?

This report examines these questions within the climate policy, political, and institutional settings of four potential sources of offset demand.

3.2 Sources of Demand for CDM

Though there are a number of sources of demand for CERs, the EU ETS is by far the largest in terms of monetary value and volume. The global carbon market is generally largely dominated by the EU ETS and trading in European Union Allowances (EUAs) accounted for 88% of the total 2012 market value (Bloomberg New Energy Finance 2013). As the EU ETS allows regulated entities to use CERs for at least part of their compliance obligations, this demand drives and dominates the CDM market. With the price collapse in the EU ETS and a restriction with regard to the kinds of projects and project host countries that are eligible to produce credits for the EU ETS from 2013, the demand picture radically changed in 2012 and 2013, leading to a corresponding price collapse in CERs and a rapid exit from the market by many industry players, from project developers to trading intermediaries. Japan was the next major buyer of CERs, but also reduced its acquisition of international units after the 2011 Tohoku earthquake, while other centres for demand were smaller by comparison but included New Zealand, a few other countries, and voluntary buyers.

The global carbon market is however dynamic and is constantly changing. Other sources of potential demand may emerge and these are likely to be tied to the decisions made regarding offset provisions in developing emissions trading systems in California (and its Western Climate Initiative partner, Quebec), South Korea, and perhaps others in the medium term. Australia was thought to be a potential source of demand but the recent change of government has led to significant market insecurity. This merits a short examination of the historical buyers and possible future buyers of CERs.

3.2.1 EU

The EU ETS's acceptance of CERs as offset credits provided the CDM market with its largest single source of demand. This can be observed in the strong historical price correlation between EUAs and CERs. The price spread between the units, historically only a few cents, has grown recently and now stands at 3.86 Euros (Point Carbon 2013), partly because of the number of new restrictions the EU imposed on access to the market inform the beginning of 2013. The EU ETS has never allowed CERs from either nuclear facilities or forestry. Partly

because of this, but also because of other factors such as the CDM approval process, these types of projects have never made up a significant proportion of CDM projects (if any). Starting on 1 January 2013, the destruction of trifluroromethane (HFC-23) and nitrous oxide (N2O) from adipic acid production were also generally excluded as eligible project types (Commission Regulation (EU) No 550/2011).

Further, CERs from projects that are registered after the end of 2012 will only be accepted if the project's host country is a least developed country (LDC). These changes have been made in response to critiques of CDM that in some cases the mechanism provides perverse incentives for additional production of industrial gasses in order to generate CERs, and that projects have primarily been concentrated in emerging economies such as China, rather than poorer countries that have less access to climate finance. The EU would generally like to phase out the CDM for the more advanced developing countries, arguing that these countries should pursue scaled-up mitigation action at the sectoral rather than project level. Further divergence between EU ETS offset policy and using CDM as a standard can be seen in legislation that enables the EU to create its own domestic offset scheme under Article 24(a) of Directive 2009/29/EC, and provisions that enable the EU to develop a parallel bilateral offset mechanism with third countries under Article 11a (5) of Directive 2009/29/EC, perhaps through sectoral crediting. The EU maintains that the development of such provisions should preferably happen within the UNFCCC framework but the option poses a new variable influencing the future demand of the EU ETS for CERs.

Outside of covered entities in the EU ETS, European Member states may use unlimited amounts of CERs for their QUELROs under the Kyoto Protocol's first commitment period and for up to 3% per year of their non-EU ETS emission reduction commitments under the Effort Sharing Decisions between 2013 and 2020. This may also provide an element of demand, though less than that from the number of companies investing for their compliance requirements in the EU ETS.

3.2.2 Japan

As Japan has not been able to reduce its domestic emissions sufficiently to meet its Kyoto target, the government and private companies, through the Keidanren, the Japan Business Federation, reached an agreement to purchase Kyoto credits to bring the country into compliance. This has been considered 'voluntary' because the agreement was not made by an act of law, but it is generally seen to be binding. Both Japanese firms and the Japanese government have been large purchasers of Kyoto credits, representing the next largest source of demand for CERs after Europe. Japan has not placed the same restrictions on AAUs, CERs, or ERUs that the EU has, but following criticisms of purchases of "hot air" AAUs from countries in the former Soviet Union, Japan moved to purchase "greened" AAUs, along with CERs and ERUs. For the 2008-2012 period, the World Bank estimated the total volume of credits to be purchased at 372 million tonnes (World Bank 2010), though the estimate was made before the Tohoku Earthquake of 2011. In this respect, for Japan and Japanese companies, the various Kyoto units compete directly against each other, making the price differential between AAUs, CERs, and ERUs more important. The effect of further developments such as the Tohoku Earthquake of March 2011 and other offset policy measures on CER demand will be discussed in Chapter 2.

3.2.3 New Zealand

The New Zealand credit registry allows all Kyoto Credits (AAUs, CERs, ERUs, and RMUs), though, in contrast to Japan, AAUs and temporary CERs cannot be used by ETS covered entities for compliance under the NZ ETS. Still, demand from New Zealand is comparatively small and is not considered to be a significant source on the international level, especially after the government's 2012 amendment that only one emissions unit need be surrendered for every two tonnes emitted (New Zealand 2012).

3.3 Structure of the Report

The focus of this report will be: an examination of the future role of the CDM as an instrument of carbon finance, future prospective markets for CERs, the differences between CDM and new emerging offset approaches, and a number of variables that will affect demand for CERs in those markets. These markets include:

- Japan and the factors affecting that market;
- Australia and its potential link with the EU ETS;
- the Californian ETS (within the Western Climate Initiative system, which links it to Quebec); and
- South Korea.

This paper aims to inform the discussion of CDM reform and improve its potential as an adaptable global offset framework by analysing the respective mentioned markets including their climate policies and provisions for offsets. To this end, we review these jurisdictions' climate policies and approaches to emissions trading, their criticism vis-à-vis the CDM, and analyse their offset policies regarding a number of elements that we see as characteristic for carbon offset projects, including quantitative limitations on offset use, qualitative restrictions (on certain kinds of project types, potential reasons for restrictions: sustainability criteria, environmental integrity,) provisions for the demonstration of additionality and the establishment of baselines as well as the monitoring requirements. This analysis of different offset policies was based on the expertise of selected national experts that contributed to this report by outlining major developments of the respective climate policy framework:

- Toshi H. Arimura, Professor of Environmental Economics, School of Political Science and Economics, Waseda, University in Tokyo, Japan, for the context of Japan;
- Martin Jones of the Centre for Energy and Environmental Markets (CEEM) at the University of New South Wales, Australia, for the section on Australia;
- Jan Mazurek, Senior Fellow with ICF International in Sacramento, California contributed to the section on California; and
- Yong Gun Kim, Director of the Climate Economics Division of the Korea Environment Institute in Seoul, South Korea, on the respective country analysis.

We compare these national policies with the on-going reform efforts in the CDM and in closing elaborate on aspects for reform which could facilitate a continuation of the CDM in the post 2012 period. To this end, the report has also benefitted from the following discussions:

- the 7th CDM Roundtable consultation which took place on 20 April 2013 in Bonn;

- the international Workshop „Reform efforts for the international carbon market: CDM, bilateral offsets and beyond“, 5 June 2013 in Bonn, which was a part of this research project; and
- Wuppertal Institute's and adelphi's Side Event "Fit for the Future - CDM in the Post-2012" during SBI38, 10 June 2012, in Bonn.

Table 1: Offset and Unit Overview

Offset and Unit Overview					
UN Offsets					
Credits:	CER	ERU	AAU	RMU	
Mechanism:	CDM	JI	GIS	LULUCF	
EU Offsets (approved and considered)					
CER	ERU	Domestic Offsetting	Bilateral/Sectoral Offsetting "preferably within UNFCCC"		
Excludes afforestation and reforestation. Large hydro projects need to respect criteria of World Commission on Dams. Starting from 2013 not from industrial gases and for new projects only from Least Developed Countries		Article 24(a) of Directive 2009/29/EC	Art.11.a(5) of Directive 2009/29/EC		
Australian Offsets (As planned under the Australian Clean Energy Future package of the former Labor Government)					
International		Domestic			
CER, ERU, RMU, Any other offsets the government decides to allow Same restrictions on CERs from sinks, large hydro, HFCs and N20 as in the EU but no geographical restriction		Australian Carbon Farming Initiative (CFI) 2 categories: Kyoto and non-Kyoto CFI			
Japanese Offsets					
CER, ERU, AAU, RMU		JCM/BOCM (in development)			
Californian Offsets					
CA Offset Protocols				WCI	GCF
Livestock	Ozone Depleting Substances	Urban Forests	US Forest Projects	Discussion of possible approval of Voluntary Carbon Standards	Possible REDD credits (MoUs with Chiapas, MX and Acre, BR)

4 Australia

4.1 Overview of Australian Climate Policy

Australia implemented what it called a "Carbon Pricing Mechanism" on 1 July 2012 with a target of reducing emissions by 5% by 2020 and 80% by 2050 (compared to 2000 levels). The ETS was to cover about 60% of Australian direct emissions (Jones 2011). In the original concept, no international offsets were to be allowed during the initial three years (2012-2015) of the scheme, during which allowances were to be purchased at a fixed price from the government. On 16 July 2013 the new administration of Prime Minister Rudd announced a new policy to start the flexible price period on 1 July 2014, one year earlier than initially planned (Australian 2013). Afterward, the planned policy was to allow 50% of obligations to be met with international units including EUAs, while Kyoto units were to be further limited to 12.5% within the overall 50% limit. On 7 September 2013, the conservative Liberal/National Party (L/NP) Coalition won a majority of seats in the lower house of parliament, putting further implementation of the heretofore planed emissions trading policy in doubt.

According to previous Australian government statements, depending on international action, the country is open to increasing the 2020 reduction goals from the 5% up to 15% or to 25% (over 2000 levels). While the new incoming government has declared that it intends to abolish the Climate Change Authority (CCA) (Maher 2013), the CCA was supposed to have independent power to recommend future targets, emissions caps, and regulations regarding offsets. While the government did not have to follow the recommendations, the recommendations were to be published and deviation from the CCA recommendations was to be publicly justified. According to press reports a leaked draft of an upcoming CCA report recommends an increase of Australia's target to 15%. The final report and recommendations were due in April 2014 (ABC News 2013), but may never be published.

4.2 The Australian Emissions Trading System

Carbon measures in Australia started under Labor State governments such as the one in New South Wales in 2003. In January 2004, a working group of senior officials, which subsequently became the National Emissions Trading Taskforce, was created by the First Ministers of State and Territory Governments. In December 2006, then Prime Minister John Howard of the conservative L/NP Coalition established a Prime Ministerial Task Group on Emissions Trading. At the time, both the L/NP and the then opposing Labor Party were committed to the introduction of an emissions trading scheme. The Labor party, then led by Kevin Rudd, won the election in 2007 and started working on emissions trading legislation with the L/NP party until the conservative opposition leader Malcolm Turnbull was replaced by Tony Abbott, leading to a stalling of progress. PM Rudd then decided to postpone further work on emissions trading legislation until after 2012, which was a factor in his losing party leadership on 23 June 2010. In the 2010 elections, the conservatives campaigned against emissions trading, but Labor, now led by Julia Gillard, was able to form a minority government with several independent MPs in the lower house and with the Greens in the upper house of parliament. The Multi-Party Climate Change Committee was formed from these independents, Greens, and Labor and drafted the Clean Energy Future package in July 2011. The legislation passed the House of Representatives on 12 October 2011 and the Senate on 8 November 2011. The L/NP won the elections on 7 September 2013, having campaigned on a policy of abolishing the emissions trading scheme. Though the government may struggle for a majority in the Australian Senate, the future of the scheme has been put into question.

Since going into effect on 1 July 2012, the Australian ETS initially has a fixed price of $23 AUD per ton of CO2e, which – before the policy change to start the flexible price period one year early – was planned to rise by 5% (estimated to be 2.5% in real terms) a year until 2015, at which point the price was to be determined by the market. Gases covered include CO2, CH4, N2O, and perfluorocarbons from the aluminium sector. Facilities that have direct GHG emissions of more than 25,000 metric tons had obligations under the scheme. Covered sectors include the electricity sector, industry, diffuse emissions, and landfills. Sectors indirectly covered through the price on carbon include domestic air travel and cargo, sea and rail traffic (Australian Government 2011).

Originally, the ETS was planned to have a price floor of $15 AUD and a price ceiling of $20 AUD above the expected "international price" (international price was not further defined). This included plans to make international offset credits subject to a surrender charge, effectively extending the carbon price floor to such credits. As part of the linking agreement with the EU, Australia agreed to forgo the price floor and the corresponding surrender charge for international units.

4.3 Australian Offset Policy

Australian offset policy under the former Labor government consisted of both accepting of international offsets as compliance instruments in the Carbon Pricing Mechanism after 2015 (perhaps 2014 if the announced early flexible pricing of former Prime Minister Rudd were to be implemented) as well as the development of domestic offsets through the Australian Carbon Farming Initiative. Before the development of the pricing mechanism, the Australian government had already taken steps to regulate standards for voluntary offsets and participated in international REDD and REDD+ initiatives. The national Carbon Offset Standard Carbon Neutral Program, founded in 2010, is a government owned non-for profit which established guidelines for what standards are acceptable for private sector carbon neutral targets. It is not yet clear exactly what role this program will have to play in the future.

Australia is a strong proponent of REDD/REDD+ and has set up the "International Forest Carbon Initiative", which is jointly administered by the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (DIICSRTE) (formerly the Department of Climate Change and Energy Efficiency) and AusAID and has a budget of $273 million. The aim of the Initiative is to build capacity in developing countries, including collaborative Forest Carbon Partnerships with Indonesia and Papua New Guinea, and lobbying for a REDD+ financial mechanism under the UNFCCC, by addressing technical and policy hurdles.

International offsets are however also a point of political division in Australia. The proponents of emissions trading, the Australian Labor Party (ALP) and the Greens, are generally positive toward international offsets, arguing that they are economically efficient, lower costs domestically, and support global action against climate change. Both the ALP and the Greens (more so the latter) want to limit the number of international offsets used so as to support domestic action or increase so-called supplementarity. The L/NP Coalition which leads the new government campaigned heavily against emissions trading and, by association, against the use of international offsets. The coalition portrays international offsets as having low quality, being "shonky" (Sheridan 2012) or "dodgy", and "sending taxpayers' money overseas", for example in an editorial by Greg Hunt, the L/NP party spokesman for climate action (Hunt 2012). The private sector, however, - in particular liable industries - supported the use of as many international offsets as possible, with as few restrictions as possible.

The former government's Clean Energy Future (CEF) plan originally foresaw the use of international units to meet up to 50% of company's liability from July 2015 onward. The following units were to be eligible.

- Certified Emission Reductions (CERs) from Clean Development Mechanism projects under the Kyoto Protocol, other than temporary CERs, long-term CERs, and CERs from nuclear projects, the destruction of trifluoromethane, the destruction of nitrous oxide from adipic acid plants or from large scale-scale hydro-electric projects not consistent with criteria adopted by the EU (based on the World Commission on Dams guidelines);
- Emission Reduction Units (ERUs) from Joint Implementation projects under the Kyoto Protocol, other than ERUs from nuclear projects, the destruction of trifluoromethane, the destruction of nitrous oxide from adipic acid plants or from large scale-scale hydro-electric projects not consistent with criteria adopted by the EU (based on the World Commission on Dams guidelines);
- Removal units (RMUs) issued by a Kyoto Protocol country on the basis of land use, land-use change and forestry activities under Article 3.3 or 3.4 of the Kyoto Protocol; and
- Any other international units that the Government may allow by regulation
- The government reserved the ability to add to the types of international emissions units that are recognized for compliance under the carbon price mechanism, where:
    - the addition does not compromise the environmental integrity of the carbon price mechanism;
    - the addition is consistent with the objective of the carbon price mechanism, including Australia's international objectives; and there has been consultation by the Climate Change Authority with stakeholders, analysis of the expected impact on the carbon unit price by an independent review, and notification to the market. (Australian Government 2011a)

Geographic restrictions with regard to where the credits come from specifically were not made (in contrast to the EU's LDC requirements).

In addition, Australia intended to accept EUAs for compliance starting in 2015 as an interim step towards linking through mutual recognition of allowances between the EU and Australia by July 2018. As part of its linking agreement with the EU, Australia announced that it would limit use of Kyoto units to 12.5% of any one compliance entities' obligation, which effectively reserved the lion's share of the international units quota for EU allowances.

In addition, during the fixed price period a limit of 5% of emissions were to be optionally offset through the Australian domestic offset program, known as the Carbon Farming Initiative. The initiative produces credits through storage or reduction of GHG in land use and is voluntary for farmers and landowners.[1] After the introduction of the flexible price, it was not foreseen to have a limit on the number of Australian Carbon Credit Units (ACCUs) generated under the CFI that can be used for compliance. However, the total number of potential credits generated in the first few years of the scheme is likely to be limited.

[1] More information can be found at: http://www.climatechange.gov.au/reducing-carbon/carbon-farming-initiative

If linking negotiations, for example with the EU, were to be continued, they may be a key factor affecting the choice of offset procedures including issues like concerns about the number/quality of offsets entering the Australian scheme under a particular methodology.

If the scheme is implemented in any semblance of its originally planned form, the long-term level of international offsets to will be allowed will depend on both domestic and international policy developments and be part of the discussions under the regular review process of the scheme.

4.3.1 Australia's Position towards the CDM

As mentioned earlier, international offsets are a point of political division in Australia and the new government is opposed to emissions trading, and by association, the CDM. By contrast, the former Labor-led government consistently supported to use of international offsets and in particular the CDM in the country's scheme. The process of developing the Australian ETS included the publication of a Green Paper in July 2008 with the possibility for stakeholders to submit comments. The Green Paper explicitly canvassed the questions of whether and what types of international units should be recognised, including the option of accepting non-Kyoto units (Australia, DECC 2008a).

The former government summarised the submissions received and the final policy decisions in a White Paper that was published in December 2008. While some environmental organisations had raised concerns about the environmental integrity of the CDM, the government took the position that CERs were credible and robust and should therefore be eligible for compliance in the ETS. The only exceptions made were CERs from afforestation and reforestation, but not because concerns about their environmental integrity but because of their temporary character and the associated liability issues and higher transaction costs. While acknowledging that any assessment of additionality always entails a degree of judgement,

"The Government considers the CDM to be an important transitional mechanism, and believes that CERs should be recognized for compliance purposes in the Scheme... The international community is considering a range of proposals to reform the CDM in an effort to ensure that it remains an effective mechanism in any future agreement. Rather than limit the use of the CDM in the initial years of the Scheme, the Government will continue to work with the international community on these proposals." (Australia, DECC 2008b: 11-13f.)

Acceptance of non-Kyoto units was strictly rejected for the following reasons (ibid.: 11-21):

- There was a lack of robust methodologies for estimating and crediting abatement.
- Acceptance of non-Kyoto units in the ETS would increase compliance costs for the government as it could not use these units for its Kyoto compliance.
- Allowing non-Kyoto units would probably be a barrier to linking the Australian system to systems in other countries that have ratified the Kyoto Protocol.
- Allowing non-Kyoto units would increase administrative complexity as arrangements would be needed to ensure their environmental integrity and prevent double counting.

However, the White Paper noted that the use of non-Kyoto units could be revisited once the international framework for the time after the Kyoto Protocol's first commitment period had become clearer. The White Paper also noted that the EU ETS Directive had provisions to link with credible schemes in any country or administrative entity (ibid.).

Even before the recent change of government and associated uncertainty for the emissions trading scheme, the perceived uncertainty about the future of CDM, led investors and some within the Australian business community to call for the development of bilateral offset projects to be carried out with Asian partners (PointCarbon 2011). While the government never openly discussed such eventualities, they have arrived in the think tank policy debate through institutions such as the Climate Institute (Mazouz and Jackson 2012).

As for engagement with CDM reform, in May 2013 Australia submitted views on the review of the CDM's modalities and procedures to the UNFCCC (Australia, Government of 2013a). The submission posits that the CDM has generally been a success but suggests revisions to the approaches to additionality and baselines to improve confidence in the environmental integrity of the CDM.

On additionality, Australia suggests increased use of standardised approaches, such as performance benchmarks, to move "away from more subjective financial additionality tests". Australia also suggests "the identification of positive lists (such as pre-approved technology types) to simplify additionality assessments for project types in contexts where there is a low risk of non-additionality." On baselines, Australia suggests that they should be shorter or more flexible and aligned with the technologies used, pre-establishment of automatic baseline adjustments to account for technological progress, and reappraisal of the E+/E- rule by requiring that baselines and additionality assessments include all relevant domestic policies (ibid.: 2).

Australia also suggests more transparency in the selection of Board members and operation of the Board, the former ideally including procedures to ensure that Board members have complementary skills, effective term limits and stronger rules on conflicts of interest, and focusing the Board on its supervisory role by delegating decisions on requests for review to a panel of experts (ibid.).

4.3.2 Australia's Carbon Farming Initiative

As noted above, Australia is developing a domestic offsetting scheme through the government-owned non-profit Australian Carbon Farming Initiative (CFI). The scheme was to have been regulated by the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (formerly the Department of Climate Change and Energy Efficiency), though the incoming government has signalled its intention to move competence for the program, which is not considered to be politically controversial, to the Department of Agriculture (Maher 2013). As designed, the initiative is supported by the Domestic Offsets Integrity Committee, an independent expert body that assesses methodology proposals and advises the minister on whether or not to approve them. It also advises the minister on whether or not to include activities in the so-called positive list.

The CFI project cycle is illustrated in Figure 1. Project proponents must first apply to become a Recognised Offset Entity (ROE). This includes a 'fit and proper' person test to determine whether the applicant is who they claim to be and whether they have been convicted of dishonest conduct that may be relevant to the CFI as well as matters such as insolvency (Australia, DECC 2012). The following elaborates on the main details of the subsequent steps.

Figure 1:The CFI Project Cycle

(Source: Australia, DECC 2012) 1

4.3.3 Eligibility in Australia's Carbon Farming Initiative

4.3.3.1 Overview

In its own system, Australia departed from the CDM's project-by-project approach and instead defines eligibility ex-ante. The CFI has a two-part additionality test. First, projects must not be required by law. Second, a common practice analysis is carried out. Activities that the government deems to go beyond common practice are put on the positive list. Activities that are not required by law and that are on the positive list are automatically considered additional with no project-by-project evaluation. Anyone can propose new activities for inclusion in the positive list, the process for the determination of common practice is established in the positive list guidelines (see below). The activities on the positive list are to be reviewed periodically.

In summary, an activity is CFI eligible if the following requirements are fulfilled (Australia, DECC 2012):

- Project proponents must have the legal right to undertake the project, e.g. by being the owner or lessee of the land. For sequestration projects they must also have the applicable sequestration right (which may be held and sold separately from the land itself) and have the consent of others with an interest in the land, such as banks that have a mortgage over the land or native title bodies.
- Proponents must have obtained all necessary environmental, planning and water approvals and must declare whether the project is consistent with the regional national resource management (NRM) plan for the project area
- The activity must not be required by law.
- The activity must be on the positive list.
- The activity must not be on the negative list. The negative list includes activities that are ineligible in circumstances where there is a material risk that there will be negative impacts on the availability of water, biodiversity, employment, the local community, and land access for agricultural production.
- In addition to the negative list, all activities that involve the clearing of native forest are ineligible.

- Similar to the CDM and unlike JI, there must be an approved methodology for the project type.

The following goes into further details on the main elements.

4.3.3.2 Positive List

In the design phase of the CFI, the Australian government explicitly distanced itself from using a project-by-project additionality approach as used in the CDM. The public consultation paper on the positive and negative lists elaborated that there are two approaches to assessing additionality, the project-by-project approach and the standardised or "positive list" approach. The paper argued that the former can be time-consuming and expensive to administer and that other schemes had in fact had long delays in their approval processes. The positive list approach was presented as more streamlined and cost effective, assessing the additionality of activities, rather than individual projects. The paper also argued that the use of financial or investment additionality tests could exclude activities that had productivity benefits even though there were many reasons why abatement activities were not common practice. Therefore,

"The CFI will be one of the first carbon offset schemes in the world to use a more efficient and transparent 'Positive List' approach to additionality. Under the Positive List approach, additionality is assessed for activities, rather than individual projects. This means fewer assessments and less subjectivity because all projects of the same type are treated equally." (Australia, DECC 2011a: 2)

Consequently, financial or investment additionality is not considered in the development of the positive list. Instead, the list is based on a "common practice test". Common practice is determined by analysing the "relevant comparison group" of similar farmers operating in similar environments, with similar access to information, skills and technologies. The "relevant comparison group" is the group of people that are subject to the same factors influencing whether they adopt an activity, or who share common barriers to uptake of an activity. The group may be as specific as "beef producers in the north of Australia" or as broadly defined as "beef producers". Information to support the determination of what is common practice will come from the Agricultural Census, Agricultural Resources Management Surveys and other sources deemed credible. Starting in 2013, biennial surveys will be carried out on agricultural land management specifically in order to help with common practice determination in the CFI (Australia, DECC 2011b).

The basic threshold for being considered uncommon is when less than 5% of the comparison group practices the activity. In the event that there is not enough survey data or other statistical evidence to determine if an activity is above or below the 5% threshold, an activity can be considered uncommon (additional) if it is "dependent on a new technology (not including minor adjustments to existing technologies)" or if there is "one or more significant impediments to adoption for all potential participants", such as high upfront or operating costs with little commercial benefit (ibid.: 4).

