行政院所屬各機關因公出國人員出國報告書
（出國類別：出席國際會議）

出席2008曼谷氣候變遷對話會議 (Bangkok Climate Change Talks) 與會情形報告

服務機關：行政院環境保護署
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出國地點：泰國 曼谷（Bangkok, Thailand）
出國期間：97年3月30日至4月4日
報告日期：97年6月30日

目　錄

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壹、前言

聯合國氣候變化公約(UNFCCC)於 2008 年 3 月 31 日至 4 月 4 日在泰國曼谷之聯合國亞太經濟社會委員會聯合國會議中心 the United Nations Conference Centre (UNCC) of the Economic and Social Commission for Asia and the Pacific (ESCAP)召開 2007 年 12 月在印尼峇里島舉行第 13 次締約國大會後的第一次重要磋商會議「Bangkok Climate Change Talks」，計有兩場公約會議同步進行召開，包括京都議定書進一步承諾特設工作組第五屆第一期會議「AWG-KP 5: the Ad hoc Working Group on further Commitments for Annex I Parties under the Kyoto Protocol (the first part of the fifth session)」、以及聯合國氣候變化綱要公約長期合作行動特設工作組第一屆會議「AWG-LCA 1: the Ad hoc Working Group on Long-term Cooperative Action under the Convention (first session)」。

AWG-KP 5 會議的主要目的係設定可導致後京都時期排放減量共識之未來一年半(目前至 2009 年底)詳細工作計畫，包括對峇里島路徑圖討論、工業化國家達成後續減量工具等兩項主要議題。若能於 2009 年底前達成共識提案，將有充足時間讓各締約國進行批准行動，俾利於 2012 年底生效，確保第一、第二與往後承諾期間可以相銜接。

2009 年 12 月丹麥哥本哈根會議中有關未來全球排放減量目標將會是重點，但是此議題仍未能在本次曼谷會議中達成任何協議。同時，有關第二承諾期期間長度、部門減量方案、重新談判 LULUCF 地位、可能納入新部門、新排放源及新方法學亦無明確共識。公約秘書處表示將繼續推動以市場為基礎的京都機制，作為遏制已開發國家溫室氣體排放及邁向永續發展方式。此會議中美國依然堅持維護產業界與經濟發展立場，但是因為布希總統即將下台，及下一任總統可能因應後京都立場態度將是各界關注焦點，美國政府也必須考量留下後續形象問題。

AWG-LCA 1 會議的共同願景，包括一個長期的全球減量目標，以便根據「公約」的規定和原則、特別是共同但有區別的責任和各自能力的原則，並顧及社會經濟條件和其他相關因素，實現「公約」的最終目標。根據峇里行動計畫，應對氣候變化有效對策的關鍵元件，至少需要包括：加強減緩氣候變化的國家/國際行動、加強調適行動、加強技術開發和移轉合作及加強資金和投資行動，各國將於 2009 年達成新全球協議。

未來，2008 年將再舉行 3 次會議，焦點放在 6 月 2-13 日德國波昂會議（Bonn, Germany），將討論加強提供資金予減緩與調適技術以對抗氣候變遷；而預計 8 月 21-27 日非洲迦納阿克拉市（Accra, Ghana）會議，將討論減少開發中國家毀林及日本提出討論各產業部門效率的爭議計畫。各國部長與政府代表 12 月 1-12 日將在波蘭波茲南（Poznañ, Poland）集會，舉行高層會談討論談判狀況。各國代表同意 2009 年再加緊談判，舉行最少 4 次主要會議，總計時間將達 8 週，於 2009 年

底必須在哥本哈根針對新的協議達成共識。

本次曼谷會議計有來自 162 個國家，超過 1,000 位代表參加，其中包括政府官員、聯合國組織/政府間組織/非政府組織代表，以及 100 多位媒體記者參與。

圖 1、會議地點暨開會情形


圖 2、周邊展覽及場外 NGO 活動

貳、我國與會代表

本署空保處吳奕霖高級環境技術師及工研院能環所胡文正研究員，以工研院名義非政府組織(NGO)身分與會，順利與巴西談判代表(Ms. Thelma Krug，IPCC 聯席主席)、瑞士談判代表(Mr. Jose Romero)、清潔空氣政策中心(CCAP)專家(Mr. Jake Schmidt)及國際民航組織 (ICAO)專家(Ms. Jane Hupe)進行經驗交流，有助於進一步掌握 6 月德國波昂附屬機構會議及 12 月波蘭締約國大會發展與後京都時期之最新資訊。