If an activity becomes common practice as a result of being promoted by the CFI, it may be removed from the positive list once it has reaches the "take-off point" where the practice becomes widely adopted. Such activities may, however, remain on the positive list if the activity would not be feasible without its inclusion in the CFI (ibid.). The government initially considered that according to research the take-off point for many agricultural activities was likely to lie around 30% of the comparison group, subject to further research (Australia, DECC 2011c). Nowadays, the government considers that if the uptake of an activity is above 20%,

there are likely no significant barriers to its adoption and the activity may be considered to be common practice. If uptake is between 5 and 20%, input will be sought from the Australian Bureau of Resource Economics and Sciences (ABARES) on the rate of adoption and take-off point for the activity. If uptake is close to the take-off point, input will be sought on how fast the activity is likely to become common practice (Australia, Government of 2013b).

As of August 2013, the positive list includes various types of vegetation and wetland restoration projects, legacy landfill gas projects, livestock management and other activities such as application of biochar to soil.[2] The corresponding draft regulations were released in October 2011. The government's commentary on the draft regulations noted that for all of the listed activities the estimated level of uptake was 5% or less and therefore no further assessment was required – "the activity is obviously uncommon. The reason the activity is uncommon is not significant, though it can help to assess uptake." (Australia, DECC 2011c: 5f) The document nevertheless gives the following specifications for the individual project types (ibid.).

For the following project types the relevant comparison group is all landholders with land on which the activity could occur:

- Permanent environmental plantings, which consist of species that are native to the local area and are not harvested: There usually is no commercial return from this activity. While some landholders undertake plantings for environmental or philanthropic reasons, according to research this group is less than 5% of landowners even where government has provided incentives and information about co-benefits.
- Establishment of permanent mallee (a type of eucalypts) plantings after 1 July 2007: Such plantings are costly to establish and there is no commercial return. The document notes that some mallees are harvested for the production of biomass energy and biochar and that the government is currently investigating the rate of uptake.
- Re-establishment of native vegetation on private land from residual seed sources through the exclusion of stock, the management of the timing and extent of grazing, the management of feral animals, the management of weeds or cessation of mechanical or chemical destruction: "Residual seed sources" means allowing seed from the site to regenerate naturally whereas deliberate planting falls under the project type permanent environmental plantings. There are no commercial returns from this activity. While the cost to establish regrowth is relatively low, its management is considered to involve high opportunity costs when taking into account CFI permanence obligations.
- Restoration of drained wetlands on private land: There are no commercial returns from this activity and the capital costs can be very high as the activity usually involves expensive earthmoving.
- Application of biochar to soil: This activity is still at the development stage.
- Application of urea inhibitors to fertiliser: This abatement practice is still at the development stage.

For the following project types the relevant comparison group is the livestock industry:

[2] The positive list | climatechange.gov.au. http://www.climatechange.gov.au/reducing-carbon/carbon-farming-initiative/activities-eligible-and-excluded/positive-list/positive-list-activities, last accessed 26 August 2013.

- Capture and combustion of methane from livestock manure: This abatement practice is still at the development stage.
- Using tannins as a feed supplement for ruminants: The use of tannins as a feed stock reduces digestive methane emissions but is expensive, does not improve productivity and is still at the development stage.
- Incorporating Eremophila into feed for ruminant livestock: Eremophila is a plant native to Australia that is commonly called Emu Bush. This abatement practice is still at the development stage.
- Manipulation of gut flora in ruminant livestock: This abatement practice is still at the development stage.
- Application of urea inhibitors to manure: This abatement practice is at the development stage.

Other project types:

- Capture and combustion of methane from waste deposited in a landfill facility before 1 July 2012: Less than 5% of landfills capture methane voluntarily beyond or above the level required by law.
- Early dry season burning of savanna areas greater than 1km^2: The relevant comparison group is all landholders with savanna lands. While Aboriginal people used to actively manage Northern Australian landscapes throughout the year before the end of the twentieth century to reduce fuel loads and reduce the intensity of later dry season fires, very low population densities and limited economic activity currently prevent active large-scale fire management.
- Management of feral camels on private land: The relevant comparison group is all landholders with land on which the activity could occur, excluding in areas where it is required by law. Camels have become an invasive species that severely deteriorates waterholes and vegetation and causes high methane emissions. However, herd size management is expensive and effectively only occurs where it is funded by governments.
- Diversion of putrescible waste from a landfill facility to an alternative waste treatment facility before 1 July 2012: Alternative waste treatment facilities are those which convert organic waste to energy, compost and other products. The relevant comparison group is population centres that generate large quantities of putrescible wastes. Traditional treatment of landfill waste is less costly than alternative treatment and is not commercially viable without government incentives. However, waste has been covered by the carbon pricing system since 1 July 2012 and is hence no longer eligible to generate offsets.

4.3.3.3 Negative List

To accompany the “positive list” the government has also developed a “negative list”, which sets out further criteria for potential projects that may otherwise be eligible and additional but may have other adverse effects on communities or the environment. Such negative adverse effects may include contributing to water stress in drought areas, negative effects on biodiversity, employment or the local community. Project categories can be added and

removed from the negative list as circumstances change, for example if common practice changes, or other circumstances like drought or the boundaries of water stress regions change (Australia, DECC 2011b).

As of August 2013, the negative list includes activities such as the planting of a species in an area where it is a known weed species or the establishment of vegetation on land that has been subject to illegal clearing of a native forest.[3]

4.3.3.4 Methodologies

CFI projects must use methodologies that have been approved by the government. Methodologies contain (Australia, DECC 2012: 15):

- a description of the activity and how it reduces emissions or stores carbon,
- a list of the emissions sources and sinks affected by a project,
- instructions for determining the baseline,
- procedures for measuring or estimating the expected abatement relative to the baseline, and
- project-specific data collection, monitoring, reporting and record keeping requirements.

In principle, methodologies may be developed by private proponents and by government agencies. In practice, methodology development has so far mostly been top-down through the Department of Climate Change and Energy Efficiency (which was later merged into the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education), and the Department of Agriculture, Fisheries and Forestry, working with industry. In addition, the government has committed $19.6 million to the "Methodology Development Program" to support methodology development by private actors. As noted above, the independent Domestic Offsets Integrity Committee has been established to assess proposed methodologies. As part of this assessment, the committee publishes proposed methodologies on the government website to invite public comments.[4]

As of August 2013, the following methodologies have been approved[5].

Agriculture (livestock, soil carbon, fertilisers, feral animals)

- Destruction of methane generated from dairy manure in covered anaerobic ponds
- Destruction of methane from piggeries using engineered biodigesters
- Two methodologies for destruction of methane generated from manure in piggeries
- Vegetation (regrowth, reforestation, avoided clearing and avoided harvest)

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[3] The negative list | climatechange.gov.au. http://www.climatechange.gov.au/reducing-carbon/carbon-farming-initiative/activities-eligible-and-excluded/negative-list, last accessed 26 August 2013.

[4] Methodology Development Program, Carbon Farming Initiative http://www.climatechange.gov.au/government/initiatives/carbon-farming-initiative/methodology-development/mdp-guidelines.aspx, last accessed 9 October 2012.

[5] Methodology determinations | climatechange.gov.au. http://www.climatechange.gov.au/reducing-carbon/carbon-farming-initiative/methodologies/methodology-determinations, last accessed 30 July 2013.

- Environmental Plantings
- Human-Induced regeneration of a permanent even-aged native forest
- Human-induced regeneration of a permanent even-aged native forest 1.1
- Native forest protection (avoided deforestation)
- Quantifying carbon sequestration by permanent plantings of native mallee eucalypt species using the CFI reforestation modelling tool
- Three methodologies for reforestation and afforestation
- Two methodologies for savanna burning
- Landfill and alternative waste treatment (AWT)
- Avoided emissions from diverting waste from landfill for process engineered fuel manufacture
- Avoided emissions from diverting waste from landfill through a composting AWT technology
- Capture and combustion of landfill gas
- Capture and combustion of methane in landfill gas from legacy waste: upgraded projects
- Diverting waste to an alternative waste treatment facility
- Enclosed mechanical processing and composting alternative waste treatment

Out of these in total 20 methodologies, 12 had been submitted for approval by government departments and 8 by private companies. Notably, in contrast to CDM methodologies and the Offset Protocols in the Californian system (see next section); the Australian CFI methodologies do not address additionality and eligibility in detail as these issues are covered in the process of adding types of activities to the positive list (see above).

4.3.4 Permanence

Sequestration projects in the CFI are subject to permanence obligations to ensure that carbon storage is maintained for at least 100 years. Landholders may cancel projects at any time, but will then have to return any issued credits to the administrator. Obligation for the sequestration "runs with the land" meaning that if ownership changes, the new owner is then responsible for the continued carbon storage of the project. If storage is lost due to natural disturbances, landholders are not required to return credits but are required to take reasonable action to re-establish carbon stores. No credits will be issued while the stores are recovering but only once they reach and exceed pre-disturbance levels.

In addition, there is a risk of reversal buffer of 5% of all carbon stored by a project. For every 100 tonnes stored, only 95 credits are issued. The remainder is used to insure the scheme against residual risks such as temporary losses and long-term losses result from participants failing to re-establish carbon stores and return units.

Moreover, a carbon maintenance obligation applies if there are unmet relinquishment obligations, for example if stores are not allowed to regenerate following a natural disturbance or if a project is not properly terminated or transferred, for example if a project proponent becomes insolvent. As long as the maintenance obligation applies, no stores that have been

credited may be destroyed. The maintenance obligation will be lifted if all issued credits are returned and any applicable penalties are paid (Australia, DECC 2012).

4.4 Monitoring, Reporting and Verification

As in the CDM, the specific monitoring and reporting requirements for project types are laid down in the methodologies. Project reports have to be submitted at least once every five years and not within 12 months of a previous report. A report must also be submitted at the end of a crediting period. The crediting period is generally 7 years, except for reforestation projects, which have a 15-year period, and native forest protection projects, which have a 20-year period. In addition, the CFI administrator needs to be notified about certain events or occurrences, such as loss of carbon storage or changes to the project or the project participants' status.

Sequestration projects enter a "maintenance phase" when they are no longer sequestering additional carbon and do not have to submit project reports once they are in the maintenance phase. The start of the maintenance phase may be requested or starts automatically if a project does not apply for a subsequent crediting period. Notification and permanence obligations continue to apply during the maintenance phase.

Project reports must be accompanied by an audit report prepared by a registered greenhouse and energy auditor. The CFI uses the audit framework established under the National Greenhouse and Energy Reporting Act of 2007 (Australia, DECC 2012).

4.5 Interim Conclusion

The former Australian government generally had a positive position towards the CDM and had planned to allow the use of CERs in its ETS from 2015 or 2014, all of which is now in question after the change in government. Nevertheless, for its own offset mechanism which is less politically controversial, Australia took an ex-ante approach to additionality and explicitly stated that it considers this approach to be more efficient, cost-effective, and objective than a project-by-project approach. The government defined a positive list that does not consider financial or investment additionality. Instead, the list is based on a "common practice test". Common practice is determined by analysing the "relevant comparison group" of similar farmers operating in similar environments, with similar access to information, skills and technologies. The basic threshold for being considered uncommon is when less than 5% of the comparison group practices the activity. In the event that there is not enough survey data or other statistical evidence to determine if an activity is above or below the 5% threshold, an activity can be considered uncommon (additional) if it is "dependent on a new technology (not including minor adjustments to existing technologies)" or if there is "one or more significant impediments to adoption for all potential participants", such as high upfront or operating costs with little commercial benefit.

So far, all activities on the positive list have been included because their market share is below 5%. It bears noting that most of the project types on the positive list either do not yield commercial returns (in particular those related to land use, such as planting native species of trees without the possibility of harvesting), are abatement practices that are still at early stages of development (e.g. application of biochar, manipulation of livestock digestion), or are commercially highly unattractive compared to alternatives (e.g. feeding tannin to ruminants, alternative waste treatment). It therefore seems highly likely that projects of these types could also easily pass the CDM's additionality test. However, the Australian ex-ante approach relieves

project developers of the necessity to demonstrate the additionality of their projects and hence lowers their transaction costs and enhances regulatory and thus investment certainty.

5 California/WCI

5.1 Overview of California Climate Policy

The main single piece of legislation that determines Californian climate policy is Assembly Bill 32, the Global Warming Solutions Act. The law directs the California Air Resources Board (CARB or ARB) to reduce California emissions to 1990 levels by 2020. 1990 emission levels were 422.1 MtCO2e (WRI 2012). California further has a longer-term target of reducing emissions 80% from 1990 levels by 2050 (84.42 MtCO2e). In 2007, California had emissions of 473.6 MtCO2e. California's projected business as usual (BAU) emissions (if no mitigation measures are implemented) for 2020 are 506.8 MtCO2e (CARB 2010). The details of the reduction efforts are laid out in CARB's Scoping Plan (CARB 2008), which covers about 85% of Californian emissions. One major component of the scoping plan is the California Air Resources Board California Cap-and-Trade Program, Resolution 11-32 (CARB 2011). Other regulatory instruments are also used, for instance direct regulation of emissions sources such as methane from landfills. The cap-and-trade regulation was unanimously approved by the CARB in October 2011. It places a fixed, declining cap on the amount of CO2e that can be emitted by 350 of the state's largest industrial emitters and power plants referred to as 'covered entities'.

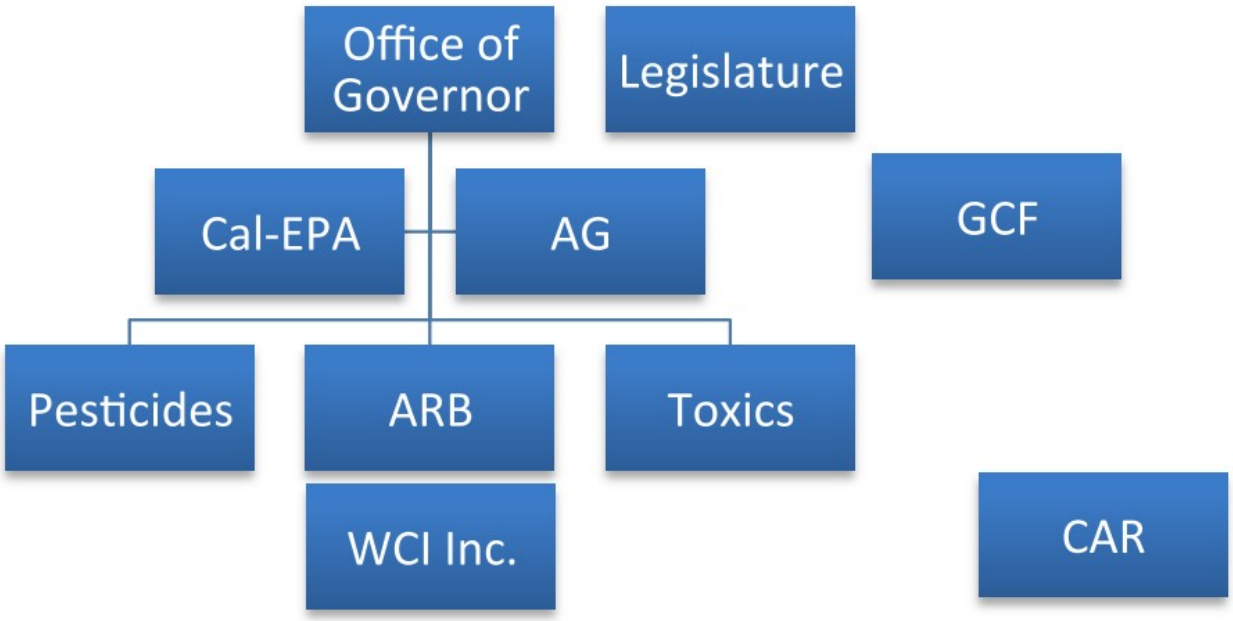
Gases covered include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF6), and nitrogen trifluoride (NF3). During the first compliance period of 2013-2014 the scheme covers entities emitting 25,000 tons of CO2e or more in the cement, cogeneration, electricity (including imported electricity), glass, hydrogen generation, iron and steel, lime, nitric acid production, petroleum and natural gas systems, petroleum refining, pulp and paper, stationary combustion sectors. In the second and third compliance periods, (2013-2017, 2018-2020) the cap-and-trade system will cover all electricity importers from specified sources, even under 25,000 tons CO2e as well as suppliers of liquefied petroleum gas, suppliers of natural gas and industry, and suppliers of Reformulated Blendstock for Oxygenate Blending (gasoline) and distillate fuel oil greater than or equal to 25,000 tons CO2e a year.

The cap started at 162.8 million allowances in 2013 (equal to expected BAU that year). In 2013-2014, the cap will be reduced approximately 2% per year. The cap in 2015 will increase to take into account of the expanding scope of the program. From 2015 to 2017, the cap is to be reduced by 3% per year.

5.2 Examination of the Californian Climate Policy Making Process

The California Environmental Protection Agency (Cal EPA) is the state agency charged with developing, implementing and enforcing the state's environmental protection laws that ensure clean air, clean water, clean soil, safe pesticides, and waste recycling and reduction. Matt Rodriquez was appointed as Cal EPA Secretary in 2011 by Governor Brown. Cal EPA serves as an umbrella agency for various units including CARB, the Department of Pesticide Regulation, the Department of Toxic Substances Control, the Office of Environmental Health Hazard Assessment, and the State Water Resources Control Board.

Figure 2:Institutions and Hierarchy in California Policy Making



(Source: Mazurek)

CARB is one of five entities under the umbrella of Cal EPA. Although CARB is technically under Cal EPA in the hierarchy, CARB's Chairman, currently Mary Nichols, is appointed directly by the Governor. The Board exercises a great deal of autonomy and reports directly to the governor and legislature. AB 32 directed CARB (not the Cal EPA) to develop a scoping plan that led to the development of the California emissions trading system. Within CARB, the Climate Change Markets Branch is responsible for cap-and-trade activities, including offset provisions. It is this office, rather than any other unit in any other agency that bears primary responsibility for regulation and approval of offset protocols. The branch has worked closely with the California Attorney General's office which was led by Edmund G. Brown before he was elected governor.

Mary D. Nichols was reappointed to Chair of the CARB by Governor Brown again in 2011. She had previously served as Chair of CARB when Governor Brown was governor in the 1970's, and she kept on as Chair during the Schwarzenegger administration.

The California Climate Action Registry (CCAR) was a non-profit entity created in 2001 by the State of California to help develop voluntary greenhouse reductions and offset protocols. When the Global Warming Solutions Act was passed in 2006, the state "sunsetted" its support for the institution which led CCAR to create a non-profit private entity, the Climate Action Reserve (CAR). CAR accordingly does not enjoy an official mandate but continues to develop voluntary offset protocols with some influence. The current four CARB-approved offset protocols all started as CAR voluntary offset protocols, which were then subjected to increased scrutiny for approval in the compliance market and were officially approved in the cap-and-trade legislation in 2011. In December 2012, CARB formally approved both the Climate Action Reserve and the American Carbon Registry as offset project registries (CARB 2012). CARB is currently reviewing several other CAR-developed offset protocols including emissions reductions in rice cultivation through rice straw methane and coal mine methane reduction projects (CARB 2011b).

5.2.1 Other Stakeholders

In practice, many stakeholder groups work to help shape CARB's compliance offsets. They include not only CAR on the domestic front and the "Governor's Climate and Forest Task Force" on REDD (see section 3.4 on Offset Policies), but also leading US environmental organizations such as the Environmental Defense Fund (EDF), key industry stakeholders such as Pacific Gas & Electric (PG&E), and leading academics from marquee California universities such as Stanford University. Crucially, the California offices of the leading national environmental groups – including EDF, the Natural Resources Defense Council (NRDC), and the Union of Concerned Scientists – are relatively autonomous and do not always support the positions of their national counterparts, particularly in the case of offsets. UCS in California has been highly critical of offsets in general. Also very critical of offsets in general – and of CDM in particular – is the California office of International Rivers, which first got involved in the policy area through protesting large-scale hydropower projects.

Although market-oriented environmental organizations such as EDF generally support the use of offsets, such groups were more cautious about CDM projects. During California's ETS formative stages, in 2008, EDF was already calling for CDM reform, citing such factors as "slippery" additionality factors, leakage, and other limitations of project-based approaches, such as constrained environmental and economic impact, as compared to broader, sectoral efforts (EDF 2008).

5.2.2 Judicial

In comparison to many other jurisdictions, the American justice system has long proved to be a particularly important institution in interpreting environmental laws and practice. Legal decisions have benefitted both environmental NGOs in strengthening legislation or establishing precedence as well as industry seeking to overturn or weaken regulation. California's emissions trading system has already been challenged and survived, charges brought against it in court several times by both industry and environmental groups for various reasons. Another lawsuit[6], filed on 28 March 2012 by two environmental organizations, Citizen's Climate Lobby and Our Children's Earth Foundation, did not aim at the cap-and-trade system itself, but rather at the system's provisions allowing installations covered by the system to use offsets for a portion of their compliance. The suit was brought on the grounds that though AB 32 requires that reductions are truly in additional to any GHG reduction that would occur anyway, the established protocols do not assure additionality, attacking specifically the CARB's "Performance Standard" approach. The suit was dismissed, with the presiding Judge Goldsmith finding that the plaintiffs failed to demonstrate deviance from state law, and generally deferring to CARB's rule making powers and expertise (Citizens Climate Lobby and Our Children's Earth Foundation 2013). The case does nevertheless demonstrate the hostility of many environmental groups in California to offsets in general.

5.3 The Western Climate Initiative

AB 32 directed CARB to work with others, including other states and nations "to facilitate the development of integrated and cost-effective regional, national and international greenhouse

[6] Citizens Climate Lobby and Our Children's Future Earth Foundation v. CARB, filed in San Francisco Superior Court (No. CGC-12-5195544).

gas reduction programs." Under the Brown administration, CARB has focused this mandate primarily on advancing the Western Climate Initiative (WCI)(Nichols 2012).

Shortly after AB 32 was passed in California, the WCI was formed by governors from Arizona, California, New Mexico, Oregon, and Washington in 2007. The governors formed WCI to develop a common GHG reduction target, collectively track and manage emissions, and develop a market-based instrument to reach the target. At one point, the initiative had grown to include most of the western United States as its members in addition to several Canadian provinces. In 2013 the only members that remain are California, Quebec, British Columbia, and Ontario. While California and Quebec have made progress in their emissions trading implementation efforts, British Columbia, though a member of the partnership's newly founded administrative institution, the Western Climate Initiative Inc., will likely continue with its carbon tax as its main climate change mitigation strategy and not implement an emissions trading system in the near future. Ontario, though still officially a WCI member, interestingly does not have a seat on the WCI Inc. board of directors, and the provincial government has made no movement towards an emissions trading system.

Each jurisdiction technically develops its own emissions trading scheme and will then go through the process of linking it with the others. No single ETS is dependent on the development of another.

Though independent jurisdictions, since Quebec's announcement that it will implement an ETS in December 2011, California and Quebec have made great efforts to coordinate their provisions on many issues from auctions to offsets. California is the larger of the two partners, but because of their decision-making procedures within WCI, their recent agreement to recognize each other's offset credits (WCI 2012), and their progress towards linking, the two jurisdictions must be considered as a one unit with regard to their demand for GHG offset credits. As a normative force, WCI has already served as a model which influenced the recent program review of the Regional Greenhouse Gas Initiative (RGGI), which then based offset provisions along the lines of the WCI forest-based projects (RGGI 2013).

CARB expects to develop additional compliance protocols in partnership with Western Climate Initiative Incorporated (WCI Inc.). Created in November 2011, WCI Inc. will administer some aspects of the trading system, including the development of a compliance system that tracks allowances and offsets certificates, and the administration of auctions. The WCI Inc. named Anita M. Burke as its first Executive Director in March 2012. Thus, the WCI partners have designed WCI Inc. to be analogous to RGGI Inc., which operates the Regional Greenhouse Gas Initiative in the Northeastern United States. Despite last minute legislation requiring further steps to be taken by the Governor of California in order to approve linking, the process is proceeding and the two systems are expected to have mutually fungible allowances and common auctions from the start of 2014. To make the systems compatible and thereby promote their direct linkage, the Quebec cap-and-trade regulation will contain an allowance reserve and will harmonize reserve tier prices (ibid.). As part of this regulation, Quebec has developed and is continuing to develop offset regulations and protocols. CARB does not necessarily know beforehand what protocols Quebec will establish, with regard to offsets or otherwise, though these will have an effect on the linking process negotiations and the two jurisdictions remain in close communication.

To promote greater uniformity between California's compliance protocols and those developed by WCI Inc., partners such as Quebec and others will follow a new WCI common offset protocol review and approval process. WCI partners have been developing the common offset protocol approval process for roughly two years. WCI Inc., in February 2012 released its final offset

review and recommendations about how WCI partners will go through their protocol review process (WCI 2012b).

Offsets Canadian jurisdictions create using the 2012 WCI common protocol process and issued by a jurisdiction whose regulations are directly linked to California's will be fully fungible across the WCI and CA systems (CARB 2012). Although it remains unclear exactly what protocols Quebec will bring forward, CARB reports that WCI partners that directly link regulations will need to agree to accept each other's' protocols. In other words, if CA elects to develop a protocol to reduce methane emissions from rice cultivation, Quebec as a linked partner will also need to accept credits from that protocol. CARB reports that WCI Inc. will soon release a list of common WCI protocols, for acceptance across WCI jurisdictions including California and Quebec (CARB 2012).

5.4 Californian Offset Policies

5.4.1 WCI Framework Rules

WCI program design had originally recommended that no more than 49% of each partner's total emission reduction obligation should come from offsets or other trading systems' allowances from 2012 to 2020.[7] This corresponded to an installation limit of 4% of reported emissions, but was later increased to 8% in California. The 8% limit cumulatively translates to about 200 million tonnes by 2020 (Reuters PointCarbon 2011). Despite the expectation that the California ETS will be over allocated in the first period, offsets are expected to be central to the cost-effectiveness of the cap-and-trade system. CARB economic modelling in 2010 found that if the supply of offsets were to be halved, emissions trading allowances prices under California's cap would double. Accordingly, a robust supply of compliance-grade offsets is deemed to be essential to contain the cost of California's system (CARB 2010c).

WCI requires offsets to result in GHG reduction, removal or avoidance that is real, surplus/additional, verifiable and permanent. Further, according to WCI rules, offsets can be from the United States, Canada, and Mexico but not from other developed countries. There are a number of rules under the broader WCI framework that allow for provisions that have not been approved by California, for example Californian and Quebec allowances will be fully fungible in each other's systems, not subject to the above limits. As linking between California and Quebec is finalized, these rules will be subject to intense negotiation between the two jurisdictions to ensure that offsets disallowed in one jurisdiction do not enter through the backdoor of another linked jurisdiction.

5.4.2 California's Position Towards the CDM

Former Governor Schwarzenegger strongly encouraged either direct linkage to the EU ETS or indirect linkage through the recognition of credits from the CDM. This desire found its way into the WCI rulemaking, which allows but does not require WCI jurisdictions to accept offset credits from developing countries through the CDM (CARB 2008: 249). The subsequent administration of Governor Jerry Brown (3 January 2011 – present) has been more conservative with its approach to offsets and the final cap regulation published in December 2011 makes no specific reference to linkage to the CDM (California Code of Regulations, Title 17: §95854).

[7] For more information see: http://www.westernclimateinitiative.org/component/remository/general/design-recommendations/Design-Recommendations-Section-1/

Even during the Schwarzenegger Administration, the state's regulatory agency in charge of the ETS, the California Air Resources Board (CARB) had intended to take a "wait and see" policy with regards to CDM reforms (CARB 2009). CARB's policy favours sectoral approaches, where emission reductions count against an entire country sector baseline, over the CDM's current project-based focus (Sahota 2012). Sectoral approaches are preferred to project approaches due to concerns about baseline accuracy and intra-sectoral leakage. The proposed regulation released on 28 October 2010 noted that:

"While the CDM has created a vibrant market for international offsets, its project-based approach has not fostered significant policy changes in developing countries. Further, some questions have been raised about the sustainability and additionality of certain projects and project types." (CARB 2010a: D-510).

The document further noted that the international community was discussing the development of sector-based crediting mechanisms to replace or reform the CDM. The document considered that sectoral approaches would allow for scaling up emission reductions, reduce concerns about competitiveness and would have greater environmental integrity: "By focusing at the sectoral-level, rather than on individual projects, these mechanisms also will better ensure additionality and reduce emissions leakage between facilities in a way that the CDM cannot... Given these advantages, California would like to utilize a sector-based crediting mechanism for international offsets, and move beyond project-based systems like the CDM." (ibid.)

It was also noted that the introduction of sectoral mechanisms may take substantial time and therefore "early supply" from other sources may be needed. The CARB was therefore considering allowing the use of limited amounts of CERs (or other project-based credits from other systems) for a limited period of time. The CARB was also considering other limitations, for example regarding project types or geographic areas, "to ensure that these offsets meet additionality requirements and provide sustainable development benefits. For example, offset projects in least developed countries, which are likely to be both additional and sustainability enhancing, should be encouraged." (ibid.)

In the end, however, the CARB decided not to allow any use of the CDM. The "Final Statement of Reasons", which lists all public comments that had been submitted on the draft regulation as well as CARB's responses, indicates a substantial amount of scepticism towards the CDM. In responding to one comment about the risks of offsetting, "ARB recognizes that some CDM credits created during this period may have been non-additional. ARB does not currently plan to accept CDM credits until these issues in that system are resolved." (CARB 2011a: 221f) The statement of reasons also claims that California's offset rules have been designed explicitly to avoid the problems encountered under the CDM. "Our offsets program is designed very differently than the CDM by relying on standardized assessments of additionality established by ARB through a public process and not relying on project-specific assessments done by the project developers themselves." (CARB 2011a: 824)

5.4.3 REDD and sectoral credits

In line with the preference for sectoral approaches, the Schwarzenegger administration signed a Memorandum of Understanding with Chiapas, Mexico, and Acre, Brazil to explore REDD offset opportunities. This was part of a wider framework of the "Governor's Climate and Forest Task Force"[8] (GCF), which brought 16 states and provinces from the United States, Brazil,

[8] For more information see: http://www.gcftaskforce.org/

Indonesia, Mexico, Nigeria, and Peru together to work on principles and regulatory architectures to support subnational REDD+ programs and their integration into emerging GHG compliance regimes. Under Governor Brown's administration, this has taken on less of a priority and its future timeline is unclear. An indication of the lesser priority of progress on in this area for offsets in the California system, Governor Brown, though he took office in January 2011, delayed in appointing a new Cal EPA representative to the GCF. The former Representative, Anthony Eggert, moved on to become the Executive Director of the University of California at Davis Environment Policy Center.

5.4.4 California's Offset Regulations

California's offset regulations are part of the overall emission trading regulations adopted by CARB pursuant to AB32. They mandate CARB to establish requirements and procedures to issue offset credits and to establish a mechanism to include international offset programmes from an entire sector within a region. Regulation sub-article 13 stipulates that offset credits must represent an emission reduction or GHG removal that is "real, additional, quantifiable, permanent, verifiable, and enforceable" (California Code of Regulations, Title 17: §95970). Credits are issued on the basis of "Compliance Offset Protocols" (comparable to CDM methodologies) adopted by the CARB. Prior to adoption CARB shall give opportunity for public comment and it shall review and revise the Protocols periodically. Projects may take place in the United States, Canada, and Mexico, but currently only include protocols for projects in the US.

The regulation explicitly stipulates that Offset Protocols must establish the eligibility and additionality of projects on the basis of "standard criteria" and quantify emission reductions or removals on the basis of "standardized baseline assumptions, emission factor and monitoring methods." (California Code of Regulations, Title 17: §95972 (a)(9)) Projects must fulfil the following additionality requirements as well as further requirements specified in the applicable Protocol (California Code of Regulations, Title 17: §95973 (a)(2):

a) "The activities (...) are not required by law, regulation, or any legally binding mandate applicable in the offset project's jurisdiction, and would not otherwise occur in a conservative business-as-usual scenario;

b) The Offset Project Commencement date occurs after December 31, 2006, unless otherwise specified in the applicable Compliance Offset protocol, except as provided in section 95973[9]; and

c) The GHG reductions and GHG removal enhancements resulting from the offset project exceed the project baseline calculated by the Compliance Offset Protocol (...)"

"Business-as-Usual Scenario" is defined as "the set of conditions reasonably expected to occur within the offset project boundary in the absence of the financial incentives provided by offset credits, taking into account all current laws and regulations, as well as current economic and technological trends." (California Code of Regulations, Title 17: §95973 (36) "Conservative" is defined as, "in the context of offsets, utilizing project baseline assumptions, emission factors, and methodologies that are more likely than not to understate net GHG reductions or GHG removal enhancements for an offset project to address uncertainties affecting the calculation or

[9] A provision rewarding 'early action' either established by Executive Order by the Executive Officer, or which meets a number of other provisions outlined in Subsection 13.

measurement of GHG reductions or GHG removal enhancements." (California Code of Regulations, Title 17: §95802(a)(60))

Forestry projects must ensure the permanence of the GHG removal for at least 100 years (California Code of Regulations, Title 17: § 95802(192)). To ensure permanence, CARB will place a share of the credits as determined in the respective Offset Protocols in a "Forest Buffer Account". In case of unintentional reversal of storage, CARB will retire a corresponding amount of credits from the buffer account. In case of intentional reversals, the forest owner must submit a corresponding amount of compliance instruments within six months. Failing to do so, the CARB will retire a corresponding amount of credits from the buffer account and the forest owner will be subject to enforcement action (California Code of Regulations, Title 17: 95983).

"Project Data Reports" must be submitted for each Reporting Period within four month after the end of the Reporting Period. The first Reporting Period may last between 6 to 24 consecutive months, each subsequent period must consist of 12 consecutive months. The report must be verified by a CARB-accredited verification body within nine months after the end of the Reporting Period. If either report is not submitted by the respective deadline, the reductions/removals are not eligible for the issuance of credits (California Code of Regulations, Title 17: §95976f).

Credits may be invalidated retroactively if it is found that the Project Data Report has overstated reductions/removals by more than 5%, the project was not in compliance with environmental, health and safety regulations, or credits have been issued in any other voluntary or mandatory programme within the same offset project boundary. Credits may be invalidated within eight years of issuance. If the invalidation concerns non-forestry credits in the Retirement Account, affected parties must replace the invalidated credits by other valid compliance instruments within six months. If the party is no longer in business, the replacement obligation falls on the project operator. In case of forestry projects the replacement obligation applies to the forest owner (California Code of Regulations, Title 17: §95985).

5.4.5 Californian Offset Protocols

5.4.5.1 Overview

At present, only four Offset Protocols have been approved to supply the Californian system with offset credits. These protocols only apply to projects in the United States, so there is currently no option for foreign offset credit projects to provide credits to the Californian system. The four offset protocols that have been approved are: Livestock projects (methane), Ozone Depleting Substances Projects, Urban Forest Projects, US Forest Projects. All four protocols started as CAR voluntary offset protocols, which were then subjected to increased scrutiny for approval in the compliance market and were officially approved in the cap-and-trade legislation in 2011. Although they cooperate informally, CARB and CAR have no official relationship. CARB is currently reviewing several other CAR-developed offset protocols including coal mine methane and a protocol to reduce methane by the removal of rice straw in flooded fields (CARB 2011b).

All four approved protocols use a "Performance Standard" to determine eligibility. The CARB staff reports that were the basis for the elaboration of the protocols, explain that "The purpose of a performance standard is to establish a threshold that is significantly better than average GHG production for a specified activity, which, if met or exceeded by a project developer, satisfies the criterion of 'additionality.' If the project meets the threshold, then it exceeds what

would happen under the business-as-usual scenario and generates surplus/additional GHG reductions." (CARB 2010c)[10]

As noted above, two environmental groups sued to overturn this approach and the four offset protocols that have so far been adopted. *Citizens Climate Lobby and Our Children's Earth Foundation v. California Air Resources Board*, case no. CGC-12-519554, which was submitted on 27 March 2012, argued that the emission trading regulation defined additionality as going beyond *any* GHG reduction or removal that would otherwise occur. In their opinion a common practice approach to additionality was in direct violation of this requirement as deeming a whole class of activities to be additional inherently included activities that would otherwise have occurred (Citizens Climate Lobby and Our Children's Earth Foundation 2012a: 10). Referring to other legislative acts and court cases, they maintain that, "[w]hen the Legislature uses the word 'any,' it unambiguously intends to cover each, every, and all... As a result, it is unambiguous that CARB's regulations must ensure that each and every reduction that generates an offset shall be in addition to any reduction that 'otherwise would occur.'" (ibid.: 21f)

CARB responded that AB 32 actually did not define additionality closely and instead explicitly delegated that responsibility to CARB. CARB's approach could therefore only have been dismissed if it had been an arbitrary and capricious abuse of discretion, which was, however, belied by the extensive public regulatory process running to thousands of pages. CARB also posited that its definition closely tracked the language of AB 32 requiring that a GHG reduction achieved "is in addition to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur." CARB only added the phrase "in a conservative business-as-usual scenario" to operationalise the inherently uncertain concept of what "otherwise would occur." The Petitioners were therefore in CARB's view trying to persuade the Court to substitute their definition of additionality for the definition developed by CARB. And the petitioners' definition would in CARB's view be an unattainable requirement so that no form of offset protocols could ever be used, which would run counter to the legislature's clear intention to allow the use of offsets. "As revealed in the original Petition and Petitioners' comments during the rulemaking process, their goal is a prohibition on the use of any offset credits. Petitioners essentially have a policy disagreement with the Legislature for authorizing the use of offsets in the cap-and-trade program and request that this Court overrule the Legislature's decision." (CARB 2012b: 26)

The CAR also submitted an intervention in the court case in which it similarly rejected the petitioners' interpretation of additionality as contrary to the legislative intent. The CAR argued that inherent in the legislature's mandate that reductions shall be additional to "any that otherwise would occur" was the notion of considering a counterfactual, which was impossible to definitively prove. The CAR also argued that the legislature mandated CARB to develop a practicable definition of additionality (CAR 2012: 6f).

The court rejected the petition on 25 January 2013. The Court found that CARB's approach was in principle subject to challenge as its delegated authority of definition could not go as far as undercutting the goals of the legislation or expanding the meaning of key statutory terms. However, as additionality was based on hypotheticals and counterfactuals and could never be shown with absolute certainty, the court found that approaches for demonstrating additionality were always a policy balance between false positives and false negatives. On this basis, the Court concluded as CARB had argued that, with their demand for a perfect solution, the

[10] The staff reports on ozone depleting substances and urban forest projects have virtually identical language.

petitioners were effectively requesting the court to rewrite the legislation to forbid the use of offsets.

The Court also found that "the factors which have rendered the CDM problematic in terms of administrative complexity, delay, and cost, to be highly persuasive in concluding that Respondent's rejection of the CDM project-by-project approach was justified programmatically and consistent with its legislative grant of discretion... Respondent has used its experience, expertise, and judgment in arriving at the appropriate methodology to determine additionality within the cap-and-trade program." (Superior Court of California 2013: 11)

Regarding the individual protocols the court also concluded that CARB had "adequately considered all relevant factors and has demonstrated a rational connection between these factors, the policy implemented, and the purpose of the enabling statutes. The Court finds the Protocols are not arbitrary and capricious." (ibid.: 33)

The petition by the Citizens Climate Lobby and Our Children's Earth Foundation also contained detailed criticism of all four approved protocols, which CARB and CAR also responded to in their responses. This criticism and the responses are discussed in the following.

5.4.5.2 The Protocol for Livestock Projects

The offset protocol for livestock projects (CARB 2011c) applies to emission reductions from the installation of a biogas control system for manure management on dairy cattle and swine farms. Captured biogas can be used on-site or off-site. The protocol does not account for emission reductions from the displacement of grid electricity or fossil fuel combustion.

The following additionality criteria apply in addition to those contained in the regulation:

- For old facilities the proponent must demonstrate that the depth of the anaerobic lagoons or ponds before project implementation was at least 1 metre.
- For new facilities the proponent must demonstrate that "uncontrolled anaerobic storage and/or treatment of manure is common practice in the industry and geographic region where the offset project is located." (CARB 2011c: 6)

The CARB staff report that was the basis for the approval of the protocol justified this approach by arguing that waste management in Californian livestock operations is mainly done in liquid-based systems that are very favourable for digesters, but nevertheless less than 1% of dairies actually have digesters. Installing digesters is therefore deemed to not be common practice and thus meets the performance standard (CARB 2010b).

Baseline emissions are calculated as follows:

- For old facilities the baseline is deemed to be the continuation of current practice. Baseline emissions are hence calculated according to the manure management system in place before project implementation.
- For new facilities "a modeled project baseline scenario must be established using the prevailing system type in use for the geographic area, animal type, and farm size that corresponds to their operation." (CARB 2011c: 12)

The calculation uses a combination of site-specific values (e.g. population) and default factors (e.g. maximum methane production per livestock category).

The petition by the Citizens Climate Lobby and Our Children's Earth Foundation (2012a, 2012b) strongly disputed the additionality of digester projects. They argued that as the CARB staff

report had shown, there were some farms that had installed digesters and according to the US Department of Agriculture digesters could be used profitably at many farms in the USA without offset payments. Also, farmers faced the possibility of court suits relating to odours or water run-off from their farms. Many farmers had in fact already had to pay large judgements or settlements in relation to these issues. Farmers therefore had an additional incentive to install digesters to avoid such liability.

CARB (2012) rejected this criticism arguing that even dairies with theoretically ideal conditions for operating digesters were in fact still not installing digesters in any significant numbers due to many barriers to adoption (including permitting, financial consideration, and other factors), and this situation did not appear to be changing in the foreseeable future, absent additional incentives. The financial costs of installing and operating a digester on an average farm significantly outweighed the financial benefits.

CAR (2012) similarly argued that according to a US EPA report from 2010, only 157 digesters had been operating nationwide at that time, out of more than 8,000 facilities where use of digesters would be technically feasible, with cost cited as one of the main obstacles. Many of the existing digesters had been promoted through government grants, thus, they were not installed under business as usual conditions. According to expert opinions rates for recovered gas were not sufficient to cover the costs of digester installation. On the liability issue, the CAR argued that this was covered by the requirement that installations that are required by legal mandates do not qualify.

5.4.5.3 The Protocol for Ozone Depleting Substances Projects

The offset protocol (CARB 2011d) covers the destruction of ozone depleting substances (ODS) in foam blowing agent and refrigerant applications. ODS from other applications are not eligible. Projects may not run longer than one year but credits are issued for the quantity of ODS that would have been emitted over a ten-year period after the destruction event.

ODS from refrigerant sources must have been produced prior to the US production phase-out, imported refrigerant is not eligible. In the absence of the project, this material might be illegally vented or recovered for re-sale. The protocol assumes that the refrigerant would be entirely reclaimed and re-sold. ODS from foam sources must also originate from the USA, imported foams are not eligible.

Projects must meet the additionality requirements specified in the regulation. In addition, destruction of ODS by the US government is deemed common practice and hence not eligible.

The ARB staff report that was the basis for the approval of the protocol justifies this approach by noting that currently less than 1.5% of recoverable US-sourced ODS is being destroyed at the end of the lifetime of the equipment or material. Collecting and destroying ODS is therefore deemed to go beyond common practice and thus meets the performance standard (CARB 2010c).

The calculation of baseline emissions is based on the following assumptions (CARB 2011d):

- For refrigerants, as noted above the protocol assumes that the ODS would have been entirely reclaimed. The protocol therefore estimates the emissions that would have occurred over ten years had the destroyed ODS been used in existing refrigeration or air conditioning equipment. This calculation requires the use of the ODS-specific GWP as provided in the protocol, and the use of emission rates from leaks and servicing emissions, default values for which are also provided in the protocol.

- For foams, baseline emissions include the emissions that would have occurred as the result of foam shredding and landfilling. The protocol provides default emission rates for appliance ODS blowing agent and building ODS blowing agent. Projects that destroy blowing agent that was extracted from appliance foam must calculate a project-specific recovery efficiency factor.

The petition by the Citizens Climate Lobby and Our Children's Earth Foundation (2012a, 2012b) argued that according to data from the US EPA, not only 1.5% of ODS, but more than ten times this quantity was actually destroyed in the 2003-2004 timeframe cited by the CARB. General Electric and its partners were effectively capturing and destroying ODS before promulgation of the offset protocol. The reason was that according to market research, consumers preferred to purchase from companies that recycled old appliances responsibly. General Electric and partners therefore believed that destruction of ODS could be profitable even without offsets.

CARB (2012) countered that under a conservative BAU scenario, ODS would not be destroyed as the financial benefits of recycling far outweighed the benefits of destruction. The on-going recycling activities noted by the petitioners were part of the problem to be solved as recycled ODS could and often did leak into the atmosphere. CARB also reaffirmed its data on current practice citing sources from the US Environment Protection Agency.

CAR (2012) noted that the vast majority of ODS that were being destroyed were hazardous waste solvent that were legally required to be destroyed, government stockpiles destroyed by the government, medical grade or imported – categories which were not eligible under the protocol. As for economic incentives, the CAR argued similarly to CARB that the incentive for recycling of ODS was much stronger than for destruction, as there was a strong market for recycled ODS, and recycled ODS would ultimately be emitted to the atmosphere through venting or leakage.

5.4.5.4 The Protocol for Urban Forest Projects

The offset protocol (CARB 2011e) is applicable to urban forest projects in municipalities, on educational campuses, and by utilities.

In addition to the additionality requirements in the regulation the project must demonstrate "net tree gain" above a business as usual threshold.

For municipalities and educational campuses, the threshold is set at maintaining a stable urban forest population. The calculation of net tree gain must be based on:

- The annual average number of trees planted and removed in the municipality or educational campus over no more than the most recent five years period, or using data from a single year during the past five years.
- The expected average annual number of trees to be planted by the project.

For utilities, all planted trees are considered additional as tree-planting by utilities is deemed to be not common practice and not required by regulation. This includes trees that are planted to replace those that are removed during line clearance operations.

The quantification of carbon stocks is based on direct measurements of trees, either complete inventories or samples, and approved urban tree carbon models to convert measured tree size data into tree volume and carbon content. In addition, projects must account for CO_2 emissions from vehicles and equipment for tree planting, care and monitoring.

In line with the regulation requirements for ensuring the permanence of removals for at least 100 years, projects must monitor, report and verify project data at least once every six years for at least 100 years after any issuance of credits. All dead trees must be replaced within one year after removal so that net tree gain is never below zero.

The petition by the Citizens Climate Lobby and Our Children's Earth Foundation (2012a, 2012b) argued that urban forest programmes were already in progress and had resulted in millions of additional trees being planted. A study for the New York City programme found that the benefits, such as energy savings, air quality improvement, storm water runoff reductions and property value increases, had amounted to $5.60 for every one dollar spent. Communities would hence continue such programmes even without offsets. Some utilities also had tree-planting programmes that achieved a net tree gain. In addition, the protocol would make all programmes to replace trees that were removed during line clearance operations in the USA eligible to generate offsets.

CARB (2012) argued that municipal resources were typically insufficient for tree planting, maintenance, and removal. The 100-year maintenance requirement further ensured that project benefits would go well beyond what would occur under a conservative BAU scenario. The cited comparison cases were not comparable as they did not include guarantees of long-term replacement.

CAR (2012) argued that in developing the protocol it undertook a detailed analysis of existing programmes and found that even among high-performing municipalities and college campuses, one third actually had declining tree stocks while the vast majority had negligible net tree gain. Moreover, the petitioners ignored the severe budget constraints that most cities were operating under while the economic benefits of programmes accrued to society at large and not to the cities' budgets. As for utilities, while some had tree-planting programmes, the number of planted trees amounted to less than 400 per year nation-wide. Finally, the protocol contained a legally enforceable commitment to maintain all planted trees for at least 100 years, elevating what would otherwise be a voluntary programme to an altogether different level.

5.4.5.5 The Protocol for U.S. Forest Projects

The offset protocol (CARB 2011f) is applicable to reforestation, improved forest management and avoided conversion projects. Eligibility is determined through a legal requirement test and a performance test.

Under the legal requirement test:

- Reforestation and improved forest management projects must demonstrate that the proposed activity is not legally required.
- Avoided conversion projects must demonstrate that the type of anticipated land use conversion is legally permissible.

Under the performance test,

- Reforestation projects on land that has had less than 10% tree canopy cover for at least 10 years automatically pass the performance test ("10-10 standard"). The argument is that it is reasonable to assume that land that has been without tree cover for more than ten years will persist in this condition in the absence of the project.
- Reforestation projects on land that has undergone a significant disturbance that has removed at least 20% of the above-ground biomass in trees pass the performance test if,

  - the project corresponds to one of several pre-defined scenarios where the net present value of the expected timber is $0 or more using assumptions laid down in the protocol (relating to value of harvested products, rotation age, site class etc.), or,
  - the project occurs on a type of land for which the forest owner has not historically engaged in or allowed timber harvesting.
- Improved forest management projects are additional to the extent that they achieve removals that go beyond a conservative business as usual scenario, which is determined by comparing the project area's carbon stocks to the common practice on similar situated lands in the same region, including consideration of financial and legal constraints.
- Avoided conversion projects pass the test if a real estate appraisal demonstrates that the project area is suitable for the anticipated land use (e.g. soil suitability and water availability in case of anticipated agricultural use), and that the fair market value of the alternative land use is at least 40% higher than the value of the current forested land use.

Baseline calculation includes baseline onsite carbon stocks and baseline carbon in harvested wood products, determined on the basis of requirements and methods provided in the offset protocol. To establish baseline onsite carbon stocks, the carbon stock changes in the project's onsite carbon pools is modelled over 100 years, based on inventoried carbon stocks at the start of the project. Baseline carbon in harvested wood products is determined by developing a forecast of any harvesting that would have occurred in the baseline and on this basis determining the amount of carbon that would have been transferred each year to long-term storage in wood products.

The crediting period for projects is 25 years and projects must continue to monitor, verify and report project data at least once every six years for at least 100 years following any credit issuance, that is, possibly up to 125 years after the project start. In case of reversals the above-mentioned provisions from the regulation apply. If a project is terminated for any reason except unintentional reversal, the forest owner must replace any credits that have been issued.

The petition by the Citizens Climate Lobby and Our Children's Earth Foundation (2012a, 2012b) criticised that CARB had presented no data or analysis to justify the 10-10 standard for reforestation projects and that the factors in the scenario analysis for reforestation projects on land that had undergone significant disturbance were unsupported by adequate facts and data. Also, the fact that a forest owner had not harvested in the past was not predictive of future action. In addition, there was no time requirement for someone to be a forest owner. The previous owner of a forest might have harvested for decades, but if the forest was purchased by a new owner, the new owner would be deemed to historically not have been engaged in harvesting. Furthermore, there was no time limitation on previous forest management practices. Therefore, "above average" activities that had been on-going for years or even decades would be eligible. As for avoided conversion, real estate appraisals were inherently subjective and subject to manipulation, as became apparent in the recent US housing market collapse.

CARB (2012) here as well highlighted the 100-year maintenance requirement, which would require a commitment by the forest owner well beyond BAU. In addition, they argued that the

analysis was not subjective, but rather based on objective criteria clearly defined in the protocol on more than 100 pages.