圖 3、與會人員會場留影

參、出國行程

2008.3.30　　啟程至泰國曼谷，下午至會場報到

2008.3.31~4.4　　參加公約會議活動

2008.4.4　　傍晚返程，回到台北

表 1、曼谷會議議程表

	星期一 03/31	星期二 04/01		星期三 04/02		星期四 04/03		星期五 04/04
上午	AWG 會議開幕	AWG 研討會	AWGLCA 非正式會議	AWG 研討會	AWGLCA 非正式會議	AWG 研討會	AWGLCA 非正式會議	非正式磋商
下午	AWGLCA 會議開幕	AWG 研討會	AWGLCA 非正式會議	AWG 研討會	AWGLCA 非正式會議	非正式磋商		AWG AWGLCA 會議閉幕

肆、會議過程紀要

依據公約決議文件（Decision -/CP.13 Bali Action Plan），全體締約國認同 IPCC 第四次評估報告明確表明，全球暖化是無可爭辯(unequivocal)的現實，全世界現在都能感覺到全球變暖的影響，文件中並間接引用 IPCC 第四次評估報告第三工作組科學數據：「即為了控制全球升溫，要求附件一國家作出 2020 年排放量比 1990 年排放水準減少 25%至 40%的承諾，而後全球溫室氣體排放量必須在 2050 降到 2000 年排放水準一半以下」。

一、 京都議定書進一步承諾特設工作組第五屆第一期會議（**AWG-KP 5**）

依據京都議定書第 3.9 條規定，在第一承諾期（2008 年至 2012 年）最後一年結束前 7 年（即 2005 年），應開始討論已開發國家在第二承諾期 2012 年以後（即後京都時期，post-Kyoto）之減量問題。KP 締約國大會通過成立一個特設工作小組(AWG)來討論已開發國家 2012 年後時期的未來承諾。

本次 AWG-KP 5 會議由挪威 Harald Dovland 擔任主席。討論議題著重於京都議定書彈性機制(排放交易 Emission Trade、共同執行 Joint Implementation、清潔發展機制 Clean Development Mechanism)、土地利用變更及林業(Lane Use, Land-use Change and Forest, LULUCF) 、溫室氣體部門排放源類別(GHG, Sectors and Source Categories)、可能部門別目標方式(Possible approaches targeting sectoral emissions)等四項。

儘管國際海事組織(IMO)與國際民航組織(ICAO)已經對此 GHG 減量議題進行工作，但多數代表認為進度不如預期，因此呼籲 UNFCCC 應負起領導責任。由於面臨在 2009 年 COP15 取得對後京都時期協議之壓力，因此呼籲 ICAO 與 IMO 加快工作進度，以便於 2008 年 COP 14 提出成果報告。

本次會議並無具體結論，強調應優先落實附件一國家境內減量行動，並同意持續運用彈性機制，作為輔助附件一國家達成減量承諾之工具，也表示該機制應予以簡化及透明化，仍必須計畫環境完整性及外加性；LULUCF 應納入第二承諾期考量範疇，其定義、模式、規範及指導方針應僅適用於第一承諾

期，另審視森林管理活動時，須確保環境完整性及注意生物多樣性可能衍生問題。

2008 年 6 月德國及 8 月迦納兩次公約會議將持續討論前述課題，仍著重於碳市場機制、部門別方法、LULUCF、國際航空海運減量管理、及在科學基礎下擴大 GHG 涵蓋範疇等內容。