CAR (2012) argued regarding the 10-10 standard that attacking CARB for not proving a negative did in their view not prove that the protocol would actually allow non-additional projects. The petition also ignored other requirements, such as the baseline needing to reflect a conservative scenario taking into account the commercial value of trees over the next thirty years. As for not harvesting in the past not being predictive of future action, the protocol limited other incentive for reforestation, for example through the limit on harvesting in the first thirty years of the project and the minimum 100-year commitment to comply with the protocol. The allegation that the scenario analysis was unsupported by adequate facts and data ignored the lengthy protocol development process that had been undertaken in consultation with a stakeholder expert group. As for above-average forest management being eligible, it was precisely lands with above-average stocks that were most likely to undergo harvesting in order to realise the economic potential of the forest. The protocol assumed that owners would maintain stocks at average common practice levels, even though many could harvest beyond, resulting in fewer credits being issued than the actual sequestration rate. As for the criticism of estate appraisals, the CAR argued that the petition was inconsistent as the rest of it rejected standardised approaches that did not rely on subjective project-specific judgements.

5.5 Interim Conclusion

While California, under the Schwarzenegger administration was initially interested in allowing some use of CERs in the Californian ETS, the following administration of Governor Brown ultimately came to reject the CDM's project-by-project approach, highlighting concerns about the CDM's environmental integrity. Currently, no international offsets whatsoever are eligible. The administration has stated that if international offsets will at some point be accepted, they will be offsets from sectoral approaches.

Similar to Australia, California uses a "Performance Standard" approach in its own domestic offset system to determine additionality, defined as a threshold that is significantly better than average GHG production for a specified activity. California not set a general threshold value such as Australia's 5% to determine "common practice" but considered each project type on its own merits. Based on the documentary evidence, the processes to develop the protocols appear to have been very elaborate and to have taken into account all relevant factors. The challenges by the Citizens Climate Lobby and Our Children's Earth Foundation were convincingly refuted. For example, the petition highlighted that there were farms that had installed biodigesters without benefiting from offset payments but CAR pointed out that most of these biodigesters had benefited from government grants. And as pointed out by the CAR, the petition was indeed self-contradictory by on the one hand rejecting standardised approaches but on the other hand also rejecting project-specific financial analyses.

However, as in Australia one may note that the project types presently approved are not especially complex with regard to additionality since they are commercially unattractive or yield no commercial returns at all. Lessons for additionality determination in the CDM are therefore limited.

6 Japan

6.1 Overview of Japanese Climate Policy

In fiscal year 2010, Japan had emissions of 1,256 MtCO2e (Japan, Ministry of the Environment 2011), an increase of 3.9% over FY 2009, and a reduction of total emissions from the Kyoto base year of 0.4%. The Japanese target in the Kyoto Protocol is a reduction of 6% compared to 1990. This reduction has been adopted into national law and the difference to the Kyoto target is expected to be offset through the purchase of Kyoto compliance units. Japan has been active in the international carbon market with the government and firms buying CERs, ERUs, and AAUs.

Though a compulsory emission trading scheme was once discussed in policy circles, legislative efforts in that direction are effectively dead and it is highly unlikely that Japan will take steps to introduce a cap-and-trade scheme anytime in the near future. Further, Japan has announced that it does not currently plan to join the second Kyoto commitment period. Despite its refusal, Japan has announced a target of reducing emissions by 25% by 2020 and by 80% by 2050 (compared to 1990 levels, which stood at 1,364.9 MtCO2e (WRI 2012)). This second target has not been adopted into national law, and if it is to be reached, it is expected to be accomplished with a substantial contribution from international offsets, including AAUs, CERs, ERUs, and the Joint Crediting Mechanism / Bilateral Offset Credit Mechanism (JCM/BOCM) being developed between the Japanese government and a number of other countries. Thus demand for international offsets in the case of Japan is unrelated to a domestic emissions trading system and is created primarily by Japanese international commitments. The 25% target may be revised downwards in reaction to the impacts of the Tohoku earthquake, indeed the Japanese government in its submission to the Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA) under the Convention stated that after the earthquake the country “is now developing the Strategy for Energy and Environment which includes new energy policies from scratch and policies to tackle global warming after 2012” (UNFCCC 2012).

6.2 Examination of the Japanese Climate Policy Making Process

Japanese climate policy is primarily a product of interactions between government ministries and the domestic political balance. The Ministry of Economy, Trade and Industry (METI) is the main ministry responsible for energy policy and is seen as close to industry and the Keidanren (the Japan Business Federation); the Ministry for the Environment (MoE (J)) is responsible for climate policy and is seen as closer to academia and NGOs; and the Ministry of Foreign Affairs (MoFA) is responsible for bi- and multi-lateral climate and development policy and is responsible for the coordination of the views of various ministries and to develop a common position acceptable to all ministries for international negotiations (Kameyama 2010). Partly out of energy security concerns, METI and its Agency for Natural Resources and Energy have traditionally placed great emphasis on energy efficiency measures. Shifting domestic politics has less of an effect on the positions of the ministries than the balance of power between them. The Prime Minister has changed six times in the last six years. With each change, there have been changes in the configuration of the climate policy making process between ministries, though their individual positions remain fairly consistent.

Prime Minister Fukuda in 2008 announced a Japanese reduction target of 60-80% of 2008 emissions by 2050 8Japan 2008). Prime Minister Aso, who took over after the sudden resignation of Prime Minister Fukuda, continued to maintain the Fukuda goal and added a mid-term goal of a 15% reduction from 2005 level by 2020 (8% from 1990 levels). In August

2009, the Democratic Party of Japan (DPJ) defeated the Liberal Democratic Party in elections, ending a line of LDP Prime Ministers which had only been occasionally and briefly interrupted since 1955. Yukio Hatoyama was elected Prime Minister in September 2009 and in December declared at COP 15 in Copenhagen that Japan would provide $15 billion USD in climate financial assistance by 2012, and increase its reduction target from the previously announced 8% to 25% by 2020 compared to 1990 levels. Though not necessarily ideologically different from the LDP (many DPJ party members and Members of Parliament are former members of the LDP), the DPJ had long been a strong opposition party and was seen to be less beholden to the ministerial bureaucracy and business lobby groups. The DPJ proved to be internally unstable however and PM Hatoyama resigned after losing a party leadership election after less than a year in office. He was followed by Naoto Kan (also DPJ), who was in office during the 2011 Tohoku Earthquake and was decidedly against the long held nuclear energy policy of the country. Naoto Kan was himself replaced by Yoshihiko Noda, who lost his leadership in the December 2012 elections, in which the LDP won in a landslide capturing 294 seats in the 480 seat lower house of parliament. Previous LDP Prime Minster Shinzo Abe then returned to office, but has not yet set out and policy changes as far as international climate policy is concerned.

METI is Japan's largest ministry in terms of budget and personnel and maintains several research institutions including the New Energy and Industrial Technology Development Organization (NEDO) and the Research Institute of Innovative Technology for the Earth (RITE), which are primarily technologically driven. METI (then the Ministry of International Trade and Industry (MITI)) founded the Institute of Energy Economics, Japan (IEEJ) in 1966 (IEEJ 2004), staffed by a combination of IEEJ staff, staff on loan from METI, and various other guest researchers from academia and industry including former CDM Executive Board Member Akihiro Kuroki and former International Energy Agency Executive Director Nobuo Tanaka, who was also a member of the CDM Policy Dialogue process. METI has continually resisted the implementation of an emissions trading system or a carbon tax and supports instead so called "win-win" climate measures such as energy efficiency and technological development both for domestic use and for export (Rudolph and Park 2010).

MoE (J) was upgraded to a cabinet level position from the Environmental Agency in 2001. It has a comparatively smaller budget and staff. MoE (J) also maintains several research institutes including the National Institute for Environmental Studies (NIES) and the Institute for Global Environmental Strategies (IGES), which work as policy analysis and research arms of the ministry. Emissions trading and policy with regard to flexible mechanisms are competences of the Office of Market Mechanisms, a division of IGES founded in 2007. It has primarily been the MoE (J) that has pushed emissions trading on the policy agenda, starting the Japan-Voluntary Emissions Trading Scheme (J-VETS) in 2005, and advocating compulsory phased-in participation, absolute targets, and auctioning (ibid.). The Overseas Environmental Cooperation Center, Japan, was established in 1990 with the then Environment Agency, it now works closely with the Ministry, and with the Ministry of Foreign Affairs, Japan International Cooperation Agency (JICA), Japan Bank for International Cooperation (JBIC), and other agencies.

A further institution involved in Japanese international climate activities is the Global Environment Center Foundation (GEC). Originally established as a UNEP support entity for its International Environmental Technology Centre in Osaka, GEC became a public interest corporation under the direct supervision of the Japanese Prime Minister's Cabinet Office in 2010.[11]

[11] More information can be found at http://gec.jp/

6.3 Emissions Trading in Japan

Japan, as far as official policy goes, does not currently plan on introducing a cap-and-trade scheme, but despite lack of any indications to that effect, according to a recent market survey by Thompson Reuters Point Carbon 44% of respondents expect that by 2017 Japan will have introduced a mandatory national cap-and-trade system. Further, three issues are worth consideration: J-VETS, the actual events leading to a policy standstill for ETS proposals in Japan, and the emergence of increased sub-national action in energy and climate policy including in the regulation of nuclear power and emissions trading on the prefectural level as in Tokyo.

Voluntary Cap-and-Trade: Japan's Voluntary Emissions Trading Scheme (J-VETS) was launched by the Ministry of Environment in 2005. Participation is voluntary, companies set their own targets and receive subsidies to finance abatement technology. If targets are not met, the subsidies must be reimbursed, but companies can comply with the scheme through buying Japanese Pollution Allowances (JPAs) from other covered entities, CERs, ERUs, or domestic offsets. Monitoring follows ISO guidelines. The program was originally intended to be a pilot program and was later merged with the Voluntary Action Plan of the Keidanren to form the Integrated Domestic Market of Emissions Trading (IDMET) in 2008. This greatly increased participation and coverage of the program, led to reductions of 0.6 million tCO2e in 2009 and helped to develop the infrastructure and capacity for a future emissions trading system (IETA 2011).

When the DPJ took power in national elections in 2009, work was started on a national compulsory emissions trading scheme to help the country reach Prime Minister Hatoyama's reduction goal of 25% by 2020. The legislation, entitled "Basic Act on Global Warming Countermeasures" was introduced to the Diet (Japan's Parliament) in March 2010. In the wake of a finance scandal, internal power strife within the DPJ, and poor polling before the upper house elections in July, PM Hatoyama resigned in June 2010. The DPJ went on to lose the upper house elections in July leading to the suspension of discussion of the emissions trading bill.

While emissions trading is currently at a standstill on the national level, the Tokyo Metropolitan Government introduced a cap-and-trade system in fiscal year 2010. In FY 2006, Tokyo had emissions of 59.6 million tonnes of greenhouse gasses, approximately comparable to Sweden or Norway. The system aims to reduce the emissions of large emitters by 6% in the first compliance period (FY 2010 to FY 2014) (Tokyo Metropolitan Government 2010). Similar initiatives have been discussed and started in Saitama Prefecture, Chiba Prefecture, and possibly Osaka-Kansai. Though a very centralized country, Japanese regional governments have started to increasingly assert themselves in policy making. Regional governments are responsible for approving safety checks on nuclear power plants, which was formerly a routine, almost rubber stamp procedure. Since the Fukushima nuclear disaster in 2011, however, all nuclear power plants were shut down for safety checks. As of the summer of 2013, only two regional governments had given their assent to national government requests to restart the plants, but the regional government's resistance has given them a larger role in energy policy, which may spill over into other areas beyond emissions trading and nuclear safety.

6.4 General Contours of Japanese Offset Policy

There are three main areas of Japanese government activity with regard to offset crediting: the Ministry for the Environment's domestic carbon offsetting scheme; international Kyoto mechanism credits (CDM, JI, and emissions trading between countries); and the new JCM/BOCM.

6.4.1 Domestic Credit Schemes

The "Domestic Certification System of Emission Reduction"[12] is an offset credit system run by the METI, called into being in the Kyoto Protocol Target Achievement Plan, which was first formulated in 2005. METI developed the operating rules together with the Ministry of the Environment and the Ministry of Agriculture, Forestry and Fisheries, though METI has jurisdiction over the committee for Domestic Credit Certification, which meets on a monthly basis. The system, sometimes called the "domestic CDM", certifies emission reductions by small and medium-sized companies generating credits which can then be used by larger companies for carbon neutrality such as through the J-VETS. Though METI publishes press releases with a summary of the result of the meetings of the Domestic Credit Certification Committee, standards for MRV are unclear. Members of the Committee include Yoichi Kaya and three others selected from academia and industry. At the 23rd meeting of the committee on 20 February 2012 the committee had approved 66 applications for domestic credit certification amounting to 30,823tCO2. A total of 958 reduction projects have been approved. Categories of technology introduced include biomass boiler introduction, introduction of heat pumps, installation of industrial stoves, lighting facility improvements, introduction of inverter controls, installation of PV, and others (METI 2010).

The MoE (J), sensing a lack of transparency in the voluntary carbon offset sector, started the Japan Carbon Offset Forum (J-COF). The forum was the product of a workshop held by the ministry which included experts from local government, lawyers, third party verifiers, and NGOs. Out of this process, the Verified Emissions Reduction Program (J-VER) was then established in November 2008[13] based on ISO14064-2. Validation and verification of offsets is based on 14064-3, with a positive list approach as an additional criterion for validation. The scheme uses third party verifiers accredited on the basis of ISO 14065 for the domestic credits, primarily in afforestation/reforestation projects.

Credits are primarily geared towards voluntary compliance buyers and are issued and managed through the Certification Center on Climate Change Japan (CCCCJ). Further, the MoE (J) has cooperated with the UK Department for Environment, Food and Rural Affairs (DEFRA) since 2008 with regard to domestic offsetting policy, best practices in offsetting policy, carbon foot-printing, and procedures for quality assurance in carbon offsetting schemes.

6.4.2 Kyoto Credit Acquisition

Japan, especially after the repercussions for nuclear power after the Tohoku Earthquake of 2011, will not be able to meet its Kyoto commitments without offsetting. Japanese firms were early large buyers of CERs and ERUs, accounting for 41% of volumes purchased in 2003-2004 (World Bank 2004). Japanese buying activities of Kyoto credits by the public sector are carried out by NEDO and for the public and private sector through a public private partnership called Japan Carbon Finance Inc. (JCF). NEDO, through its Kyoto Mechanism Credit Acquisition Program, buys CERs, ERU, and AAUs, which is co-overseen by METI and the MoE (J). AAUs are acquired through Memoranda of Understanding with other Annex I countries via GIS. Prominent MoUs include those with Hungary (signed in 2007), Ukraine (signed in 2008), the Czech Republic (signed in 2008), and Poland (signed in 2008). NEDO announced in April 2011 that since inception of the credit acquisition project it had acquired 81,938,000 tCO2e (NEDO

[12] Basic information on the scheme can be found http://jcdm.jp/ (in Japanese).

[13] More information can be found here: http://www.4cj.org/jver/e/about_jver.html

2011 (in Japanese)). JCF Inc. is a public private partnership established in 2004 which uses funds from the Japan Greenhouse Gas Reduction Fund (JGRF), also established in 2004, to consult and develop CDM and JI projects and buy CERs and ERUs. JCF Inc.'s main shareholders are the Japan Bank for International Cooperation (JBIC), the Development Bank of Japan Inc. (DBJ), Chubu Electric Power Co. Inc., Tokyo Electric Power Co. (TEPCO) Inc., JX Nippon Oil & Energy Corp., Mitsubishi & Co., and Sumitomo Corp. 24 other private companies also contribute to the JGRF. A national registry for owners of Kyoto credits, public and private, has been developed and is co-managed by METI and MoE (J). In Fiscal Year 2011, NEDO acquired 7,655,000 tCO2e of Kyoto Credits for the Japanese government (NEDO 2012 (in Japanese)).

On 4 June 2012, TEPCO, the owner of the disaster-stricken Fukushima Daiichi nuclear power plants, announced that it would no longer buy UN credits to offset its emissions. Hit with massive losses, the Japanese national government has had to bail out the company and help it with compensation claims for damages. TEPCO bought 16.8 million UN credits in 2009 to help it reach its voluntary emissions reduction goals. The loss of demand from TEPCO leaves even more credits on an already slack market (Masaki 2012).

6.4.3 Japanese Criticism of the CDM

6.4.3.1 General Criticism

Japan's criticism of the CDM relates to various factors. First, it considers the rules on additionality and MRV as too strict and complex. Japanese submissions to the UNFCCC consider that the "principle of additionality (...) should be reviewed, reverting to its original concept provided in the Kyoto Protocol. Utilizing the experience and knowledge acquired so far, the mechanism should be redesigned with due consideration to the accessibility for project operators (Japan, Government of 2009: 64). The following sub-chapter will go into further detail on this issue.

Second, Japan has criticised the long lead times required by the CDM process. Between December 2003 and June 2009, projects required an average of 343 days from the start of the public commenting period until registration, 467 days from registration until first issuance and hence in total 810 days from the start of the commenting period until first issuance (Japan, MoE 2010).

Third, Japan has objected to the exclusion of nuclear power. Japan has consistently held that the CDM should be technology-neutral. "In tackling climate change, it is necessary to mobilize all the effective technologies available". Japan raised the same point regarding carbon capture and storage (CCS) (Japan, Government of 2009: 62), but this criticism has arguably been addressed by the Durban decision allowing the inclusion of CCS.

Fourth, it has criticised the sectoral distribution of projects, in particular the low probability of getting energy efficiency projects approved and the high share of HFC and N_2O projects in CER issuance of at the time about 70% (Japan, Government of 2008: 26; Japan, MoE 2010; Japan, MoE 2012).

Fifth, it has criticised the unequal geographical distribution of projects. Japan considers that "countries which need urgent support for emission reductions (especially vulnerable countries and LDCs) should be prioritized as host countries of CDM projects." Japanese submissions have favoured differentiation, for example in terms of which methodologies may be used or the stringency of baselines (Japan, Government of 2009: 65).

Sixth, Japan has posited that the CDM's contribution to sustainable development has been too low. Japan has called for giving procedurally and financially preferential treatment to projects which have high co-benefits effects, such as reduction of air and water pollution (ibid.).

Finally, Japan noted that as of 31 December 2011, out of 201 approved methodologies only 82 had actually been used. Japan criticises that the changes that are made to proposed methodologies during the process of methodology approval sometimes make methodologies difficult to use in practice (Japan, MoE 2012).

6.4.3.2 Criticism of the CDM Approval Process and Suggestions for Reform

While government statements usually do not go into detail on the alleged over-complexity of the CDM process, the Institute for Global Environmental Strategies (IGES), which as noted is an arm of the MoE(J), has produced various reports on the CDM's shortcomings and suggestions for reform. The points of criticism are as follows.

Koakutsu et al. (2011) point out that the CDM procedures have led to many projects being abandoned before they get off the ground. Based on the IGES project database, they found that nearly 2,000 projects have been halted during the validation process due to issues such as contract terminations and replacements, which has led to an estimated loss of 1.1 billion CERs by the end of 2012 and 2.6 billion by the end of 2020.

Furthermore, the report indicates that, in 2011, the timeline for projects that were registered after a review was 234 days and 109 days for projects that were registered automatically. However, the report acknowledges that progress has been made. While in 2010 the average number of days from requesting registration to final registration was 220 days, in the first quarter of 2011 it dropped to 115 days. This substantial decrease was probably due to the introduction of the new registration procedure, which inter alia allows the effective date of registration to be the date on which a complete request for registration has been submitted. Similarly, while in July 2010 only 58% of projects were registered automatically, in 2011 this ratio jumped to 93%, probably due to the revised review procedure adopted at the fifty-fifth meeting of the CDM Executive Board. Going into the reasons for reviews, the authors highlight that additionality accounts for half of the requests for reviews of registration. Among the reviews related to additionality, the investment analysis is the most frequently cited reason, accounting for 60% of the requests for review. This ratio has remained stable despite various new guidelines from the CDM Executive Board (ibid.).

The report also considers the issuance process as still too lengthy. Here as well, new review procedures were introduced in 2010, but despite these efforts the average number of days between the request for issuance and actual issuance actually increased. The authors in particular criticise the procedures for requesting approval of changes from the registered PDD, particularly that the same procedure applies to all projects and all changes. They propose differentiation based on project size and scale of the changes (ibid.).

To resolve the identified problems, a fundamental reform of the CDM has been proposed, e.g. by Mizuno et al. (2010) and Koakutsu et al. (2011) – by "shifting from judging to checking". Both reports consider that the largest barrier in the CDM is the uncertainty about whether a project will be registered and whether as many CERs as expected will be issued. The main reason for this uncertainty is in their view the judgement Designated Operational Entities (DOE) and the CDM Executive Board need to exercise when assessing projects. Both reports suggest that to remove this problem the counterfactual project-by-project approach to additionality should be replaced by a top-down approach based on clear eligibility criteria and quantitative parameters, as is already employed for micro-scale projects.

In particular, the CDM Executive Board should in their view establish a positive list of specific project types of a specific size, which would be deemed automatically additional. For project types where this is not feasible, the Board should set default parameters, in particular for the parameters that are needed for the investment analysis. Mizuno et al. (2010) acknowledge that this should be done conservatively and may reduce the number of CERs that may be claimed, but consider that the advantages of reduced uncertainty would outweigh the disadvantages. In the same vein, standardised baselines should include criteria for automatic additionality.

Mizuno et al. acknowledge that the ideas they propose are not radically new and that the Board has already taken some steps toward further standardisation.

6.4.4 Joint Crediting Mechanism / Bilateral Offset Credit Mechanism

Complementary to its purchases of Kyoto credits on the international market, Japan is developing a JCM/BOCM. It was first announced internationally by then Prime Minister Hatoyama at the climate conference in Copenhagen on 17 December 2009. He stated that, "Japan proposes to build a new mechanism, ensuring appropriate evaluation being made on the contribution by companies that provide clean technologies, product infrastructure, production facilities and other items, which Japanese companies proudly possess, and enabling the review of appropriate evaluation being made on various climate change policies, including those measures to address deforestation and forest degradation in developing countries. At the same time, Japan shall actively pursue domestic institutional designing of a carbon credits trading system, as well as exploring new projects to generate credits through various frameworks including bilateral and multilateral systems, while promoting investment in private sector." (quoted in Asuka 2011: 2.)

The Japanese cabinet office in March 2010 formulated the goals that such a program would "reduce worldwide GHG emissions by 1.3 billion tonnes by using Japanese private sector technology" and that a mechanism should be established which "can appropriately evaluate Japanese companies' contributions to GHG emissions reduction efforts overseas, for instance, through the provision of their low-carbon technologies, infrastructure, and products" (Japan, MoE 2011).

Japan sees its JCM/BOCM as working to accomplish several specific objectives. In addition to cheaper emission reductions than through CDM/JI, Japan sees the potential of a first mover advantage for projects that might otherwise eventually be eligible for CDM/JI (or NAMA crediting), though because of the long CDM/JI approval process, this would be done more efficiently. The Japanese private sector is expected to be involved through using Japanese financial institution financing, using Japanese technology, and/or using other Japanese services such as capacity building. Partly for this reason, the Japanese private sector has already expressed substantial support for the initiative, including in submissions to the UNFCCC (see e.g. The Federation of Electric Power Companies of Japan 2011).

The program is officially seen as complementary to the CDM, not as a replacement, but the mechanism reflects many of the Japanese criticisms of the CDM (see above). In addition, this issue probably has to be seen in the broader context of Japan's general opposition to the Kyoto framework. There is a general perception in the Japanese government and among Japanese companies that Japan is already highly carbon efficient. The country continues to have the highest carbon productivity in the G20 (measured as a factor of GDP produced for each tonne of greenhouse gas emissions produced in the economy) (Vivid Economics 2011). On this basis, the Kyoto approach is considered to be disproportionally disadvantageous to Japan. A further

aspect is that if Japan does not join the second commitment period, it may not be able to continue using the Kyoto Mechanisms and would hence need another channel for offsetting.

Based on the perception that Japan is already highly carbon efficient, there is a widespread perception that the 25% target for 2020 will be very difficult to attain. This perception has been heightened by the impact of the Fukushima accident, which has led to a shift from nuclear power plants to fossil fuels. Japan therefore considers that is has a need for cheaper abatement options and greater volumes than so far offered by the CDM. Finally, the JCM/BOCM is explicitly geared towards promoting the export of Japanese companies' technologies, products and services (cdc climat research 2012).

Development of the JCM/BOCM has progressed in three stages (Japan, Government of 2012):

- The first stage was the implementation of feasibility studies to explore potential activities and develop MRV methodologies. 30 projects were selected in fiscal year 2010, 50 in fiscal year 2011, and 15 in fiscal year 2012.
- The second stage was the development of "MRV model projects" to apply proposed MRV methodologies to projects in operation, improve and finalise them. 25 projects were selected in fiscal year 2012.
- The third stage, the start of actual JCM implementation with "JCM model projects", is set for fiscal year 2013.

Grants for capacity building and concessionary loans are considered to be part of the Japanese Fast Start Finance (FSF) pledge. By the end of the 2012 fiscal year, Japan expects to have spent $15 billion USD on FSF since the COP 15. In 2011, $39 million USD was spent (Whitley 2012). Public sector agencies involved include JICA/JBIC, the Nippon Export and Investment Insurance (NEXI), NEDO, IGES, IEEJ, and NEXI which has provided untied loan insurance to the Vietnamese Song Bac hydropower project, one of the BOCM studies.

In 2010 the GEC began feasibility studies involving a new mechanism. The concept was then further developed and the Japanese government opened a call for tender for bilateral offset project on 1 April 2011. The MoE (J) and METI had a budget of 8.4 billion yen (81.48 Million EUR) for FY 2011 (April 2011-March 2012) to conduct BOCM feasibility studies. A budget adopted by the government in Dec 2011 reduced the BOCM development budget to 5.9 billion yen. Projects have been selected for further development in a number of sectors including: transport, waste management, energy efficiency, renewable energy, and REDD+.

6.5 Operation of the Joint Crediting Mechanism / Bilateral Offset Crediting Mechanism

6.5.1 The Basic Approach of the JCM/BOCM

Japan expects its JCM/BOCM to be simpler and more flexible than the CDM, with administration of projects and crediting to be conducted on a bilateral Japanese-host country basis instead of through the UNFCCC. The mechanism should further give more importance to energy efficiency initiatives, which the Japanese government sees as comparatively disadvantaged under the CDM. MRV standards will be developed on the basis of on-going feasibility studies, which will be used to further develop standardized baselines for project categories according to international guidance and accounting rules.

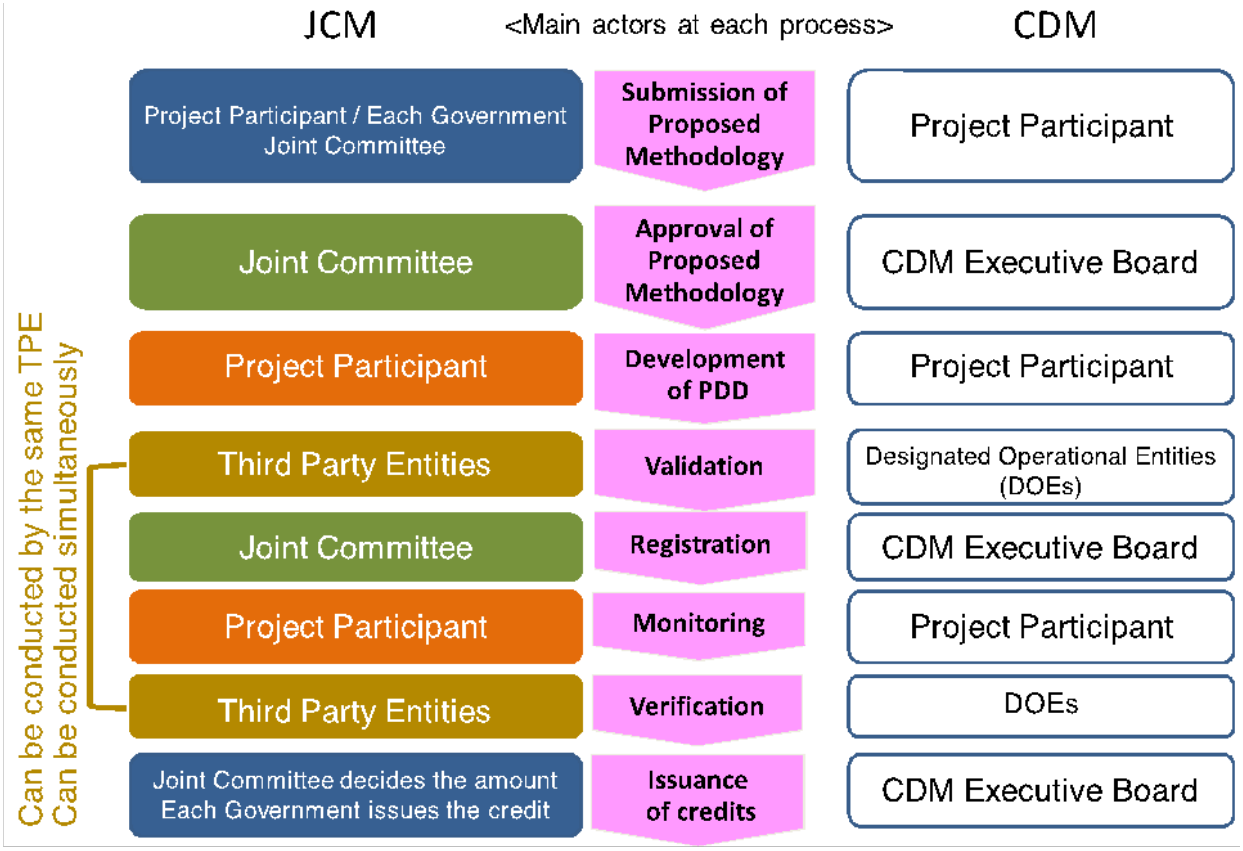
The governance structure and detailed methodologies are to be established on a country-by-country basis. Japan and each partner country are to establish a "joint committee" for the

governance of the mechanism. These joint committees are to have the following functions (Japan, Government of 2013):

- Adoption of rules and guidelines for the implementation of the JCM/BOCM;
- Approval of methodologies;
- Designation of third-party entities;
- Registration of projects;
- Each government establishes and maintains a registry.

The project cycle is envisaged as illustrated in Figure 3.

Figure 3:Envisaged Project Cycle in Japan's JCM/BOCM



(Source: Japan, Government of 2012)

The Japanese government highlights the following differences between the JCM/BOCM and the CDM (Japan, Government of 2013):

- Decentralised governance through the "joint committees";
- Broader coverage, as in the CDM several project types such as ultra-supercritical coal are difficult to implement;
- Third-party verifiers may not only be DOEs but also other institutions such as ISO certifiers;
- Use of eligibility criteria "which can be examined objectively" instead of hypothetical baseline scenarios;

- Use of conservative default values for the calculation of emission reductions;
- One third-party entity conducts both validation and verification for the same project and validation and verification can be conducted simultaneously.

On eligibility, Japan asserts that, "the eligibility should be established in terms of emissions reduced by accelerating the deployment of low carbon technologies, products and services and facilitating NAMAs, but not based on the hypothetical assessments of what would have occurred in the absence of additional revenue from offsets/credits of emissions reduction." (Japan, Government of 2012)

Eligibility criteria are to be specified in the methodologies and may include benchmarks or positive lists. They are to take the form of "simple check lists" for project participants to determine the eligibility of a proposed project the applicability of the methodology (Japan, Government of 2013).

Baselines should also not be established on a project-specific basis, "but be commonly applied to the projects/activities which meet a certain eligible criterion" (Japan, Government of 2012). Emission reductions are to be credited based on "reference emissions", which are to be calculated below BAU levels to provide a net mitigation benefit. Reference emissions are to be calculated by multiplying a "crediting threshold", which is typically to be expressed as GHG emissions per unit of output. The crediting threshold is to be established ex-ante in the methodology (Japan, Government of 2013).

Monitoring is to be done on the basis of spreadsheets that are to be included in the approved methodologies. The Monitoring Spreadsheet is to include a Monitoring Plan Sheet, including input fields for data, a Monitoring Structure Sheet to describe the roles and responsibilities of personnel for monitoring, and a Monitoring Report Sheet. Monitoring reports would be prepared by filling in the cells in the Monitoring Report Sheet and providing supporting documentation (ibid.).

6.5.2 Current Status of the Joint Crediting Mechanism / Bilateral Offset Crediting Mechanism

Japan has made great effort to solicit international support for its JCM/BOCM initiative. Language in the outcome of the 2011 East Asia Summit (ASEAN +6), 18 Asia-Pacific Country Forum) gave further support to the initiative at its sixth meeting in Bali, Indonesia, where for the first time, the US participated as an observer. Japan has so far signed bilateral documents on "Low Carbon Development Partnerships" or "Low Carbon Growth Partnerships" with Mongolia, Bangladesh, Ethiopia, Kenya, the Maldives, Vietnam and Laos. A further agreement with Indonesia is expected soon. The seven documents signed so far are nearly identical and run to two or three pages.[14] They stipulate that both sides establish a BOCM (in the case of Bangladesh) or JCM (in the other cases) and establish a Joint Committee to operate the JCM or BOCM with the mandates as outlined above. Both sides recognise that verified reductions or removals can be used as part of their internationally pledged reduction efforts while avoiding double counting. Neither government is to use projects registered under the JCM or BOCM for any other international mitigation mechanism. The JCM or BOCM is to start operation as a

[14] They are available online on Japan's New Mechanisms Information Platform, http://www.mmechanisms.org/e/latest/index.html, last accessed 26 August 2013.

"non-tradable credit type mechanism" and both sides continue consultation for a transition to a "tradable credit type mechanism".

So far, only the JCM with Mongolia has been further developed. The Japanese-Mongolian Joint Committee (JC) had its first meeting in Ulaanbaatar on 11 April 2013. It has nine members from Mongolia and four from Japan, all of them members of government ministries or agencies. The JC has two co-chairs, one each from Japan and Mongolia. The meeting also established a secretariat. Mongolia nominated staff from the Ministry of Environment and Green Development and Japan nominated Mitsubishi UFJ Research and Consulting Co., Ltd, to the secretariat. Finally, the meeting adopted "Joint Crediting Mechanism Rules of Procedures for the Joint Committee" and "Rules of Implementation for the JCM" (Japanese-Mongolian JC 2013a).

Further documents were adopted by electronic decision making on 23 May 2013:

- JCM Project Cycle Procedure
- JCM Glossary of Terms
- JCM Guidelines for Developing Proposed Methodology
- JCM Guidelines for Designation as a Third-Party Entity
- JCM Guidelines for Developing Project Design Document and Monitoring Report
- JCM Guidelines for Validation and Verification

The basic structure of documentation evidently takes the CDM as starting point but the individual documents are more generic than their CDM equivalents. The following compares the Mongolian JCM documents with the equivalent CDM documents.

6.5.2.1 Project Cycle

There are some notable differences between the JCM/BOCM and the CDM in the basic project cycle. Projects are eligible if they started operation on or after 1 January 2013. Validation and verification reports are not submitted to the JC by the third-party entities but by the project participants themselves. As noted above, one entity may conduct both validation and verification. Credits are not issued by the JC, but by Japan and Mongolia upon notification by the JC (Japanese-Mongolian JC 2013b).

As in the CDM, requests for registration may be submitted after the start of operation of a project and draft PDDs are to be published for public inputs for a period of 30 days and received inputs are to be made publicly available. As noted above, validation can be conducted jointly with the first verification. The Secretariat is to conduct a completeness check of requests for registration within seven days of submission. Subsequently, the JC decides whether to register the project (ibid.).

To receive credits, project participants need to request opening of accounts in either the Japanese or the Mongolian registry. Again, the Secretariat conducts a completeness check of requests for issuance within seven days and subsequently the JC decides whether to notify the Japanese and Mongolian governments to issue credits (ibid.). There is no mention of publishing monitoring reports for public comments in any of the documents.

There is no substantive assessment of requests for registration or issuance by the Secretariat, only completeness checks. There also is no other support structure such as the CDM's review and issuance team.

6.5.2.2 Methodologies

Methodologies may be proposed by the two governments, the JC itself, or by project participants. Proposals need not be accompanied by a real-case PDD. The Secretariat is to perform a completeness check within seven days and subsequently make the proposed methodology available for public commenting for 15 days (the same number of days as in the CDM). Subsequently, the proposed methodology is to be assessed by the JC. The JC may delegate part of the assessment to external experts or a panel. The consideration is to be concluded within 60 days of the closure of the public commenting period or if this is not possible within 90 days (Japanese-Mongolian JC 2013c).

The methodology guidelines include a brief generic introduction and mostly consist of the proposed methodology form filled in with data of an indicative example project. The general structure of the form corresponds to the CDM form for new methodology proposals (UNFCCC Secretariat 2013a), but is more generic. The sectoral scopes stipulated in the guidelines are the same as in the CDM. There are no sections to discuss either project boundaries or leakage. The CDM methodologies' applicability conditions are replaced by a section on eligibility criteria. There are no sections on identifying the baseline scenario and demonstrating additionality as these issues are to be addressed in the development of the methodology itself. Instead, proponents are to provide "only one procedure for establishing reference emissions, which, in the view of the methodology proponent, represents plausible emissions in providing the same outputs or service level of the proposed JCM project in Mongolia." They are also to provide "a description of how and why the reference emissions are below the BAU emissions." (Japanese-Mongolian JC 2013d: 10)

In the CDM, baselines may be derived from existing actual or historical emissions, emissions from a technology that represents an economically attractive course of action, taking into account barriers to investment, or the average emissions of similar project activities undertaken in the previous five years, in similar social, economic, environmental and technological circumstances, and whose performance is among the top 20% of their category (Decision 3/CMP. 1, Annex, para 48). In the JCM reference emissions may be derived from the current situation and performance, average historical performance, the performance of similar products and technologies which compete with the project technology, legal requirements, voluntary standards and targets, or best available technology of Mongolia (Japanese-Mongolian JC 2013d: 10).

Instead of data and parameters to be monitored, the form provides for parameters to be fixed ex-ante and parameters to be monitored ex-post (ibid.).

The indicative example provided in the form is a methodology for improving the efficiency of energy use through a building energy management system (BEMS), a computer system designed to analyse and control energy use in buildings. The example stipulates that there are currently no plans to introduce BEMS in Mongolia, BAU is therefore a scenario without use of BEMS. The rate of efficiency improvement would be stipulated ex-ante on the basis of available studies or reports. Electricity and fossil fuel use would have to be monitored while the CO_2 emission factor of electricity would be taken from the IEA and the net calorific value(s) and CO_2 emission factor(s) of fossil fuels used would be taken from the IPCC (ibid.).

6.5.2.3 Third-Party Entities

The designation of third-party entities (TPE) fully relies on CDM and ISO accreditation. To be eligible to become a TPE under the JCM, the candidate entity has to be either a CDM DOE, or an entity accredited under ISO 14065 by an accreditation body that is a member of the

International Accreditation Forum based on ISO 14064-2. CDM DOEs are eligible for the sectoral scopes for which they are designated under the CDM while ISO entities are designated for sectoral scopes by the JC based on their applications. The designation of a TPE may be suspended or withdrawn if it loses its ISO or CDM status or its performance under the JCM is found to not be appropriate by a review conducted by the JC. Reviews may include on-site visits and involve external experts or organizations. TPEs that were suspended after a review may apply to be re-instated, subject to submission of documents explaining corrective action taken to remedy the causes of the suspension. TPE that are suspended and subsequently re-instated under ISO or the CDM may also apply for re-instatement under the JCM (Japanese-Mongolian JC 2013e).

6.5.2.4 Project Design Documents and Monitoring Reports

The PDD and monitoring report guidelines have a generic general introductions on how to develop a PDD and a monitoring plan and mostly consist of the respective forms, filled in with data of an indicative example project. The PDD form has no sections on public funding and contribution to sustainable development. Instead there is a section on "contributions from developed countries" to indicate "finance, technology, training, support for O&M, etc". The section on application of the methodology is limited to specifying the methodology and how the project meets the eligibility criteria. There are no sections on the establishment of the baseline scenario and the demonstration of additionality since these are determined by conformity with the eligibility criteria. The monitoring plan form consists of the pre-defined monitoring plan spreadsheet, which lists all parameters to be fixed ex-ante or monitored ex-post, and the monitoring structure spreadsheet, which is to be used to designate the responsible personnel and their respective roles in the monitoring process (Japanese-Mongolian JC 2013f).

The pre-prepared monitoring report spreadsheet consists of columns detailing the monitoring points and parameters as indicated in the PDD and further columns to individually enter the monitoring period, the monitored values, the data sources, the measurements methods and procedures that were used, the monitoring frequency and other comments as necessary (ibid.).

The indicative project example provided in the form is introduction of energy management systems including LED, high-efficient air conditioning and fan inverter control in five office buildings. The efficiency improvement is estimated ex-ante at 22%, supposedly based on past records of 30 similar buildings for the period 2008-2012, measured by the project participant or the BEMS provider. Other values are determined ex-ante or to be monitored as outlined above in the section on methodologies (ibid.).

6.5.2.5 Validation and Verification

The validation and verification guidelines (Japanese-Mongolian JC 2013g) borrow liberally from the CDM's validation and verification standard (UNFCCC Secretariat 2013b), but again they are more generic. The sections on objectives; general validation and verification procedures; corrective action requests, clarification requests and forward action requests; local stakeholder consultations; validation and verification reports match almost verbatim. Also, where the TPE applies sampling, it is to do so in line with the "Standard for sampling and surveys for CDM project activities and programme of activities" for large-scale CDM projects.

Normative references for validation and verification are the various JCM guidelines and ISO 14064-3:2006 Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions. The validation and verification guidelines do not

contain an equivalent to the CDM standard's section on principles (independence, ethical conduct, fair representation, and due professional care).

The JCM guidelines also do not contain the CDM requirement to cross-check the information in PDDs and in monitoring reports with information from other sources, including independent investigations if necessary. The section on validating the project description stipulates that the TPE "should" conduct an on-site visit. If none is conducted this needs to be justified. The CDM standard requires a physical site inspection unless other means are specified in the methodology or the project is below certain size thresholds. The section on the application of the approved methodology has no items on project boundaries, baseline identification, additionality, algorithms and formulae used and the monitoring plan as these are determined ex-ante in the JCM.

The sections on verification diverge strongly, presumably due to the high level of standardisation in the JCM. JCM requirements refer to compliance with the eligibility criteria and the registered PDD, calibration frequencies and corrections of measurements, as well as completeness and correctness of data. TPEs are explicitly to apply a reasonable assurance level for verification and the concept of materiality, both in line with ISO 14064-3:2006. The materiality threshold is set at 5%. The CDM standard makes no mention of these concepts. On-site visits for verifications are only mandatory for the first verification whereas in the CDM they are required for each.

The section on post-registration changes focuses on whether such changes prevent the use of the applied methodology. If that is the case, JC approval is required, whereas no approval is required if changes do not prevent use of the methodology. Consequently, the CDM sections on deviations, corrections, changes to the start of the crediting period, and permanent changes to monitoring plan or project design have no equivalents in the JCM.

Finally, both during validation and verification the TPE is to determine that the project is not registered under other international mitigation mechanisms.

6.5.2.6 Decision Making

The documents contain no details on how decisions to approve methodologies, designate third-party entities, register projects and issue credits are made, nor do they contain provisions on requests for review, so presumably the JC's general rules of procedure apply. These provide that decisions are to be taken by consensus. Decisions may also be taken electronically. In the latter case, decisions are deemed as adopted if no member provides a negative assertion within 20 days and both co-chairs provide a positive assertion, or all members provide affirmative assertions. "If a negative assertion is made by one of the members of Joint Committee, the Co-Chairs take into account the opinion of the member and take appropriate actions", which are not further specified (Japanese-Mongolian JC 2013h: 3f).

6.6 Interim Conclusion

Japan argues that the CDM's additionality rules are counterproductive and should be radically reformed to better promote clean investments. They consider that the largest barrier faced in developing a CDM project is the many uncertainties about whether a project will be registered and whether as many CERs as expected will be issued.

In Japan's opinion, the main reason for this uncertainty is the judgment that DOEs and the CDM Executive Board exercise when assessing projects. They suggest that to remove this problem the counterfactual project-by-project approach to additionality should be replaced by an ex-ante approach based on clear eligibility criteria and quantitative parameters, as is already

employed for micro-scale CDM projects. In particular, the Board should establish a positive list of specific project types of a specific size which would be deemed automatically additional. For project types where this is not feasible, the Board should set default parameters, in particular for the parameters that are needed for the investment analysis. In the same vein, standardised baselines should include criteria for automatic additionality.

Japanese representatives acknowledge that the ideas they propose are not radically new and that the Board has already taken some steps toward further standardisation. However, they feel that the Board is moving too slowly and that decentralised approaches would be better suited to taking local circumstances into account.

Consequently, Japan is steadily moving forward with the implementation of its own bilateral mechanism. It has so far signed cooperation agreements with seven countries. With Mongolia (one of the seven), it has already developed implementation rules. The rules and documents evidently take the CDM as starting point but are more generic than their CDM equivalents. Key differences include:

One third-party entity may conduct validation and verification and validation may be combined with the first verification. The CDM requirement that validation and verification have to be conducted by different DOEs was based on considerations of quality assurance and concerns about possible conflicts of interest. Since there are no project-specific approaches in the JCM, the rule-makers presumably felt that there was little room for manipulation. However, Michaelowa (2012) argues that verifiers are not likely to give an assessment opinion at such a late point in time, especially may stand to gain from further verification work in future stages of the project – exactly the conflict of interest the separation of DOEs for validation and verification in the CDM seeks to prevent.

In addition, whether the methodologies will indeed be robust enough to safeguard environmental integrity cannot yet be determined as approved methodologies do not yet exist. The eligibility criteria and calculation of reference emissions will be key in this respect as the approach includes neither project-specific assessments of additionality nor consideration of possible alternatives to the project. The indicative example included in the methodology guidelines arguably falls short of what should be required by simply asserting that "The BaU emissions assume that the emissions when BEMS will not be introduced in Mongolia, which is justified since there are currently no plans to introduce BEMS." (Japanese-Mongolian JC 2013d: 9) Though because this is only an indicative example, it may not be representative of what full methodologies will look like.

However, it is not clear to what extent methodology proposals and requests for registration and issuance will actually be scrutinised. Validation and verification rules on on-site visits and cross-checking of information are weaker than in the CDM. In addition, it appears that the JC is supposed to do all the assessments by itself. While the JC may draw on panels or external expertise to assess methodology proposals, there is no procedure for how this is to be done. The rules on registration and issuance do not include provisions to solicit external support. The secretariat only conducts completeness checks but no substantive assessments of proposals. There is also no provision to publish monitoring reports for public comments prior to issuance.

Presumably, rule-makers felt that JC members will require no support for decisions on registration and issuance due to the high level of standardisation. The JCM rules can indeed be seen as embodiment of Japanese calls on the CDM to "move from judging to checking". Whether cases will indeed be as clear-cut as envisaged, remains to be seen.

7 South Korea

7.1 Development background: A Non-Annex 1 country in the OECD

Emerging from Japanese colonization after World War II and the subsequent division of North and South in 1948, the Republic of Korea (South) started on a rapid path of industrialization. In 1980, South Korea's per capita GDP (by purchasing power parity) was a fourth of that of Japan's, but the Korean economy grew so rapidly that the country was admitted to the OECD in 1996. In 2001, Korea had a higher per capita GDP than the EU average and the IMF now expects it to overtake Japan in the next five years. Greenhouse gas emissions have mirrored the development trajectory. In 1990, South Korea had 246 million metric tonnes of CO2e emissions; by 2008 emissions had grown 114.6 per cent to 528.1 million metric tonnes of CO2e, higher than the United Kingdom. Current estimates from the International Energy Agency for 2009 show further growth of up to 640 million mtCO2e making South Korea the fastest growing emitter among industrialized democracies. More recently, climate and the environment have become a larger issue on the Korean political agenda and in August 2008, former President Lee Myung-bak announced a new economic national development strategy based on Low-Carbon Green Growth.

7.2 South Korean Climate Policy

South Korea ratified the UN Framework Convention on Climate Change in December 1993 and, joined the Kyoto Protocol as a non-Annex 1 country in November 2002.

South Korea has pledged to reduce emissions 30% from a Business as Usual (BAU) projection by 2020. Korea estimates its baseline emissions at 813 million tonnes of CO2-eq. in 2020, so a total cut of 244 million tonnes of CO2-eq. will be necessary to reach the 30% target.

The Presidential Committee on Green Growth (PCGG) was established in February 2009 to help develop and coordinate policy among various ministries. Members include 14 ministers and 36 other members appointed from the private sector. The committee was co-chaired by the prime minister and an appointed chairman. Environmental regulations such as the details to be filled in to the Korean ETS were debated and coordinated through the PCGG. On 25 February 2013, Park Geun-hye was sworn in as the new President and promptly conducted a full scale review of the green growth approach of President Lee.

Two Korean ministries have large roles in climate policy, the Ministry of Knowledge Economy (MKE) and the Ministry of the Environment (MOE (K)). The main government agency directly responsible for implementing climate change policy is the Korea Energy Management Corporation (KEMCO). The Korea Emission Reduction Registry Center (KERRC) was established in July 2005 to help monitor progress towards climate, energy efficiency, and renewable energy targets. The Korea Environment Institute (KEI) is a research institute primarily funded by the Prime Ministerial Office that has played an important role in advising on government climate policy including the reduction target from BAU to 2020.

The Global Green Growth Institute was founded in 2010 as a public-private, non-profit institution working to support sustainable growth.

In October 2011, Korea established a Target Management System (TMS), which set emission reduction targets for its 458 largest polluters which took effect in 2012. The lead ministry for the TMS is the MOE (K), though the MKE is also heavily involved, along with other ministries according to the sector of the economy implicated. The threshold to have a target was 25,000

tonnes of CO2 a year and many aspects of the TMS have been adopted into the outline for Korea's future ETS. The MOE is the lead ministry responsible for the Korean ETS.

7.3 Emissions Trading in South Korea

Legislation for a cap-and-trade scheme to be introduced by 2015 was passed on 2 May 2012 with 148 supporting the legislation, 0 opposing, and 3 abstaining. While the Parliament has 300 members, many were not present for the vote. The 98 per cent majority voting for the bill consisted of both ruling party and the opposition. A draft proposal for an ETS had been drawn up by the PCGG, the Prime Minister's office had announced notice on the proposal on 17 November 2010. Just before the vote on the cap-and-trade bill, the future linking of the Korean ETS was already a matter of discussion during high level meetings between former Australian Minister for Climate Change and Energy Efficiency, Greg Combet, and then Korea's Environment Minister Yoo Young Sok in April 2012, but it now seems clear that Korea will not engage with international carbon markets in the first few phases of the scheme.