表 2、AWG 會議各主要國家集團立場

國家集團	立場分析
主席	分析附件一達成減量目標可能手段及確定減排措施應具備經濟性、永續性。
瑞士(EIG 集團)	建議應加強 AWG 及 AWGLCA 兩個工作組間交流合作。
Antigua and Barbuda (G77/China)	後京都時期，附件一國家應制訂 deep and ambition 減量目標。為了控制全球升溫，要求附件一國家作出 2020 年排放量比 1990 年排放水準減少 25%至 40%的承諾，考慮對環境及社會經濟影響。
Samoa 代表小島聯盟發言	大氣濃度應控制在 350ppm 安全水平下而非 450ppm，目前已不安全，附件一國家應立即採取減排行動。同時呼籲將國際航運排放量納入管制範疇。
吐瓦魯	協助減緩及調適氣候變遷技術資金不足，排放清冊計算應簡單。
Slovenia 代表歐盟發言	為了控制全球 2℃升溫及 450ppm 安全水平下，要求附件一國家作出 2020 年排放量比 1990 年排放水準減少 25%至 40%的承諾。國際航運排放量成長快速，應納入管制範疇，否則將抵銷其他部門減排努力成果。
紐西蘭	AWG 需要更多時間，每年四次似乎不夠，支持國際航運排放量納入管制範疇，部門減量承諾應進一步討論及分析其涵意及可行性。
印尼	調整 CDM 現行規則，以促進區域性 CDM 計畫數分配不均現象。
加拿大	支持瑞士提議應加強 AWG 及 AWGLCA 兩個工作組間交流合作。
澳洲	澳洲政府支持 Cap and trade 功能成效，應採納更多靈活措施，以鼓勵開發中國家參與，包括碳匯、CCS、再生能源。同時，應儘快確定後京都時期之基準年及時程有多長。
巴西	KP 是不可分割，靈活措施及環境完整性應並重。
冰島	濕地、沼澤地等排放源納入減排項目，復原活動亦對生物多樣性有實質幫助。並支持訂定部門能效有用指標。
委內瑞拉	UNFCCC 多邊機制已足夠靈活，現有制度不需要重新審視。南極冰層斷裂是全球暖化的警訊，2009 年底附件一國家應確定量化目標。
馬來西亞	2012 年後 CDM 活動應持續，部門減量可進一步討論。

國家集團	立場分析
日本	根據各國國情，附件一國家及非附件一國家責任不同。後京都減量新國際協議，應更透明、公平性，採取可考量部門減排放式。同時呼籲將國際航運排放量納入管制範疇。
中國	2004 年發達國家人均排放溫室氣體仍達到 16.1 噸二氧化碳當量，是中國的四倍。因此，要求中國等開發展中國家和已開發國家承擔同等的減排義務是不公平的。 後京都時期，附件一國家應制訂更嚴格減量目標。為了控制全球升溫，要求附件一國家作出 2020 年排放量比 1990 年排放水準減少 25%至 40%的承諾，推動國內減量行動（包括能效、CCS、再生能源及生活方式）。同時呼籲將國際航運排放量納入管制範疇。
氣候行動網絡 CAN	距離 2009 年底哥本哈根協議只剩 21 個月，各國家應儘快制訂更嚴格減量目標。反對核能作為減量措施，國際航運國際航運排放量納入管制，ICAO 及 IMO 處理此議題表現出不負責任作為。
國際公民組織 civil society	研討會內容亦應納入永續發展、性別、減貧及公眾意識議題，附件一國家減緩國家行動，不可造成非附件一國家不利影響。

二、 聯合國氣候變化綱要公約長期合作行動特設工作組第一屆會議（AWG-LCA 1）

全體締約國認同將透過長期合作行動特設工作組之運作，推動已開發國家進行量化排放限制及減量目標（quantified emission limitation and reduction objectives）之減緩承諾或行動；而開發中國家則以永續發展為內涵，並在已開發國家技術及資金協助下之減緩行動。各國皆應提出可供量測（measurable）、報告（reportable）與查證（verifiable）的貢獻成果，這些將可包括對減少熱帶雨林毀林之政策激勵誘因、部門別減量模式等措施，並於 2009 年完成新共識結論。

AWG-LCA 1 會議定位在 Shared Vision，廣泛聽取各締約國立場與建議，區分為減緩(Mitigation)、調適(Adaptation)、技術發展與移轉(Technology Development and Transfer)及財務機制(Financial Resources and Investment)等四項課題。最終並無

達成任何共識，僅強調應致力於控制全球 2℃增溫幅度及 CO_2 濃度 450ppm 之下，以避免環境嚴重衝擊。AWG-LCA 主席由巴西 Luiz Machado 擔任，本次會議仍未出現各界殷切期盼的明確量化減量目標及時程。

開發中國家立場多為重申 GHG 減量責任應該由已開發國家承擔，並應確實挹注減量/調適技術或資金，而開發中國家僅需提出可量測(Measurable)、可報告(Reportable)、可查證(Verifiable)之行動方案，而非量化之減量目標，並強調重視環境整合性及永續發展。

已開發國家立場：歐盟強調附件一國家應作出 2020 年排放量比 1990 年排放水準減少 25-40%的承諾；日本提出產業別減量措施及建議修訂 Annex I 成員門檻，改以人均 GDP 或經濟發展程度作為衡量標的，但前者受到眾多質疑，後者未引起迴響。至於全球溫室氣體排放量必須在 2050 年降到 2000 年排放水準一半以下之建議，並未受到與會代表的討論與重視。

2008 年度接續三場會議將分別討論財務融資、技術移轉、碳市場、誘因、風險管理等內容，並舉行研討會讓與會者深入瞭解各項議題發展趨勢；2009 年也將另行召開四場次會議，為期至少 8 週。期能提出「Agreed Outcome」於 2009 年底在丹麥哥本哈根召開 COP15/CMP5 會上通過。

表 3、AWGLCA 會議各主要國家集團立場

國家集團	立場分析
主席	邁出關鍵一步，加強國際/國家行動（減緩、調適、技術及資金）。討論取得共識可能成果，可能取得協商一致方案，如何進行及何時投入。
瑞士 (EIG 集團)	國際長期合作共識、短中期目標、部門減量及落實峇里行動計畫，同等重要。
Antigua and Barbuda (G77/China)	以 UNFCCC 精神為指導，共同而有區別責任為原則。確定 AWG 及 AWGLCA 兩個工作組間是獨立運作，絕不可有整合想法。應以開放、透明及包容性為進展原則。
Samoa 代表小島聯盟發言	大氣濃度應控制在 350ppm 安全水平下而非 450ppm，目前已不安全，附件一國家應立即採取減排行動。再生能源及能源效率應納入評估，提供便宜取得容易技術，建立保險機制，建立公約調適基金。。
阿爾及利亞 代表非洲集團發言	新協議對人類未來至關重要，締約國應充分參與所有會議，需要有明確工作方案。
吐瓦魯	四個要素應分開討論。
巴西	四個要素需同時討論，應不可分開討論。
Slovenia 代表歐盟發言	應列出 2009 年底所有 AWGLCA 會議所需討論問題，尋求解決途徑，討論低碳技術與資金問題，公約是解決氣候變遷最佳架構。
紐西蘭	AWG 需要更多時間，每年四次似乎不夠，支持國際航運排放量納入管制範疇，部門減量承諾應進一步討論及分析其涵意及可行性。
印尼	調整 CDM 現行規則，以促進區域性 CDM 計畫數分配不均現象。
加拿大	支持瑞士提議應加強 AWG 及 AWGLCA 兩個工作組間交流合作。
澳洲	澳洲政府支持 Cap and trade 功能成效，應採納更多靈活措施，以鼓勵開發中國家參與，包括碳匯、CCS、再生能源。同時，應儘快確定後京都時期之基準年及時程有多長。
巴西	KP 是不可分割，靈活措施及環境完整性應並重。
冰島	設定長期減量目標，科學技術分析，行業別具體行動方案建議，執行成效比較性指標建立，包括調適指標。
委內瑞拉	UNFCCC 多邊機制已足夠靈活，現有制度不需要重新審視。南極冰層斷裂是全球暖化的警訊，2009 年底附件一國家應確定量化目標。
馬來西亞	2012 年後 CDM 活動應持續，部門減量可進一步討論。
日本	GHG 是全球問題，需求求共同解決。四個要素需要國際專家參與。因成立法律工作小組，重新檢討 post2012 有關如何定義附件一國家，基準年及其他可能法律問題。
中國	AWG 及 AWGLCA 兩個工作組間是獨立運作，雙軌架構。四個關鍵要素同等 building Block，需同時討論不可分割。公約應討論非 KP 締約國減量責任(如美國)，已開發國家應執行國內減排，可量測、可報告及查證之行動，而不僅是最終成果。同意成立協助發展中國家調適基金，災害預警機制。基於共同而有區別責任，分享長期願景，考量開發中國家經濟發展及減貧需求。