Facilities covered by the scheme come from a variety of sectors and have a threshold of 25,000 tons of CO2e a year, of which there are over 450. Together, these account for ca. 60% of Korea's total greenhouse gas emissions of about 600 million tonnes per year. Companies required to comply with the ETS will be allowed to trade from the beginning, while other intermediaries are to be given access to the market gradually, with rules to be established by presidential decree. The scheme will be divided into phases with the first to be from 2015-2017, the second from 2018 – 2020, and the third from 2021-2026.

PointCarbon estimates the overall goal of a 30% reduction from the business as usual case by 2020 to translate to a reduction goal of 4% from 2005 by 2020 or cap of approximately 450 Mt in 2015 (Simjanovic 2012). One hundred per cent of allowances will be allocated free in the first phase (2015-2017), with a reduction to 97% in the second (2018-2020), and less than 90% in the third (2021-2026) (ICAP 2013).

7.4 South Korean Offset Policy

Korea has a developed voluntary offset scheme known as the Korea Verified Emissions Reduction Program (K-VER). The scheme is run by the Korean Ministry of Knowledge Economy (MKE) and the Korea Energy Management Corporation (KEMCO), both government agencies. Government started buying credits in 2007, now amounting to 7.4 MtCO2e. The scheme was originally established in order to incentivize voluntary domestic reductions, not to meet a GHG mitigation target (Peters-Stanley 2012). ISO series 14064 and 14065, and CDM methodologies are used for the scheme in the domestic market. The name of the units produced by the K-VER is "KCER" for Korea Certified Emission Reduction.

According to the ETS original legislation passed by the National Assembly, produced by the Presidential Committee on Green Growth (PCGG), facilities can request the conversion of internationally recognized emissions reductions to Korean credits. Subsequently, PointCarbon reported that the PCGG, speaking through Kwang-Hee Nam, had decided against accepting international offset credits, including CERs, in the first two trading periods 2015-2017 and 2018-2020 of the Korean ETS. In the third period, international offsets may be used to fulfil installation compliance obligations, but the number of offset credits used must be less than 50% of the total compliance obligation. Korean offsets are eligible for 10% of a compliance obligation in the first two phases (EDF IETA 2013), but it is not clear if CERs originating from

projects in Korea will be eligible or if Korea will develop its own domestic scheme perhaps based on the current Korea Voluntary Emission Reduction (KVER) programme, or both.

Bloomberg New Energy Finance had previously estimated that "approximately 20 per cent of abatement" through 2020 could be met through CERs (Han 2012).

7.5 South Korea's Position Towards the CDM

As a non-Annex 1 country of the Kyoto Protocol, South Korea has no obligations under the current commitment period. Korea had generally been favourable towards the CDM, especially having originally been a host country producing CERs rather than being a source of demand. The basic plan for the ETS includes provisions regarding how the Korean system could potentially link to the international carbon market starting in 2021.

The motivation for excluding international offsets from the ETS in its initial periods is to focus on domestic reductions. As a successful CER source, South Korea's position towards the CDM internationally, and specifically in the UNFCCC negotiations, is generally positive. Some issues are criticised, such as the unequal geographical and sectoral distribution, but overall South Korea considers the CDM to be a successful instrument. South Korea's main point of criticism appears to be its scale. South Korea stipulates that "the CDM in its current form of project-specific nature is not able to generate financial flows needed under a 'global deal.'" Based on analysis by Nicholas Stern, South Korea in 2008 posited that climate stabilisation would require 20-75 billion USD by 2020 and up to 100 billion USD by 2030, whereas the capacity of the current CDM was about 400 project registrations per year and 6 billion USD at contemporary carbon prices (Republic of Korea 2008: 3).

South Korea is therefore strongly in favour of NAMA crediting, but a submission from 2009 also considered the CDM as one possible basis for scaling up mitigation action through NAMAs. The submission notes that "Carbon credit for NAMAs could be established either under the UNFCCC as one of the means of financing and technology transfer mechanism for the implementation of paragraph 1(b)(ii) of the Bali Action Plan or as an enhancement of the current CDM under the Kyoto Protocol as part of CDM reform package... To credit NAMAs could enhance the current project-based CDM towards program- and policy-based crediting mechanism. Sectoral targets or cap-and-trade schemes, which are not eligible for credit under the current CDM, could be the NAMAs that would be eligible for credit." (Submission 20.02.2009 p. 78) South Korea also suggested that the standards for NAMA crediting should be based on CDM methodologies (Republic of Korea 2009: 43).

8 Offset Policies Post-2012: CDM and beyond

8.1 Standardisation Initiatives in the CDM

The CDM has so far mostly taken a project-by-project approach to additionality demonstration and baseline setting. Most methodologies include use of the additionality tool to demonstrate additionality, which includes the following steps (UNFCCC Secretariat 2012a):

- Identification of possible alternatives to the project,
- An investment analysis to determine that the proposed project is either (a) not the most economically or financially attractive alternative or (b) not economically or financially feasible,
- And/or a barrier analysis to determine whether the proposed project faces barriers (such as lack of skilled personnel, lack of access to capital, lack of infrastructure etc.) that prevent the implementation of this type of project and do not prevent the implementation of at least one of the alternatives
- A common practice analysis as a credibility check to determine the extent to which the proposed technology or practice has already diffused in the respective sector and region.

Baselines also need to be determined on a project-by-project basis based on methodologies approved by the CDM Executive Board. However, for several years there has been an increasing trend towards standardisation in the determination of additionality and baselines. Three aspects are most relevant in the present context: the common practice test, standardisation of baselines and automatic additionality for micro-scale and certain small-scale projects. The Board is also working to standardise individual methodologies but as these efforts are specific to the individual project types they are not further discussed in the following.

The CDM standardisation initiatives are subsequently compared to the offset standards of the jurisdictions analysed in the preceding chapters.

8.1.1 Common Practice Test

The CDM Executive Board at its sixty-third meeting (EB63) adopted guidelines on how to conduct the common practice analysis required in the additionality tool, these were revised at EB69. The guidelines provide for a stepwise approach (UNFCCC Secretariat 2012b):

- First, project proponents need to calculate the applicable output (goods or services) range as +/-50% of the design output or capacity of the proposed project.
- Second, project proponents need to identify similar projects in terms of applying the same type of measure, delivering comparable goods or services, being within the capacity range calculated in step 1, etc. that take place in the applicable geographical region. By default the applicable region is the entire host country, but proponents may provide justification that the applicable region is smaller than the host country for technologies that vary considerably from location to location.
- Third, projects that are registered CDM projects, have been submitted for registration or are undergoing validation are subtracted.

- Fourth, projects are identified that use a technology that is different from the proposed project.
- Fifth, on this basis proponents need to calculate the share of projects that use technologies that are similar to the proposed project.
- The activity is deemed common practice if the share is higher than 20% and there are at least three projects of the same type.

8.1.2 Standardised Baselines

The sixth Conference of the Parties to the UNFCCC Meeting as Parties to the Kyoto Protocol (CMP6) defined standardised baselines as:

"a baseline established for a Party or a group of Parties to facilitate the calculation of emission reduction and removals and/or the determination of additionality for clean development mechanism project activities, while providing assistance for ensuring environmental integrity." (Decision 3/CMP.6: para 44).

As such, a standardised baseline is not established project by project by applying the applicable baseline methodology. Instead, it constitutes a standard estimation of the GHG emissions that would have occurred in the absence of the project. In addition, standardised baselines may also be used to determine additionality without a project-specific additionality test.

CMP6 also decided that Parties, project participants, international industry organizations and admitted observer organizations may submit proposals for standardised baselines applicable to new or existing methodologies to the Board for consideration. Proposals need to be submitted through the host countries' DNAs. In addition, the Board may develop standardised baselines top-down, prioritising methodologies that are especially applicable to countries and project types that have so far been under-represented in the CDM.

EB62 approved Guidelines for the Establishment of Sector Specific Standardized Baselines, which were subsequently revised at EB65 (UNFCCC Secretariat 2012c). They are applicable to projects at stationary sources with the following four types of measures:

- Fuel and feedstock switch;
- Switch of technology with or without change of energy source (including energy efficiency improvements);
- Methane destruction;
- Methane formation avoidance.

The level of aggregation is the geographical area of the sector producing the relevant output in a country or a group of countries. Other levels of aggregation may be proposed to the Board if considered more appropriate.

In addition to establishing baselines, the guidelines also serve for the ex-ante demonstration of additionality by establishing positive lists of types of measures. This includes standardisation at two levels:

- The first level is the development of a positive list of measures and the identification of the baseline technology for each measure. For example, if a project aims to destroy more methane from a landfill than is mandatory and enforced, the project is additional. The baseline emission level is the percentage of methane the destruction of which is

mandated and enforced. To determine a positive list and a crediting threshold for technology and/or fuel/feedstock switch, a performance-penetration approach is chosen. Those technologies or fuels and feedstocks are put on the positive list that are less carbon intensive than those used to produce a certain percentage of the output, that face barriers or are less commercially attractive, and the use of which is not legally mandated. The baseline fuel/technology is the one with the lowest carbon emission factor among those that contribute to producing a certain share of the output.

- If necessary, the second level includes determination of the baseline emission factor based on the baseline fuel as identified above.

What percentage of production should be chosen as cut-off threshold for the determination of additionality and baselines is sector-specific and to be determined by the Board sector by sector. EB 65 provisionally set the thresholds at 80% for the priority sectors energy for households, energy generation in isolated systems, and agriculture. For all other sectors the threshold was provisionally set at 90%. Notably, the Board therewith made the thresholds more stringent compared to the Secretariat draft, which had proposed 70% and 80% respectively (UNFCCC Secretariat 2012d: 3).

EB65 also adopted a work programme on standardised baselines. Among other items, this includes (UNFCCC Secretariat 2012e):

- The development of criteria for the definition of threshold values and analysis of the implications of the provisionally set values.
- The development of guidelines and/or software for the determination of sector-wide baseline emission factors and to collect data on the cost of technologies.
- The development of Quality Assurance/Quality Control (QA/QC) guidelines for the quality assessment of the data required to develop the standardized baselines;
- The development of procedures for providing support to countries with fewer than 10 CDM projects in relation to standardized baselines;
- The development of procedures for the submission and consideration of CDM projects using standardized baselines.

The QA/QC guidelines were adopted at EB66. The guidelines give DNAs the central role in data collection and validation, DOEs are restricted to assessing the quality of the DNA's data management system (UNFCCC Secretariat 2012f).

EB 73 approved the first two standardised baselines, "Grid Emission Factor for the Southern African Power Pool" and "Fuel switch, technology switch and methane destruction in the charcoal sector". The former essentially determines the grid emission factor for grid-connected electricity projects in the nine countries in Southern Africa that have a common grid in the Southern African Power Pool (UNFCCC Secretariat 2013c). The latter replaces the provisions in methodology AMS-III.BG (Emission reduction through sustainable charcoal production and consumption) for determining the values of a number of project parameters with standardised parameters. It also replaces the provisions on the demonstration of additionality in methodology AMS-III.BG with a positive list of technologies (UNFCCC Secretariat 2013d).

EB73 also agreed to revise the regulatory documents based on the lessons learned so far, to develop a standard on the application of standardized baselines, and to develop guidelines on data vintage and frequency of update of standardized baselines. Use of the approved

standardized baselines will only be possible once the standardized baselines application standard has been approved by the Board. EB73 also once again discussed draft guidelines for "Determination of baseline and additionality thresholds for standardized baselines using the performance-penetration approach" prepared by the Secretariat. Several Board members had in the past repeatedly criticised the Secretariat's approach as too complex and EB73 again decided to request further revisions and to prioritise work on the other regulatory documents (Arens 2013).

8.1.3 Automatic Additionality for Certain Small-Scale and Microscale Projects

8.1.3.1 Automatic Additionality for Small-Scale Projects

The Board in 2011 included a positive list of technologies and project types that are defined as automatically additional for project sizes up to the small-scale CDM thresholds in its guidelines on the demonstration of additionality of small-scale project activities. The current version dates from July 2012 (UNFCCC Secretariat 2012g). The positive list includes:

a) The below on- and off-grid renewable electricity generation technologies:
    1. Solar (photovoltaic and solar thermal electricity generation);
    2. Off-shore wind;
    3. Marine technologies (wave, tidal);
    4. Building-integrated wind turbines or household rooftop wind turbines of a size up to 100 kW.

b) The below off-grid electricity generation technologies where the individual units do not exceed the thresholds indicated in parentheses and the aggregate capacity does not exceed 15 MW:
    1. Micro/pico-hydro (up to 100 kW);
    2. Micro/pico-wind turbine (up to 100 kW);
    3. PV-wind hybrid (up to 100 kW);
    4. Geothermal (up to 200 kW);
    5. Biomass gasification/biogas (up to 100 kW);

c) Projects that solely consist of isolated units where the users are households, communities or small and medium enterprises (SMEs) and where the size of each unit is no larger than 5% of the small-scale CDM thresholds;

d) Renewable-based rural electrification projects in countries where rural electrification rates are less than 20%.

8.1.3.2 Automatic Additionality for Micro-Scale Projects

In addition, the Board in 2010 adopted guidelines for demonstrating additionality of micro-scale projects. The current version dates from May 2013 (UNFCCC Secretariat 2013e). According to the guidelines, projects are automatically deemed additional under certain conditions. The guidelines are applicable to individual projects as well as project bundles and project activities under a Programme of Activities (PoA).

Renewable energy projects with a capacity of up to five megawatts are automatically deemed additional if any one of the following conditions applies:

a) The project is located in a least developed country (LDC) or a small island developing state (SIDS) or in a special underdeveloped zone (SUZ) of the host country, as identified by the host country government and approved by the Board based on specified criteria.

b) The project is an off-grid activity supplying energy to households/communities. An activity is also considered "off-grid" if grid availability is below 12 hours per day.

c) The project is designed for distributed energy generation, that is, not connected to a national or regional grid, and the following two conditions are satisfied:

    1. Each independent subsystems/measures in the project has at maximum 1500kW installed capacity.

    2. End-users are households/communities/SMEs.

d) The project uses specific renewable energy technologies/measures that were recommended by the host country for automatic additionality and approved by the Board. Approved technologies/measures remain valid for three years. Recommendations may be made based on the following conditions:

    1. The technologies or measures are grid-connected renewable energy technologies with at maximum 5 MW installed capacity;

    2. The share of the specific technology in the total installed grid-connected generation capacity in the host country is at maximum 3%;

    3. The most recent available data on the penetration rate must be used and must be no older than three years before the date of submission of the recommendation.

Energy efficiency projects that aim to achieve energy savings of at maximum 20GWh per year are automatically deemed additional if any one of the following conditions apply:

a) The project activity is located in an LDC/SIDS or SUZ of the host country.

b) The project fulfils both of the following two conditions:

    1. Each independent subsystem/measure has estimated annual savings of at maximum 600MWh; and

    2. End-users are households/communities/SMEs.

Other project types (Type III projects) that aim to achieve reductions of at maximum 20kt CO_2-eq. per year are automatically deemed additional if any one of the following conditions apply:

a) The project is located in an LDC/SIDS or SUZ of the host country;

b) Both of the following two conditions apply:

    1. Each independent subsystem/measure has an estimated emission reduction of at maximum 600t CO2-eq. per year; and

    2. End-users are households/communities/SMEs.

8.2 Comparison of Offset Standards in the CDM, Australia, California and Japan

Comparing the three jurisdictions developing their own offset standards (Australia, California and Japan), it becomes clear that all three have explicitly rejected the CDM's project-by-project approach and instead chosen to establish additionality ex-ante for entire classes of projects. They all consider this approach to be not only more efficient and cost-effective but also to be more "objective", implying a higher degree of environmental integrity.

Australia has defined a positive list that does not consider financial or investment additionality. Instead, the list is based on a "common practice test". Common practice is determined by analysing the "relevant comparison group" of similar farmers operating in similar environments, with similar access to information, skills and technologies. The basic threshold for being considered uncommon is when less than 5% of the comparison group practices the activity. In the event that there is not enough survey data or other statistical evidence to determine if an activity is above or below the 5% threshold, an activity can be considered uncommon (additional) if it is "dependent on a new technology (not including minor adjustments to existing technologies)" or if there is "one or more significant impediments to adoption for all potential participants", such as high upfront or operating costs with little commercial benefit. So far, all activities on the positive list have been included because their market share is below 5%.

Similar to Australia, California uses a "Performance Standard" approach to determine additionality, defined as a threshold that is significantly better than average GHG production for a specified activity. In contrast to Australia, California has so far not set a general threshold value such as 5% but considered each project type on its own merits. The result has been that

- Biodigesters are considered additional because so far less than 1% of dairies use them and cost is one of the main reasons.
- The destruction of ozone depleting substances (ODS) in foam blowing agent and refrigerant applications is additional because currently less than 1.5% of recoverable US-sourced ODS is being destroyed at the end of the lifetime of the equipment or material, and there is an economic incentive for ODS recycling but not for ODS destruction.
- Urban forest projects are additional because most cities do not achieve significant net tree gain, there is no economic benefit and most cities have severe budget constraints.
- Forestry projects are additional due to specific performance tests based on the specific project type.

The Californian approach was challenged in court by the Citizens Climate Lobby and Our Children's Earth Foundation but most points of criticism have been convincingly refuted. For example, the petition highlighted that there were farms that had installed biodigesters without benefiting from offset payments but CAR pointed out that most of these biodigesters had benefited from government grants. And as CAR pointed out, the petition was indeed self-contradictory in that it rejected standardised approaches but also rejected project-specific financial analyses.

The CDM also makes use of the concept of common practice, but in the CDM it is used as a credibility test of additionality in addition to project-specific investment and/or barrier analyses, not to determine additionality as is done in Australia and California. In the CDM, a type of activity is deemed common practice if its share among projects with a similar output (goods or services) in the host country is higher than 20% and there are at least three projects of the same type. The Australian government initially considered that for agricultural activities

the "take-off point" where types of activities achieve a self-sustaining position in the market lay at about 30% but has in the meantime lowered this value to 20% as in the CDM, subject to further research.

Finally, Japan is the most critical in its assessment of the CDM and suggests that the mechanism should move "from judging to checking" projects against objective criteria. In consequence, similar to the Australian and Californian systems the JCM/BOCM is to be based on positive lists, benchmarks or other "objective indicators" such as market shares, but the details are yet to be determined.

The rules developed for its JCM with Mongolia are an embodiment of this approach. Methodologies are to include objective eligibility criteria and projects that meet these criteria are deemed to be additional. The parameters for reference emissions will also be determined ex-ante without requiring consideration of project-specific alternative baseline scenarios. Monitoring is also to be standardised, project participants will only have to fill in certain values in pre-designed spreadsheets.

However, it does not seem clear how thoroughly methodology proposals and requests for registration and issuance will actually be scrutinised. The possibility to have validation and verification conducted by the same entity gives room for conflicts of interest and rules on on-site visits and cross-checking of information are not as stringent as under the CDM. In addition, it appears that the Joint Committee is supposed to do all the assessments itself. While the JC may draw on panels or external expertise to assess methodology proposals, there is no procedure laid out for how to do so. The rules on registration and issuance do not include provisions for soliciting external support. The secretariat only conducts completeness checks but no substantive assessments of proposals. There is also no provision to publish monitoring reports for public comments prior to issuance.

Presumably, rule-makers felt that JC members will require no support for decisions on registration and issuance due to the high level of standardisation. However, whether the methodologies will indeed be robust enough to safeguard environmental integrity can at the moment not be determined as no approved methodologies exist as yet. Whether cases will indeed be as clear-cut as envisaged thus remains to be seen.

As Japan itself notes, these development do – to a certain extant – dovetail with developments under the CDM. The CDM is (slowly) moving towards the adoption of standardised baselines which may also be used for the demonstration of additionality. The additionality threshold value has been set at 80% of production for priority project types that are so far underrepresented in the CDM and 90% for all other project types. The Secretariat is to conduct a work programme to determine sector-specific threshold values. The 5% threshold set by Australia hence appears rather conservative by comparison.

In addition, the Board has adopted a positive list of certain small-scale renewable energy projects that are automatically deemed additional as well as rules for automatic additionality of micro-scale projects. These lists are based on standardised criteria such as capacity levels, geographic location and types of end-users.

The CDM is therefore to some extent moving "from judging to checking" as demanded by Japan and already being implemented by Australia and California. However, most Board members call for strong scrutiny of the impacts of this increased flexibility and warn against applying a similar approach to large-scale projects prematurely.

It bears noting that most of the project types on the Australian positive list either do not yield commercial returns (in particular those related to land use, such as planting native species of

trees without the possibility of harvesting), are abatement practices that are still at early stages of development (e.g. application of biochar, manipulation of livestock digestion) or are commercially highly unattractive compared to alternatives (e.g. feeding tannin to ruminants, alternative waste treatment). It therefore seems likely that projects of these types could also easily pass the CDM's additionality test. However, the Australian top-down approach relieves project developers of the necessity to demonstrate the additionality of their projects and hence lowers their transaction costs.

The current scope of Californian offset protocols is similarly limited. Biodigesters have been assessed as being generally unattractive commercially without government assistance by federal US government agencies. ODS destruction do not yield commercial returns and the commercial value of forestry projects is strongly limited by the requirement to maintain storage for at least 100 years. Here as well it therefore seems likely that projects of these types could also easily pass the CDM's additionality test and that the main benefit is the reduction of transaction costs through the top-down determination of additionality. It also is noteworthy that California does require a project-specific investment analysis for avoided conversion projects, arguably the most complex project type currently eligible in the Californian system.

The Australian and Californian efforts have therefore so far mostly been limited to project types where additionality is relatively straightforward to establish. Among the systems that were studied in this report, the Japanese JCM/BOCM and the CDM process to establish standardised baselines with automatic additionality will hence be the first major undertakings to determine additionality top-down for more complex project types.

Table 2: Comparison of Offset System Approaches

Comparision of Offset System Approaches				
	CDM	Australian CFI	Californian Offset Regulations	Japanese JCM/BOCM
Governance (decisions on methodologies, accreditation of verifiers, project approval and issuance)	Multilateral under the CDM Executive Board	National	National, decentralised bilateral in case of REDD (to be operationalised)	Decentralised bilateral in "joint committees"
Eligibility of project types	Potentially all except nuclear energy, there must be an approved methodology for the project type	Agriculture, forestry and legacy landfills, project type must be on positive list, there must be an approved methodology for the project type	Activities not covered by ETS, there must be an approved Offset Protocol for the project type	Potentially all project types
Development of methodologies	Methodologies developed (so far mostly) bottom-up or top-down, approved by Board after review by Meth Panel and Secretariat	Standardised methodologies developed (so far mostly) top-down or bottom-up, approved by Minister of Climate Change and Energy Efficiency after review by the Domestic Offsets Integrity Committee	Standardised Offset Protocols, so far all developed by Climate Action Reserve, reviewed by the California Air Resources Board	Methodologies may be developed by partner governments, the joint committees or project participants
Demonstration of additionality	So far project by project, recently introduction of automatic additionality for certain small- and micro-scale projects, in future standardised baselines may be used to demonstrate additionality	Project must not be required by law, must be on positive list based on common practice analysis, must not be on negative list, abatement must not be counted in other offset programme	Project must not be otherwise required by law, project start after 31 December, additionality demonstration based on standardised "performance standard" specific to each project type	To be determined, to be based on positive list, benchmarks or other "objective indicators" such as market shares

Use of common practice	Used as credibility check whether project is truly additional Identification of projects with similar output and capacity, applicable region is entire country unless demonstrated otherwise, activity is common practice if share is higher than 20% and there are at least three individual projects Standardised baselines based on performance-penetration approach, threshold provisionally set at 80% of production for priority project types and 90% for all other project types, subject to further research	Used to determine additionality top-down Analysis of "relevant comparison group", may be defined narrowly or broadly depending on the project type Activity is uncommon if has share of less than 5%, if it uses new technology or if there are significant barriers "Take-off point" where activity no longer uncommon considered to lie at 20% share, but subject to further research	Used to determine additionality top-down Analysis for each project type, e.g. biodigesters are not commonly installed, ODS are not commonly destroyed, cities normally do not achieve net tree gain, all due to economic and other barriers	To be used to determine additionality top-down, see above

8.3 Harmonisation Discussions under the UNFCCC: The Framework for Various Approaches

The Parties to the UNFCCC have been discussing "various approaches, including opportunities for using markets, to enhance the cost-effectiveness of, and to promote, mitigation actions" in the Ad-hoc Working Group on Long-Term Cooperative Action (AWG-LCA) for several years. At the seventeenth Conference of the Parties to the UNFCCC (COP 17) in Durban, Parties noted that Parties could individually or jointly develop and implement market mechanisms in accordance with their national circumstances and requested the AWG-LCA to conduct a work program to consider the establishment of a framework for treatment of various approaches to enhance the cost effectiveness of mitigation actions (Decision 2/CP.17).

Parties and accredited observer organisations were invited to submit their views by 5 March 2012 and the AWG-LCA conducted a workshop on the framework on 19 May 2012. There were 12 submissions by Parties, six submissions by developed countries, including the EU, and seven by developing countries.[15] As in the run-up to Durban, these submissions and discussions highlighted that there is a clear split between countries that argue for a centralised system and countries that are in favour of a decentralised system. The former include AOSIS, the EU and the LDCs, whereas the latter include Japan, New Zealand and the USA. While the former demand that only units generated within the UNFCCC should be allowed to count towards targets, the latter would essentially leave the recognition of units up to individual countries and envisage only a transparency function for the UNFCCC.