國家集團	立場分析
韓國	CDM 需改革，擴大範疇及簡化程序。四個要素是相連及需整合，可先討論資金與技術。同為 EIG 集團，支持瑞士提出加強 AWG 及 AWGLCA 兩個工作組間交流合作。Post 2012 不可孤立於全球經濟格局，韓國願意為提供市場機制而努力。
阿曼	AWG 及 AWGLCA 兩個工作組間不可整併，並強調國際/區域合作重要。
挪威	制訂不同減量方案，涵蓋各個行業，尤其林業、國際航運及 CCS。
新加坡	會議應專注於訂定長期目標，四大要素運作及擬定其工作方案。新加坡願意召開一場研討會，討論已開發國家所需技術，技術成本，如何選擇標準，公約制訂統一資料庫供各國參考，保護全球森林及資金支持 REDD 計畫。
土耳其	應以各國發展水平，重新定義附件一及非附件一國家。
印度	應考慮歷史排放，人均排放及各國國情。
俄羅斯	支持四個要素同時討論，但進展可能不一。重視森林碳匯及 REDD，及全球參與。
阿根廷	支持四個要素同時討論，過程要透明，考慮歷史排放及國情，不可造成開發中國加經濟負面影響。
孟加拉	確定脆弱性分門別類，選定能力建構優先順序，研擬調適議定書及因應氣候變遷全民憲章。
馬來西亞	請公約確認要多少資金，以協助技術轉移。
澳洲	每次會議應有一個鮮明目標及重點成果，符合科學、社經的現實。不同國家可有不同作法。
沙烏地阿拉伯	四個要素工作方案不可與各國既有行動方案衝突，環境保護及經濟發展並重雙贏。
美國	支持 Bali 行動方案決議，未來工作應具吸引力及創意。可專注在三個面向，共同願景，技術與資金，調適。
紐西蘭	長期目標可涵蓋排放量，大氣濃度及升溫。設定執行成效比較指標，改進報告審查機制，建置完整技術資料庫。配合未來技術發展程度，定期檢討。

三、 研討會議重點摘要

除了前述兩場主要特設工作組會議之外，公約秘書處同時針對減緩氣候變遷議題舉辦多場研討會，分別邀請公約秘書處、重要國際組織、歐盟、紐澳、日本、中國等主要國家提出簡報，讓與會者深入瞭解各項議題之最新發展趨勢。

（一）國際排放交易（International Emission Trade, ET）

國家/機構	簡報發言內容
公約秘書處	• 介紹京都機制執行條文及有關締約國大會決議。 • 目前日本、紐西蘭、俄羅斯及瑞士已完成國際交易冊(ITL)登錄連結，紐西蘭公司亦成功轉賣 CER 給瑞士公司。 • 其他締約國家應於 2008 年四月底完成國際交易冊(ITL)登錄連結。
IPCC	• 歐盟排放交易已有效消減 2.5%-5%歐盟排放量，碳市場亦可促進環境技術轉移至開發中國家。 • 有效碳價格訊號，可協助企業瞭解減碳成本，鼓勵企業做出正確投資
IETA	• 2008-2020 年全球碳供需市場仍呈混亂趨勢，大部分投資買家認為碳價格是影響投資關鍵，供需問題及錯誤消息誤導，皆是 CDM 發展瓶頸，新協定應儘快在 2012 年底京都議定書失效前生效。 • 自願市場雖不大，但仍有一定影響力
歐盟	• 碳市場是減排靈活工具及減排資金來源。 • 歐盟第三期排放交易將所有部門參與著重充分討論、創造短缺、標準設計、交易設限、完備公司數據及其他立法工作。 • 歐盟建議未來 100%拍賣所得 20%資金規劃應用於減緩氣候變遷行動，但目前遭受各國財長反對。針對如何管理耗能產業外移至環保法令較鬆之開發中國，歐盟內部持續關注討論此議題。 • 依據歐盟交易市場經驗，逐步整合各國交易市場(挪威、冰島及美國各州)，建立全球透明一致性碳市場，可促進流通及穩定價格，是全球走向低碳經濟重要途徑。
紐西蘭	• 主要排放源來自農業部門（超過 50%），其次能源部門。 • 紐西蘭各界支持政府推出之排放交易制度計畫，將是全世界首項涵蓋京都議定書規範六項溫室氣體之制度，預計 2008 年底可完成立法工作。 • 2008 年初開始分段實施，首先涵蓋林業，該項計畫給予森林業者在 1990 年時存在空地上植林者碳信用額度，乃是林業者支持計畫之主要原因。 • 未來，2013 年將可涵蓋所有部門，交易額度可流通國際市場(如：澳洲及歐盟)。
南非	• 擔心投機性過高，是否有類似歐盟排放交易市常碳價格崩潰之週期性泡沫化疑慮。

（二）清潔發展機制（Clean Development Mechanism, CDM）
共同執行（Joint Implementation, JI）

國家/機構	簡報發言內容
UNDP	• 應設計方案，促進需求後，將可穩定價格。
中國	• 能力建構需持續，CDM 於 2012 後應繼續，計畫類型應著重永續發展。
日本	• 與 AWGLCA 合作，全球共同參與
坦尚尼亞	• 區域不平衡，CER5%留在東道國，不需要有額外性要求，能力建構不足
烏克蘭	• 法律框架及行動的重要性。
歐盟	• 麥肯錫邊際減量成本圖，加強 CDM 決策過程及透明度，CDM 於 2012 後應繼續，抵換及碳市場是不夠的，需在結合其他技術及資金合作。
吐瓦魯	• CDM 環境完整性，額外性有相當障礙。可參考 AWGLCA 結果重新檢討 CDM，例如部門減量及區域分配。
印尼	• 建議改善 CDM 規則，納入 REDD。
挪威	• 加強擴大碳市場，保護環境、記書轉移、區域分配，減少行政費用。
俄羅斯	• 市場機制是輔助用，不同國家區域有不同交易機制，未來應進一步統一規則。
南非	• 檢討新的改變，可能對 CDM/JI 規則及價格影響。任何行動皆須得到全體支持，才會有成效。
阿根廷	• 聘請金融專家管理 CDM 財務。
塞內加爾	• 碳價格對私人企業要有吸引性，各部門皆應參與及具多樣化。
巴西	• 依京都議定書 3.1 條，減量應從國內做起，碳市場只是補充用。不贊成 CCS。CDM 是對非附件一國家最具成本有效及環境完整性措施。
加拿大	• 擴大範圍及多樣性，可解決區域分配不均。CDM EB 會議一年 8 次，處理管理、審查及監督如何協調工作龐大，應審慎思考簡化規則，降低行政程序及費用。

（三）林業及土地變更

（Land Use, Land Use Change and Forest, LULUCF）

國家/機構	簡報發言內容
公約秘書處	• 說明 16/CMP.1 3.3,3.4 條原則作為會議討論基礎。討論 LULUCF 未來是否可作為減量工具,下一步如何作？第二承諾期規則需與第一承諾期規則相關連，簡易、透明、公平及考量國情。
FAO	• Global Forest Resources Assessment 2005.172 個國家參與，仍有些國家數據不完整，未來應加強森林資源蒐集及土地使用監測工作。2010 年會議目標：森林管理，生物多樣性 2010target,UNCC 計畫及氣候模型。推動遙測技術使用，獲取及時準確動態統計資料及平台建置。監測(Monitoring)為基礎進行後續審計(Accounting)工作
IPCC GHG Guideline (Defra 代表)	• 這工作已進行 6 年。IPCC AR4 指出農業及林業排放占全球 30%GHG，農業及林業應同時考慮。各國很容易達到 FM 上限，KP 3.4 森林管理(FM)誘因機制不足。不確定性相較於過去已大福改善，火災及蟲害風險管理需持續改善。毛計算、淨計算及 Net-net accounting?充分獎勵使用環境友善能源是未來重點工作，簡化林業 CDM 規則。伐木產品 HWP 及減排潛力（瑞士詢問）：這是一個政治問題，紐西蘭提案較佳，兼具政治及環保，但仍須國際談判。林業及土地使用定義(IPCC 及 UNFCC,KP 不同，巴西詢問)：必須釐清 KP 3,4 因果關係，必須重視科學研究。
日本農林部	• 全面推動 10 年森林碳匯活動（2002-2012）， national movement for fostering beautiful forests 森林美化國家行動。
歐盟	• post 2012 年觀點，修訂 KP 審計 LULUCF 簡化原則，應提供正面誘因，配合目前制度及國家行動結合。釐清農林業管理政策可能衝突點，並進行跨部會協調。
紐西蘭	• 農林業占經濟活動 2/3，主要排放源及減排主要對象，50%來至農業。2008 年啟動全部部門國家排放交易(NZETS)，林業 2008 年開始，2013 年開始農業。所有減量計畫產生碳減量額度可流通國際碳市場。具腐蝕性貧乏土地，可作為林業排放交易計畫對象，林業變更土地生產高價值作物計畫亦將被禁止,減少毀林及有活力土地規劃靈活性使用將受重視。
加拿大	• KP HWP 不明確下，無法明確訂出國家政策。IPCC 2006 提供多重計算模式，加拿大重視野火及蟲害衝擊影響及管理碳儲存變化。要求簡化 CDM、HWP 方法及人為及自然影響碳匯計算之林業管理方法論研討會。
澳洲	• LULUCF 減量計畫特徵很複雜，監測系統技術很重要，考量生質能源及 HWP 規則一致性處理模式。LULUCF 國家報告應包括排放量完整審計過程及國家行動方案執行成效說明。 委內瑞拉詢問規則一致性處理模式，巴西詢問自然及人為影響碳匯波動計算。針對數據波動大時，澳洲回覆國際認同一致方法學需建立及重視，如採用 IPCC 2006 清冊指南，第二承諾期如何考量。