In particular, Japan posits that a "one size fits all" approach will not be suitable for addressing the "complexity of issues" that Parties have to address in mitigating climate change. Japan therefore considers it crucial for Parties to establish a wide variety of approaches which best reflect their national circumstances while ensuring environmental integrity. Japan points to the difficulties with the CDM (such as high transaction costs, inequitable geographical distribution, and disproportionate CER issuance from certain types of projects, see section 4.4.3) as rationale for calling for new mechanisms with decentralised governance.

Japan suggests that the COP could establish basic principles, supply best practices as a reference, and provide a reporting system and reporting formats for ensuring transparency. In Japan's view, a standard could not be exactly the same for each country, due to different national circumstances and priorities. Therefore, the standard would in their view best be developed by the implementing Parties. Japan suggests the following elements to be developed by the implementing Parties:

- Overview of the mechanism (process flow, institutions involved and their roles, etc.);
- Eligibility criteria for the projects and the project selection process;
- Underlying principles of methodologies and their approval process;
- Roles of the third-party certification entities and their accreditation process;
- Approaches to managing projects and credits issued (including measures to avoid double counting).

[15] Contained in UNFCCC 2012 and its annexes. For a more detailed overview of all submissions see Sterk 2012.

Once developed, the standard would need to be disclosed to the public through a reporting process established by the COP. Information to be disclosed should also include the record of implementation of the standard and lessons learned from its implementation.

Similarly, the United States suggests that the framework should be voluntary and non-exclusive, preserving the ability of countries to develop other market-based mechanisms according to their national circumstances, promote transparency of information, and be consistent with UNFCCC MRV guidelines, including biennial and national communication reporting guidelines.

The US suggests that countries should develop and implement their own standards in accordance with their domestic circumstances. It would be left to governments considering the use of credits toward meeting UNFCCC commitments to determine whether or not the credits are generated according to the principles agreed under the UNFCCC. The UNFCCC role would be to provide transparency. The USA discusses the following elements for the international system:

- Developing common approaches to tracking of units to prevent double counting;
- Registries would need to be established by any country wishing to transfer credits or allowances internationally, in order to ensure accurate tracking of units. Registries and the international tracking and transparency systems could also include credit retirement records;
- Parties should provide detailed information about their systems through the existing MRV channels in the UNFCCC; including through biennial reporting and consideration under the processes for international assessment and review (IAR) and international consultation and analysis (ICA).

While not as explicit in its rejection of common standards, Australia has also expressed a preference for a merely facilitative role for the FVA. It proposed to make “arrangements for reporting on the design and operation of a MBA [market-based approach] against agreed information parameters, review by technical experts, discussion of MBAs through peer review or peer dialogue”(Australian Government 2012). The submission however made no mention that the FVA should have an approval function.

The discussions over the course of 2012 did not lead to a convergence of views.

COP 18 therefore essentially extended the discussion mandate and invited a new round of submissions. However, so far these have shown marginal conceptual or political advances at best. Parties remain divided on whether the UNFCCC should have an approval function or not (Sterk 2013).

9 Findings & Recommendations

9.1 Main reasons for diversification of offset policies

Various stakeholders have long have had their own opinions and demands regarding the CDM. The design and development of new offset systems can be seen as a reaction to the various critiques of the CDM itself, namely with regard to the additionality of projects, the mechanism's bureaucracy and transaction costs, and the majority of projects being concentrated in a few, primarily emerging economy countries.

In addition, the examined jurisdictions have also had their own motives for at least a partial departure from the use of CDM as an offsetting mechanism. An evaluation of their characteristics offers input for discussions on how to further reform the CDM in order to help continue or at least salvage aspects of its "glue" role in international carbon markets.

Despite the CDM's many achievements, the following positions and motives can help to illustrate main drivers behind the critique.

California:

The perceived deficits of the CDM in terms of environmental integrity and transaction costs are not the only motives some of the jurisdictions have to distance themselves from the CDM. California has a highly active civil society and many NGOs avidly lobbied against emission trading in general and the use of offsets in particular. Court cases, which play a large role in American environmental policy making, were launched against both the cap-and-trade programme and the offsets programme. CARB therefore chose to pick its battles carefully. They aim to demonstrate that an offsets programme can be run successfully and with environmental integrity, and to do that they decided to start in their own backyard where they have full control.

Japan:

Japan also has several motivations. While the JCM/BOCM reflects many of the Japanese criticisms of the CDM, the issue probably has to be seen in the broader context of Japan's general opposition to the Kyoto framework. There is a general perception in the Japanese government and among Japanese companies that Japan is already highly carbon efficient. On this basis, the Kyoto approach is considered to be disproportionally disadvantageous to Japan. A further aspect is that as Japan will not join the second commitment period, it may need another channel for offsetting. Finally, the JCM/BOCM is explicitly geared towards promoting the export of Japanese companies' technologies, products and services.

Australia:

While the various international units including CERs were planned to be eligible in the Australian ETS and the former Labor-led government continuously showed support for the use of international offsets, it has always advocated for more standardised approach to offset systems. With regard to CDM reform, Australia has advocated moving away from "more subjective financial additionality tests" and towards performance benchmarks, baselines, and positive lists to simplify additionality assessment. In the development of the Carbon Farming Initiative, its own domestic offset system, Australia departed from the CDM's project-by-project approach and instead defined eligibility ex-ante stating that it considers this approach to be more efficient, cost-effective, and objective than a project-by-project approach. It is still unclear how the situation may change under the new Australian government.

South Korea:

South Korea has similarly been supportive of the CDM on an international level, in part thanks to its role as a successful project host country. Domestically however, it has decided not to engage in global markets in the beginning stages of its program and has banned international offsets until at least 2021, electing to first concentrate on mitigation inside the country.

EU:

In addition to the jurisdictions analysed in this report, concern about the CDM's integrity has also frequently been voiced in the EU, to date by far the largest CDM buyer. The EU has progressively tightened the types of CERs that it allows in the EU ETS and encouraged other countries such as Australia and New Zealand to at least consider similar restrictions. This has essentially eliminated demand for credits coming from projects which do not meet EU specifications. Although the EU has not yet worked to create its own offsetting mechanism, it has left itself room to do so domestically under Article 24a of the Emissions Trading Directive and with third countries under Article 11a (5) of the same directive in the event that international progress does not suit its requirements. One can assume that if the EU were to decide to unilaterally create or sanction such schemes, their design would be a similar reflection of its critique of the CDM in its current form.

9.2 Possible implications for the carbon market

It bears noting that the emergence of new systems in parallel to the CDM actually reflects what some analysts have called for in the past. For example, Victor (2011) argues that as offsetting is a new policy instrument, there is no clarity on what approaches are best; in such a situation a monopoly is in his view a "terrible idea". He argues that there should instead be multiple competing systems to maximise room for experimentation and learning. Environmental integrity could in his view be maintained by making buyers liable for the quality of the offsets they use. On this basis, only the strictest systems would be eligible for use in all countries, which would create a race to the top.

So far, however, only California has introduced buyer liability in its system. Without buyer liability, most market participants have no inherent incentive to maximise environmental integrity. To the contrary, both buyers and sellers have incentives to maximise credit volumes so regulators must be very strict at the outset. While neither the Californian offset protocols nor the Australian CFI were developed to be used on an international basis, a possible proliferation of schemes that are internationally applicable in parallel may result in a race to the bottom rather than a race to the top. Fears of a race to the bottom also seem justified given the refusal of Japan, the USA and others in the FVA discussion to allow UNFCCC oversight of "various approaches".

In addition, while the transaction costs of an individual offset scheme may be lower than those of the CDM, a multitude of standards from different schemes may overburden host countries. One of the arguments put forward in favour of new schemes is that the CDM in its current form has very high transaction costs while new schemes are supposedly going to lower costs through increased standardisation. However, a proliferation of parallel schemes will raise issues of double counting, so coordination will be necessary. In addition, having multiple schemes may lead to a proliferation of transaction costs, especially for the host country governments involved which would have to operate multiple schemes in parallel instead of one single international standard. This would place the greatest burden on least developed and other poor countries, which are already struggling with the current CDM/UNFCCC system.

Governments may of course opt to use only one out of various mechanisms that may be available, but in either case there may quickly arrive a market saturation of schemes. Along similar lines, Michaelowa (2012) questions the efficiency of setting up parallel JCM/BOCM approval structures in all partner countries.

Michaelowa (2011) also projects that fragmentation will in general lead to an increase in mitigation costs as there will be no equalisation of carbon prices. In addition, a proliferation of schemes will lead to a decline of transparency and of incentives for financial institutions to participate due to decreasing liquidity and increasing price volatility and differentiation. Moreover, sellers of credits will be more at the mercy of specific buyer preferences while competition among buyers in the so far global market has served to protect sellers against excessive buyer demands.

9.3 Assessment of the emerging systems

Comparing the three jurisdictions that are developing their own offset standards (Australia, California and Japan), it becomes obvious that all three of them have explicitly rejected the CDM's project-by-project approach and instead chosen to establish additionality ex-ante for entire classes of projects. They all consider this approach to be not only more efficient and cost-effective but also to be more "objective", implying a higher degree of environmental integrity.

Australia has defined a positive list that does not consider financial or investment additionality. Instead, the list is based on a "common practice test" wherein a practice is considered uncommon when less than 5% of the comparison group practices the activity. Similar to Australia, California uses a "Performance Standard" approach to determine additionality, defined as a threshold that is significantly better than average GHG production for a specified activity. In contrast to Australia, California has so far not set a general threshold value such as 5% but considered each project type on its own merits. Based on the documentary evidence, the processes to develop the offset protocols appear to have been very elaborate and to have taken into account all relevant factors. The Californian approach was challenged in court by the Citizens Climate Lobby and Our Children's Earth Foundation but most points of criticism have been convincingly refuted. For example, the petition highlighted that there were farms that had installed biodigesters without benefiting from offset payments but CAR pointed out that most of these biodigesters had benefited from government grants.

Robustness has been facilitated by the fact that the Australian and Californian efforts have so far mostly been limited to project types where additionality is relatively straightforward to establish. Most of the project types either do not yield commercial returns, are abatement practices that are still at early stages of development or are commercially highly unattractive compared to alternatives. It therefore seems likely that projects of these types could also easily pass the CDM's additionality test. However, the ex-ante approach relieves project developers of the necessity to demonstrate the additionality of their projects and hence lowers their transaction costs.

Among the systems that were studied in this report, the Japanese JCM/BOCM and the CDM process to establish standardised baselines with automatic additionality will hence be the first major undertakings to determine additionality top-down for more complex project types.

Similar to the Australian and Californian systems the JCM/BOCM is to be based on positive lists, benchmarks or other "objective indicators" such as market shares, but the details are yet to be determined. The parameters for reference emissions will also be determined ex-ante without requiring consideration of project-specific alternative baseline scenarios. Monitoring is also to

be standardised, project participants will only have to fill in certain values in pre-designed spreadsheets.

However, it does not seem clear how thoroughly methodology proposals and requests for registration and issuance will actually be scrutinised in the Japanese system. The possibility to have validation and verification conducted by the same entity gives room for conflicts of interest and rules on on-site visits and cross-checking of information are not as stringent as under the CDM. In addition, it appears that the Joint Committee is supposed to do all the projects assessments by itself without external support. Presumably, rule-makers felt that JC members will require no support for decisions on registration and issuance due to the high level of standardisation. However, whether the methodologies will indeed be robust enough to safeguard environmental integrity can at the moment not be determined as no approved methodologies exist as yet.

9.4 CDM reform efforts to address critiques and changing offset landscape

The CDM has made great strides in addressing the criticism that has been raised in the past. During several workshops conducted within this research project in early 2013 (presentation at the CDM Roundtable April 2013, Workshop in Bonn, June 2013; Side Event during SB meeting, June 2013), participants referred to the fact that most reform demands the EU made in 2008, relating for example to the strengthening of additionality testing and the introduction of standardised baselines, had been implemented. Japan also notes that its standardisation efforts in the JCM/BOCM do – to a certain extant – dovetail with developments under the CDM.

However, the process has been slow and new demands have emerged, for example regarding net mitigation benefits. Though in terms of volume, the CDM is still by far the largest and most successful offsetting mechanism, further CDM reform may not proceed quickly enough to maintain its current status, especially in times of divergent price trends and a lack of global demand. Being able to move more quickly than the CDM is indeed one of the justifications Japan puts forward for its bilateral approach.

One issue yet to be more thoroughly addressed is the approach taken to land use and forestry. Forests, land use, and sinks have always been a controversial issue in the CDM. Current rules only allow afforestation and reforestation projects, but even those are not accepted in the EU ETS due to fundamental concerns about the integrity and permanence of forestry projects. They are also excluded in Australia, but mostly due to the higher complexity and associated liability issues of temporary and long-term CERs, rather than environmental integrity concerns. By contrast, all three schemes analysed take a different approach to land use, forestry, and sinks, including them in various ways in their schemes' scopes. While Australia does not accept forestry CERs, it has decided to accept Removal Units from land use, land-use change and forestry activities under Article 3.3 or 3.4 of the Kyoto Protocol, and has multiple provisions for forestry and land use projects in its own domestic scheme. California has not only approved two forest offset protocols, as the California system was being established, it first seemed that the first types of credits from outside North America eligible in the state's system would come from sectoral forestry initiatives. Forestry and REDD+ projects have been the basis for several Japanese JCM/BOCM feasibility studies. These provisions underline the contrasting perspective these jurisdictions have taken to Europe regarding forestry and land use issues. One key point of the controversy is whether or not it is appropriate to address forestry on a project basis. A resolution may therefore be possible through a sector-based approach as is foreseen in REDD+.

9.5 Possible options for moving forward

The extent of standardisation and a departure from the project-by-project assessment that the CDM has mostly taken is an important issue to be addressed when trying to reconcile various offset perspectives vis-à-vis the CDM. This applies to additionality reviews, baseline setting, monitoring, and issuance. It is, however, likely that even an accelerated reform of the CDM will not suffice to convince policy makers in these jurisdictions to change their policy approach to CERs and their own offsetting instruments. If that is the case, at a minimum, efforts should be made to develop general minimum standards that all internationally applicable offset standards have to fulfil. In doing so, especially for developing countries, it is important to bear in mind the repercussions of who bears the costs in a system shifted to an ex-ante standardized approach and the drawbacks of multiple parallel systems. Efforts will also have to be made to preserve the CDM as such, which has so far acted as de facto standard-setter but is currently in danger of fading away due to the collapse of market demand.

a) Stronger CDM standardisation may placate many concerns

All the jurisdictions examined in this report promote an ex-ante additionality assessment for entire classes of projects and reject the project-by-project approach to additionality that the CDM has so far taken. They consider this to be not only more efficient and cost-effective but also more "objective", implying a higher degree of environmental integrity. California specifically decided not to accept the CDM in its ETS citing concerns about its environmental integrity. While Australia will accept the CDM, along with other international units, in its ETS in the future, it domestically also explicitly distanced itself from the project-by-project approach when designing its domestic offset system. Japan, historically a major CER buyer, is the most critical in its assessment of the CDM and suggests that the mechanism should move "from judging to checking" projects against objective criteria. Similar to the Australian and Californian systems, the Japanese JCM/BOCM is to be based on "objective indicators", but the details are yet to be determined.

The CDM has (slowly) moved towards the adoption of standardised baselines, which may also be used for the demonstration of additionality. With the concept of standardised baselines, it may be possible to increase the efficiency of the CDM while ensuring environmental integrity. This is the common objective of the four jurisdictions which are currently the main potential buyers of offset credits, Australia, California, Japan and the EU. Despite the divergent reasoning jurisdictions have taken to offset policy, moving towards greater standardisation may enhance the CDM's acceptability in the eyes of the examined and future systems.

Bearing the preference for standardised assessment in mind, it may be worth considering explicitly labelling CERs from projects using standardised baselines. Even though the CDM has undergone substantial reform and further reforms are being discussed, existing controversial projects will continue to generate CER for years. For the different jurisdictions, it may be politically easier to assert the inclusion of a specific CDM project standard, such as standardised baselines, rather than to define detailed use-restrictions.

b) Standardisation can also extend to monitoring and issuance

Criticism of the CDM also extends to monitoring and issuance. Japanese experts in particular criticise the high degree of uncertainty on how many CERs will eventually be issued. The Japanese JCM/BOCM therefore attempts to also standardise monitoring by providing approved monitoring report spread sheets where project participants would only need to input the monitored values. The scheme will also try to provide and use conservative default values as much as possible, including manufacturers' specifications or statistics. Monitoring training

programmes for verifiers in California and Australia reflect similar trends. It may be worthwhile to also consider possibilities for standardisation of monitoring in the CDM, though one also has to note that Japan's highly standardised approach has yet to be tested in practice.

c) Standardisation takes substantial effort and needs support

While standardisation may lower overall transaction costs in the system, it also frontloads transaction costs and shifts them from project participants to those who develop the standardised metrics. For their development, substantial data gathering is necessary to distinguish activities that are additional to those that are common practice as well as to set robust baselines. Standardised approaches also require regular reviews and updating to account for technological developments.

These efforts will presumably require a substantial amount of public sector support, as the data gathering will likely offer little commercial incentive without the concrete prospect of a registered methodology and offsets sales. The experience of Australia, California, and Japan underlines this reasoning as in all three jurisdictions the public sector needed to invest significant effort to establish the data basis necessary to standardise baselines and performance standards. While the systems in Australia and California are explicitly designed as a domestic systems and not meant to be expanded to other countries, they may nevertheless serve to illustrate the substantial investment that would probably also be necessary in the CDM for standardisation:

- In Australia, comprehensive biannual surveys are foreseen to serve as basis for the determination of what is common practice. The majority of methodologies have been developed top-down by the government and the government has deemed it necessary to commit $19.6 million to support further methodology development by private actors.
- In California, the four protocols that have so far been approved go back to the work of the California Climate Action Registry (CCAR), a public non-profit entity created in 2001 by the State of California to help develop voluntary greenhouse reductions and offset protocols. When the Global Warming Solutions Act was passed in 2006, the state "sunsetted" its support for the institution, which led CCAR to create a private non-profit entity, the Climate Action Reserve (CAR). The current four CARB-approved offset protocols all started as CAR voluntary offset protocols, which were then subjected to increased scrutiny for approval in the compliance market. So while the CAR now operates as a private entity, here as well, the development of an offset system with standardized parameters was kick-started with financial support from the government.
- Japan, finally, has also invested very substantial amounts to develop feasibility studies and model projects in developing countries.

Such effort is probably beyond the capacity of most developing countries, and especially LDCs. To realise the promise of standardisation in the CDM and a better distribution of projects, substantial support would therefore need to be provided to most CDM host countries by the CDM Executive Board and donor countries.

d) Quick establishment of transparency mechanisms may be desirable

In principle, efforts should be made to develop general minimum standards that all internationally applicable offset standards have to fulfil. However, prospects currently seem bleak. Coordination and harmonisation of approaches could be the key purpose of the framework for various approaches, but so far Japan and the USA, together with others, have

strongly rejected any UNFCCC interference in countries' standards. In their view, the UNFCCC should only provide transparency and maybe promote best practice, but the development and implementation of standards should be left to the individual countries. While less explicit, Australia has taken a similar position.

These countries have a political advantage since with the Cancún Agreements, the UNFCCC has adopted a system of voluntary pledges with an international review process but no common accounting. While there is no agreement that units from bilateral systems such as the JCM/BOCM may be used for achieving the pledges, there is also no system to prevent countries from doing so. It therefore seems desirable to subject such systems to as much scrutiny as possible as soon as possible.

Countries that would prefer a UNFCCC approval function might therefore nonetheless have to take the rhetorical commitment by Japan and others to high standards at face value and as quid pro quo insist on establishing a strong review system. The two-stage review foreseen by the IAR, which includes a technical review by experts, provides a formal hook for creating such a system but Parties will need to provide the IAR process with the necessary resources to actually allow for a detailed examination of decentralized offset systems.

e) Maintain the CDM's role as de-facto standard setter

Looking at the emerging systems in detail it becomes apparent that their approaches and methodologies often borrow from the CDM. They have essentially used the CDM as "open source" material and added some modifications. In particular large parts of the Japanese-Mongolian JCM's documents match their CDM equivalents verbatim. The CDM's bottom-up approach has therefore to a great extent facilitated the top-down development of new systems. However, the centre of innovation is increasingly shifting away from the CDM as other schemes are able to move faster than the multilateral system.

If the CDM fades away, as seems currently likely due to the lack of demand for CERs, its role as methodology developer and *de facto* standard setter will also disappear and approaches will increasingly diverge. This raises questions with regard to environmental integrity, especially if different approaches are supposed to be equally eligible for compliance with international obligations without an assessment of quality at the international level.

From this one may conclude that the remaining Kyoto parties should invest efforts to maintain the CDM as an instrument however minimally in the interim, including in particular its methodology development function, until increased mitigation ambition can provide hope for new demand for CERs. For the interim, this would require public sector funding of new projects and the development of new methodological approaches. As noted above, development of standardised baselines will in any case require strong public sector support.

One option may be to use the scale-up of climate finance that has been pledged by industrialised countries. The CDM presents a readily established method to achieve MRVable results of climate finance. To count investments in new CDM projects towards climate finance, the generated CERs could not at the same time also be counted towards that countries' emission commitments but would have to be cancelled, otherwise this approach would constitute double counting.

f) Ensure regular exchange on offset policies in international fora

There are a number of places where trends in establishing and implementing offset policies are discussed. In order to address the increasing fragmentation in this field and to avoid further barriers to a harmonized global carbon market, it may be useful to ensure a regular discussion forum for relevant decision makers. In order to avoid a further mushrooming of international

institutions and initiatives, it may be appropriate to use already existing structures. The CDM roundtable consultation is one important forum for discussion of such issues, but important stakeholders, including jurisdictions such as California, who may be involved in broader offset policy considerations, are not represented. Fora such as the International Carbon Action Partnership (ICAP), a policy network to facilitate harmonization among established and evolving emissions trading systems including those at the sub-national level, may offer another venue to this end. Finally, if offset considerations are to be embedded in broader carbon market related activities, initiatives such as the World Bank's Partnership for Market Readiness (PMR) or the International Partnership on Mitigation and MRV, founded by South Africa, South Korea, and Germany, may be viable options. Ultimately, it is important that the results of the work done in these fora flow back to the multilateral level at the UNFCCC in order to inform the on-going reform process of the international regime.

10 References

ABC (Australian Broadcasting Corporation) News: Leaked Climate Change Authority report calls on Australia to triple 2020 carbon emissions cuts target, 2 August 2013, http://www.abc.net.au/news/2013-08-02/climate-change-authority-wants-increase-in-carbon-target/4860276, last accessed 22 August 2013.

Arens, Christof (2013): CDM EB Meeting Report, EB 73, 27.-31. Mai 2013. Wuppertal: Wuppertal Institut für Klima, Umwelt, Energie. http://jiko-bmu.de/files/basisinformationen/application/pdf/eb_73_bericht.pdf, last accessed 23 August 2013.

Asuka, Jusen (2011): Issues around the bilateral offset credit mechanism under new flexible mechanisms. Paper prepared for the Society of Environmental Economics and Policy Studies (SEEPS) annual meeting, Sep. 23-24, Nagasaki, Japan.

Australia, DECC (Department of Climate Change and Energy Efficiency). 2008a. Carbon Pollution Reduction Scheme. Green Paper. July 2008

Australia, DECC (Department of Climate Change and Energy Efficiency) (2008b): Carbon Pollution Reduction Scheme, Australia's Low Pollution Future, White Paper. Volume 1. December 2008.

Australia, DECC (Department of Climate Change and Energy Efficiency) (2011a): Consultation Paper: Positive and Negative Lists for the Carbon Farming Initiative. Available on the internet at http://www.climatechange.gov.au/government/submissions/closed-consultations/~/media/publications/carbon-farming-initative/cfi-pos-neg-consultation-paper.pdf, last accessed 15 October 2012.

Australia, DECC (Department of Climate Change and Energy Efficiency) (2011b) Carbon Farming Initiative, Positive List guidelines, Common Practice. Commonwealth of Australia (Department of Climate Change and Energy Efficiency). October 2011. Available on the internet at http://www.climatechange.gov.au/en/government/initiatives/carbon-farming-initiative/activities-eligible-excluded/additional-activities-positive-list/~/media/government/initiatives/cfi/activities-eligible-excluded/CFI-Positive-List-guide-20111024-PDF.pdf, last accessed 15 October 2012.

Australia, DECC (Department of Climate Change and Energy Efficiency) (2011c): Commentary on the exposure draft Regulations dealing with the positive and negative lists of activities under the Carbon Farming Initiative, August 2011. Commonwealth of Australia (Department of Climate Change and Energy Efficiency). Available on the internet at http://www.climatechange.gov.au/government/submissions/closed-consultations/draft-regulations-positive-negative-lists-for-cfi/~/media/submissions/cfi/cfi-pos-neg-list-explanatory-statement.pdf, last accessed 15 October 2012.

Australia, DECC (Department of Climate Change and Energy Efficiency) (2012): The Carbon Farming Initiative Handbook. Commonwealth of Australia 2012 (Department of Climate Change and Energy Efficiency)

Australian Government (2011). An Overview of the Clean Energy Legislative Package. Available on the internet at http://www.cleanenergyfuture.gov.au/wp-content/uploads/2011/11/CEF-overview-20111109.pdf, last accessed 7 August 2013

Australian Government (2011a). Multi-Party Climate Change Committee Clean Energy Agreement. Available on the internet at

http://www.climatechange.gov.au/sites/climatechange/files/documents/04_2013/MPCCC_Clean-energy_agreement-20110710-PDF.pdf, last accessed 7 August 2013

Australian Government (2012). Views on a framework for various market and non-market based approaches to mitigation. Submission under the AWG LCA. August 2012. Available on the internet at http://www.climatechange.gov.au/sites/climatechange/files/files/UNFCCC-SUB-AWG-201208-PDF.pdf last accessed on 9 August 2013

Australia, Government of (2013). Media Release: Australia to move to a floating price on carbon pollution in 2014. Available on the internet at http://minister.innovation.gov.au/markbutler/mediareleases/pages/australiatomovetoafloatingpriceoncarbonpollutionin2014.aspx, last accessed 7 August 2013

Australia, Government of (2013a): Submission to the SBI □May 2013. Views on the Review of the Modalities and Procedures for the Clean Development Mechanism. Available on the internet at https://unfccc.int/files/documentation/submissions_from_parties/application/pdf/australia_cdm.pdf, last accessed 30 July 2013.

Australia, Government of (2013b): Positive List. Carbon Farming Initiative. Available on the internet at http://www.climatechange.gov.au/sites/climatechange/files/files/reducing-carbon/cfi/cfi-positive-list-brochure.pdf, last accessed 31 July 2013.

Bloomberg New Energy Finance (2013): Carbon Market Activity Highest on Record. Available on the internet at http://about.bnef.com/press-releases/carbon-market-activity-highest-on-record-2/, last accessed on 26 August 2013.

California Global Warming Solutions Act: Assembly Bill No. 32, California Global Warming Solutions Act of 2006, An act to add Division 25.5 (commencing with Section 38500) to the Health and Safety Code, relating to air pollution. Available on the internet at http://www.arb.ca.gov/cc/docs/ab32text.pdf, last accessed 16 October 2012.

California Code of Regulations (2010), Title 17, Subchapter 10 Climate Change, Article 5: California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms. Available on the internet at http://www.arb.ca.gov/regact/2010/capandtrade10/finalrevfro.pdf, last accessed 16 October 2012.

CAR (Climate Action Reserve) (2012): Case No. CGC-12-519554, Intervenor Climate Action Reserve's Opposition and Joinder in Respondent CARB's Opposition to Petitioners' Brief on the Merits.

CARB (California Air Resources Board) (2008): Climate Change Proposed Scoping Plan. October 2008. Available on the internet at http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf, last accessed on 7 August 2013

CARB (California Air Resources Board) (2008): Climate Change Proposed Scoping Plan Appendices. Volume I: Supporting Documents and Measure Detail, a framework for change. October 2008. Available on the internet at http://www.arb.ca.gov/cc/scopingplan/document/appendix1.pdf, last accessed 16 October 2012.

CARB (California Air Resources Board) (2009): International offsets in a California cap-and-trade program. 30 July 2009. Available on the internet at

http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm, last accessed 16 October 2012.

CARB (California Air Resources Board) (2010): California GHG Emissions – Forecast (2008-2020). Available on the internet at http://www.arb.ca.gov/cc/inventory/data/tables/2020_ghg_emissions_forecast_2010-10-28.pdf last accessed on 7 August 2013

CARB (California Air Resources Board) (2010a): Proposed Regulation to Implement the California Cap-and-Trade Program, Volume II Appendix D. California Environmental Protection Agency Air Resources Board.

CARB (California Air Resource Board) (2010b): Proposed Regulation to Implement the California Cap-and-Trade Program, Part IV, Staff Report and Compliance Offset Protocol, Livestock Manure (Digester) Projects, 28 October 2010.

CARB (California Air Resources Board) (2010c): Proposed Regulation to Implement the California Cap-and-Trade Program, Part III, Staff Report and Compliance Offset Protocol, U.S. Ozone Depleting Substances Projects, 28 October 2010.

CARB (California Air Resources Board) (2011): California Cap-and-Trade Program. Resolution 11-32. 20 October 2011. Available on the internet at http://www.arb.ca.gov/regact/2010/capandtrade10/res11-32.pdf, last accessed on 7 August 2013

CARB (California Air Resources Board) (2011a): California's Cap-and-Trade Program. Final Statement of Reasons. October 2011.

CARB (California Air Resources Board) (2011b): Board meeting minutes. 24 August 2011. Available on the internet at http://www.arb.ca.gov/board/meetings.htm#2011, last accessed 16 October 2012.

CARB (California Air Resources Board) (2011c): Compliance Offset Protocol Livestock Projects, Capturing and Destroying Methane from Manure Management Systems, Capturing and Destroying Methane from Manure Management Systems, Adopted: October 20, 2011. Available on the internet at http://www.arb.ca.gov/regact/2010/capandtrade10/coplivestockfin.pdf, last accessed 16 October 2012.

CARB (California Air Resources Board) (2011d): Compliance Offset Protocol, Ozone Depleting Substances Projects, Destruction of U.S. Ozone Depleting Substances Banks, Adopted: October 20, 2011. Available on the internet at http://www.arb.ca.gov/regact/2010/capandtrade10/copodsfin.pdf, last accessed 16 October 2012.

CARB (California Air Resources Board) (2011e): Compliance Offset Protocol, Urban Forest Projects, Adopted: October 20, 2011. Available on the internet at http://www.arb.ca.gov/regact/2010/capandtrade10/copurbanforestfin.pdf, last accessed 16 October 2012.

CARB (California Air Resources Board) (2011f): Compliance Offset Protocol, U.S. Forest Projects, Adopted: October 20, 2011. Available on the internet at http://www.arb.ca.gov/regact/2010/capandtrade10/copusforest.pdf, last accessed 16 October 2012.

CARB (California Air Resources Board)(2012): News Release. Air Resources Board sets stage for carbon offset projects. Release #: 12-60 12/13/2010. Available on the internet at http://www.arb.ca.gov/newsrel/newsrelease.php?id=376, last accessed 7 August 2013

CARB (California Air Resources Board)(2012a). Cap-and-Trade workshop: Regulation for linking California and Quebec's cap-and-trade program. Slide presentation. 3 February 2012. Available on the internet at http://www.arb.ca.gov/cc/capandtrade/meetings/022012/linking-ca-and-qc-cap-trade.pdf, last accessed on 7 August 2013

CARB (California Air Resources Board) (2012b): Citizens Climate Lobby and Our Children's Earth Foundation v. California Air Resources Board, Case Number CGC-12-519554, Respondent's Opposition to Petitioners' Brief on the Merits. 31 July 2012.

CDM Policy Dialogue (2012): Climate Change, Carbon Markets and the CDM: A Call to Action. Report of the High-Level Panel on the CDM Policy Dialogue. Available on the internet at http://www.cdmpolicydialogue.org/report/rpt110912.pdf, last accessed 16 October 2012.

Citizens Climate Lobby and Our Children's Earth Foundation (2012a): Citizens Climate Lobby and Our Children's Earth Foundation v. California Air Resources Board, No. _____ (San Francisco Sup. Ct., filed March 27, 2012). Available on the internet at http://www.peer.org/docs/epa/3_28_12_Cal_GHG_Complaint.pdf, last accessed 16 October 2012.

Citizens Climate Lobby and Our Children's Earth Foundation (2012b): Brief for Petitioners, Citizens Climate Lobby et al. v. California Air Resources Board, Case No. CGC-12-519554.

Citizens Climate Lobby and Our Children's Earth Foundation (2013). Citizens Climate Lobby and Our Children's Earth Foundation v. CARB Statement of Decision San Francisco Superior Court (No. CGC-12-519554). Available on the internet at http://www.eenews.net/assets/2013/01/28/document_pm_02.pdf, last accessed on 8 August 2013.

Commission Press Release IP/12/916 28/08/2012

Commission Regulation (EU) No 550/2011 of 7 June 2011 on determining, pursuant to Directive 2003/87/EC, certain restrictions applicable to the use of international credits from projects involving industrial gases.

Decision 2/CP.17, Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, FCCC/CP/2011/9/Add.1, 15 March 2012.

Decision 3/CMP.1, Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol, FCCC/KP/CMP/2005/8/Add.1, 30 March 2006.

Decision 3/CMP.6, Further guidance relating to the clean development mechanism., FCCC/KP/CMP/2010/12/Add.2, 15 March 2011.Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community

EDF IETA 2013. South Korea: The World's Carbon Markets: A Case Study Guide to Emissions Trading. Available on the internet at http://www.edf.org/sites/default/files/EDF_IETA_Korea_Case_Study_May_2013.pdf, last accessed on 28 August, 2013.

Han, Sangim (2012): South Korea Seeking CO_2 Cuts at Home Before Allowing Offsets. 2012-07-25T06:49:16Z. Available on the internet at http://www.bloomberg.com/news/2012-07-

25/south-korea-seeking-co2-cuts-at-home-before-allowing-offsets-1-.html, last accessed 15 October 2012.

Hunt, Greg (2012): Gillard's polluter handout. In: The Australian. 09 April 2012. Available on the internet at http://www.theaustralian.com.au/national-affairs/opinion/gillards-polluter-handout/story-e6frgd0x-1226321647433, last accessed 15 October 2012.

International Carbon Action Partnership (August 2013). "Interactive ETS Map." Available on the internet at

http://icapcarbonaction.com/index.php?option=com_wrapper&view=wrapper&Itemid=147, last accessed on 26 August 2013

Japan, Government of (2008): Information, views and proposals on paragraph 1 of Bali Action Plan (For AWG-LCA2), FCCC/AWGLCA/2008/MISC.2, 14 August 2008 (pp. 23–39). Available on the internet at http://unfccc.int/resource/docs/2008/awglca3/eng/misc02.pdf, last accessed 16 October 2012.

Japan, Government of (2009): Japan's submission for the AWG-KP, Emissions trading and the project-based mechanism, FCC/KP/AWG/2009/MISC.3, 10 March 2009 (pp. 60–66). Available on the internet at http://unfccc.int/resource/docs/2009/awg7/eng/misc03.pdf, last accessed 21 February 2012.

Japan, Government of (2012): Outline of The Bilateral Offset Credit Mechanism (tentative name), August 2012 (PowerPoint presentation). Available on the internet at http://www.mmechanisms.org/document/20120824_BOCM_seminar_goj.pdf, last accessed 16 October 2012.

Japan, Ministry of the Environment (2010): Suggestions for a New Flexible Mechanism. September 2010. Office of Market Mechanisms. http://www.env.go.jp/en/earth/ets/mkt_mech/new_flexible_mechanism100901.pdf, last accessed 16 October 2012

Japan, Ministry of the Environment (2011): Japan's National Greenhouse Gas Emissions in Fiscal Year 2010 (Preliminary Figures). 13 December 2011. http://www.env.go.jp/en/headline/headline.php?serial=1703, last accessed 16 October 2012.

Japan, Ministry of the Environment (2012): Presentation at the CDM High Level Policy Dialogue, May 2012. Available on the internet at http://www.kyomecha.org/document/pdf/CDM_Policy_Dialogue_MOEJ.pdf, last accessed 15 October 2012.

Japan, Government of (2013): Recent Development of The Joint Crediting Mechanism (JCM), July 2013. Available on the internet at http://www.mmechanisms.org/document/20130710_JCM_goj.pdf, last accessed 30 July 2013.

Japanese-Mongolian JC (Joint Committee) (2013a): Joint Committee of the Joint Crediting Mechanism between Mongolia and Japan, First Meeting, Meeting report. Available on the internet at http://www.mmechanisms.org/document/JCM/JCM_MN_JC01_Mtg_Rep.pdf, last accessed 31 July 2013.

Japanese-Mongolian JC (Joint Committee) (2013b): Rules of Implementation for the Joint Crediting Mechanism (JCM). JCM_MN_RoI_ver01.0. Available on the internet at http://www.mmechanisms.org/document/JCM/JCM_MN_RoP_JC_ver01_0.pdf, last accessed 31 July 2013.

Japanese-Mongolian JC (Joint Committee) (2013c): Joint Crediting Mechanism Project Cycle Procedure. JCM_MN_PCP_ver01.0. Available on the internet at http://www.mmechanisms.org/document/JCM/JCM_MN_PCP_ver01_0.pdf, last accessed 31 July 2013.

Japanese-Mongolian JC (Joint Committee) (2013d): Joint Crediting Mechanism Guidelines for Developing Proposed Methodology. JCM_MN_GL_PM_ver01.0. Available on the internet at http://www.mmechanisms.org/document/JCM/JCM_MN_PM_ver01_0.pdf, 31 July 2013.

Japanese-Mongolian JC (Joint Committee) (2013e): Joint Crediting Mechanism Guidelines for Designation as a Third-Party Entity. JCM_MN_GL_TPE_ver01.0. Available on the internet at http://www.mmechanisms.org/document/JCM/JCM_MN_GL_TPE_ver01_0.pdf, last accessed 31 July 2013.

Japanese-Mongolian JC (Joint Committee) (2013f): Joint Crediting Mechanism Guidelines for Developing Project Design Document and Monitoring Report. JCM_MN_PDD_MR_ver01.0. Available on the internet at http://www.mmechanisms.org/document/JCM/JCM_MN_PDD_MR_ver01_0.pdf, last accessed 31 July 2013.

Japanese-Mongolian JC (Joint Committee) (2013g): Joint Crediting Mechanism Guidelines for Validation and Verification. JCM_MN_GL_VV_ver01.0. Available on the internet at http://www.mmechanisms.org/document/JCM/JCM_MN_GL_VV_ver01_0.pdf, last accessed 31 July 2013.

Japanese-Mongolian JC (Joint Committee) (2013h): Joint Crediting Mechanism Rules of Procedures for the Joint Committee. JCM_MN_RoP_JC_ver01.0. Available on the internet at http://www.mmechanisms.org/document/JCM/JCM_MN_RoP_JC_ver01_0.pdf, last accessed 31 July 2013.

Jones, Martin C., Paul Twomey, Ian MacGil and Regina Betz (2011): Australia – Finally a Carbon Pricing Scheme? In: International Emisssions Trading Association. 2011. Greenhouse Gas Market 2011. Asia and Beyond: the Roadmap to Global Carbon and Energy Markets. Genève: International Emissions Trading Association, 2-6. Available on the internet at http://www.ieta.org/assets/Reports/ieta%202011%20ghg%20market%20report%20final.pdf, last accessed 15 October 2012.

Koakutsu, Kazuhisa, Nozomi Okubo, Kentaro Takahashi, Naoki Torii, Akiko Fukui (2011): CDM Reform 2011: Verification of the progress and the way forward (IGES Policy Report No. 2011-01). Institute for Global Environmental Strategies (IGES). Available on the internet at http://enviroscope.iges.or.jp/modules/envirolib/upload/3327/attach/cdmreform2011.pdf, last accessed 21 February 2012.

Kossoy, Alexandre, Pierre Guigon (2012): State and Trends of Carbon Market 2012. Washington, DC: World Bank.

Le, Hanh and Anais Delbosc (2012): Japan's Bilateral Offset Crediting Mechanism: A Bilateral Solution to a Global Issue? ClimateBrief No°11, January 2012. cdc climat research.

Maher, Sid and Lauren Wilson (2013). Coalition takes axe to climate programs. The Australian. 11 September 2013. Available on the internet at http://www.theaustralian.com.au/national-affairs/election-2013/coalition-takes-axe-to-climate-programs/story-fn9qr68y-1226716471498, last accessed on 13 September 2013.

Mazouz, Salim and Erwin Jackson (2012): Emissions Trading Coalitions – Leveraging Emissions Trading to Achieve Greater Levels of Global Mitigation Ambition, Discussion paper, The Climate Institute, Sydney.

Michaelowa, Axel (2011): Fragmentation of international climate policy – doom or boon for carbon markets? In: Lütken, Søren, Karen Holm Olsen (eds.): Progressing towards post-2012 carbon markets. Perspectives Series 2011. Roskilde: UNEP Risø Centre, pp. 13- 24.

Michaelowa, Axel (2012): Strengths and weaknesses of the CDM in comparison with new and emerging market mechanisms. Paper No. 2 for the CDM Policy Dialogue, June 2012. Zürich and Hamburg: University of Zürich and Perspectives. Available on the internet at http://www.cdmpolicydialogue.org/research/1030_strengths.pdf, last accessed 13 September 2013.

Mizuno, Yuji, Kazuhisa Koakutsu, Keisuke Iyadomi, Nozomi Okubo, Chisako Urayama, Kentaro Takahashi (2010): Towards CDM Reform: Report of the IGES CDM Capacity Building Kyoto General Meeting. Institute for Global Environmental Strategies (IGES). Available on the internet at http://enviroscope.iges.or.jp/modules/envirolib/upload/3327/attach/cdmreform2011.pdf, last accessed 21 February 2012.

New Zealand (2012): ETS 2012 Amendments: Key Changes for Participants and Industrial Allocation Recipients. Accessed on 7/8/2013. http://www.climatechange.govt.nz/emissions-trading-scheme/ets-amendments/ets-2012-amendments-key-changes-for-participants.pdf

PointCarbon (2011): Australia should sign deals to secure offset supply: analysts. 8 November 2011.

Regional Greenhouse Gas Initiative (2013): Summary of RGGI Model Rule Changes: February 2013. Available on the internet at http://www.rggi.org/docs/ProgramReview/_FinalProgramReviewMaterials/Model_Rule_Summary.pdf, last accessed on 13 September 2013.

Republic of Korea, Government of (2008): Market-based Post-2012 Climate Regime: Carbon Credit for NAMAs. Available on the internet at http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/market_based_climate_regime-korea.pdf, last accessed 16 October 2012.

Republic of Korea, Government of (2009): A Proposal for AWG-LCA and AWG-KP, Republic of Korea, February 2009, FCCC/KP/AWG/2009/MISC.3, 10 March 2009 (pp. 78f).

Republic of Korea, Government of (2009b): Proposal of Draft Text by the Republic of Korea, FCCC/KP/AWG/2009/MISC.9, 8 May 2009 (pp. 42–44). Available on the internet at http://unfccc.int/resource/docs/2009/awg8/eng/misc09.pdf, last accessed 21 February 2012.

Reuters PointCarbon (2011): No demand for international offsets in California until 2015: expert. Available on the internet at http://www.pointcarbon.com/news/1.1592240, last accessed 16 October 2012.

Reuters PointCarbon (2012a): California defends use of offsets in CO2 market. 2 August 2012. Available on the internet at http://in.reuters.com/article/2012/08/03/us-california-carbon-idINBRE87209M20120803, last accessed 16 October 2012.

Reuters PointCarbon (2012b): South Korea approves carbon trading scheme. 02 May 2012. Available on the internet at http://www.pointcarbon.com/news/1.1852663, last accessed 16 October 2012.

Reuters PointCarbon (2012c): Korea's carbon emissions cap estimated at 450 Mt in 2015. 14 May 2012. Available on the internet at http://www.pointcarbon.com/aboutus/pressroom/pressreleases/1.1889619, last accessed 16 October 2012.

Sahota, Rajinder (2012): An Overview of the final cap-and-trade regulation and what it means for offsets markets. Presentation to the Climate Action Reserve (CAR) Webinar. Friday, 20 January 2012. Available on the internet at http://www.climateactionreserve.org/wp-content/uploads/2012/01/CARB_Webinar_1-20-121.pdf, last accessed 16 October 2012.

Sheridan, Greg (2012): High cost and nil effect: that's our carbon tax. In: The Australian. 7 July 2012. Available on the internet at http://www.theaustralian.com.au/national-affairs/opinion/high-cost-and-nil-effect-thats-our-carbon-tax/story-e6frgd0x-1226419362001, last accessed 16 October 2012.

Sterk, Wolfgang (2012): Current Proposals and Positions on New Market Mechanisms. Wuppertal: Wuppertal Institute for Climate, Environment and Energy. Available on the internet at http://jiko-bmu.de/1152, last accessed 16 October 2012.

Sterk, Wolfgang (2013): Update on Parties' Positions on the Framework for Various Approaches and the New Market-Based Mechanism. Wuppertal: Wuppertal Institute for Climate, Environment and Energy. Available on the internet at http://jiko-bmu.de/1293, last accessed 1 August 2013.

Superior Court of California (2013):): Citizens Climate Lobby and Our Children's Earth Foundation v. California Air Resources Board, Case Number CGC-12-519554, Statement of Decision.

The Federation of Electric Power Companies of Japan (2011): Submission to Paragraphs 82, 86 and 87 of the Outcome of the work of the Ad Hoc Working Group on long-term Cooperative Action under the Convention http://unfccc.int/resource/docs/2011/smsn/ngo/226.pdf, last accessed 16 October 2012.

UNFCCC (2012): Ad Hoc Working Group on Long-term Cooperative Action under the Convention. Views on a framework for various approaches, Submissions from Parties. FCCC/AWGLCA/2012/MISC.4, 11 April 2012. Available on the internet at http://unfccc.int/resource/docs/2012/awglca15/eng/misc04.pdf, last accessed 16 October 2012.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2012a): Executive Board of the Clean Development Mechanism. Seventieth meeting. Report. Annex 8 – Methodological tool. Tool for the demonstration and assessment of additionality (Version 07.0). Available on the internet at http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v6.1.0.pdf, last accessed 10 October 2012.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2012b): Executive Board of the Clean Development Mechanism. Sixty-ninth meeting. Report. Annex 8 – Guidelines on Common Practice (Version 02.0). Available on the internet at http://cdm.unfccc.int/Reference/Guidclarif/meth/meth_guid44.pdf, last accessed 10 October 2012.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2012c): Executive Board of the Clean Development Mechanism. Sixty-fifth meeting. Report. Annex 23 – Guidelines for the establishment of sector specific standardized baselines. Available on

the internet at http://cdm.unfccc.int/Reference/Guidclarif/meth/meth_guid42.pdf, last accessed 10 October 2012.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2012d): Executive Board of the Clean Development Mechanism. Sixty-ninth Meeting. Proposed Agenda – Annotations. Annex 13 – Draft Work Programme on Standardized Baselines (Version 01.0). Available on the internet at http://cdm.unfccc.int/filestorage/N/7/I/N7ICX8G5DMZ0PAKOVHY6FTQ149RLWJ/eb65_propan13.pdf?t=Y258bWJwdmRjfDCgqXEw2AwE0oxrhLbbx0Qx, last accessed 10 October 2012.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2012e): Executive Board of the Clean Development Mechanism. Sixty-fifth meeting. Report. Annex 22 – Work programme on standardized baselines. Available on the internet at http://cdm.unfccc.int/filestorage/Y/D/4/YD4QSN3VM5096CKZWHPGTLX7BIFO8E/eb65_repan22.pdf?t=OFF8bTd5cnkzfDAqL7cvBcHGPp3D3hxJIwZ2, last accessed 24 July 2012.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2012f): Executive Board of the Clean Development Mechanism. Sixty-sixth meeting. Report. Annex 49 – Guidelines for quality assurance and quality control of data used in the establishment of standardized baselines. Available on the internet at http://cdm.unfccc.int/Reference/Guidclarif/meth/meth_guid46.pdf, last accessed 24 July 2012.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2012g): Executive Board of the Clean Development Mechanism. Sixty-eighth meeting. Report. Annex 27 – Guidelines on the demonstration of additionality of small-scale project activities. Available on the internet at http://cdm.unfccc.int/Reference/Guidclarif/meth/methSSC_guid05.pdf, last accessed 1 October 2012.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2013a): Proposed new baseline and monitoring methodology form. Version 01.0. Available on the internet at http://cdm.unfccc.int/filestorage/d/e/extfile-20130405102050858-meth_form18.pdf/meth_form18.pdf?t=MW98bXF1anppfDDKNYg0zmLd6KJR3qixaxYn, last accessed 1 August 2013.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2013b): Clean development mechanism validation and verification standard. Version 4.0. Available on the internet at http://cdm.unfccc.int/filestorage/e/x/t/extfile-20130730104819181-accr_stan02.pdf/accr_stan02.pdf?t=eDh8bXF1anllfDARhGoBxabAlGlCH1K0ARWy, last accessed 1 August 2013.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2013c): Seventy-third meeting. Report. Annex 3 – Standardized baseline: Grid emission factor for the Southern African power pool. Version 01.0. Available on the internet at http://cdm.unfccc.int/methodologies/standard_base/EB73_repan03_ASB-0001.pdf, last accessed 1 August 2013.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2013d): Seventy-third meeting. Report. Annex 4 – Standardized baseline: Fuel switch, technology switch and methane destruction in the charcoal sector of Uganda. Version 01.0. Available on the internet at http://cdm.unfccc.int/methodologies/standard_base/EB73_repan04_ASB-0002.pdf, last accessed 1 August 2013.

UNFCCC (United Nations Framework Convention on Climate Change) Secretariat (2013e): Executive Board of the Clean Development Mechanism. Version 5.0. Seventy-third meeting. Report. Annex 13 – Guidelines for demonstrating additionality of microscale projects. Available on the internet at http://cdm.unfccc.int/filestorage/m/3/extfile-20130604135631628-methSSC_guid22.pdf/methSSC_guid22.pdf?t=Y0R8bXF1OHFnfDAFikj5IulWdbtfzn14vvJ1, last accessed 1 July 2013.

Victor, David (2011): Global Warming Gridlock. Creating More Effective Strategies for Protecting the Planet. Cambridge et al.: Cambridge University Press.

Vivid Economics (2011): Protecting Prosperity – lessons from leading low carbon economies. May 2011. Available on the internet at http://www.vivideconomics.com/index.php/publications/protecting-prosperity—lessons-from-leading-low-carbon-economies, last accessed 5 March 2012.

World Bank (2012). State and Trends of the Carbon Market 2012. May 2012. Available on the internet at http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/State_and_Trends_2012_Web_Optimized_19035_Cvr&Txt_LR.pdf, last accessed on 26 August 2013

World Resources Institute (2012): Climate Analysis Indicators Tool. Available on the internet at: http://cait2.wri.org/ , last accessed on 7 August 2013