國家/機構	簡報發言內容
吐瓦魯	• 重申不應修改 KP 3.4 及馬拉喀什協定，計算及審計方法力求簡易。HWP 應先估算各國砍樹量及進口量計算資料庫建立後再釐清碳匯分配議題，應避免造成激勵砍伐森林活動。 • 若要修改 KP 規則，因同時參考 KP 第 9 條原則處理，考慮其後果。所有附件一國家皆須回答中國詢問澳洲，有關 LULUCF 使用上限問題。
巴西	• LULUCF 可作為國家減量工具，確實應小心討論。應先遵守 KP3.4, 馬拉喀什協定及蒙特婁會議決議文 16/CMP1 原則下，討論未來統一計算方法，如 IPCC 2006 及其他良好科學研究，需謹慎思考。KP 12 並無納入 LULUCF 減量計畫， KP 4.1 各國承諾碳匯管理及 KP 3.4 附件一需定期提供碳匯國家報告，需進一步開放討論。不贊成簡化 LULUCF CDM 規則，以用於抵換既有存在排放量，是不合理。
挪威	• 支持從由目前總淨公式進展成淨淨(net net)公式。
中國	• 日本京都目標中 3.8%採用 LULUCF 措施，澳洲的比例是多少？馬拉喀什協定不宜修改，後京都附件一國家應仍有 LULUCF 使用量上限要求。
澳洲	• 公約第 2 條以包含此問題，應思維怎麼辦？kp 3.4 只適用第一承諾期，因此第二承諾期需重新談判 LULUCF 地位，這是合理的。澳洲 LULUCF 措施已減排 1%。
俄羅斯	• 森林面積占全球 1/4，覆蓋國土面積一半，俄羅斯關切 LULUCF 的發展。
烏干達	• 提出抽象數學及新舊時代婚姻觀念。因科學技術持續沿進，贊成適時修訂京都議定書及 CDM 規則。
芬蘭	• LULUCF 使用規則不應該造成土地擁有則困擾。建議不修改 KP，但可增修馬拉克什協定。
瑞士	• 下星期在 IPCC 28 年會將可進一步討論 IPCC 2006 guideline。討論第二承諾期 LULUCF 部門扮演減量潛力，並不會影響未來減量目標達成協議，而是有幫助。
薩摩亞	• 除討論 LULUCF 部門減量議題，同時因考量生物多樣性衝擊及環境完整性量化問題。

（四）可能部門別目標方式

國家/機構	簡報發言內容
IEA	• APP 已有如何削減電力部門參考指南，國際行業的努力可借鏡，如國際鋼鐵協會。
CCAP	• 三種類型：(1)跨國部門作法，國際統一標準，蒙特婁議定書思維。(2)下至上部門自願減量，技術資金應用，如拍賣所得用作清潔技術投資。(3)部門碳投資（目前是計畫類型）
ICAO	• 成立 1944，目前 190 個會員，GHG 排放占全球 2%，減少航空業排放是我們既定政策。減緩技術已有標準。，需符合芝加哥標準，包括：燃料標準，引擎效率，操作方式，航空飛行路徑規劃及。Circular 303。目前已考慮自願減量、排放收費(charge)及排放交易。其中排放交易最適合，新報告 Emission trade for aviation，以著手進行整合國際航空業排放交易系統，新成立 GIACC 組織, group on international aviation and climate change。建議各國運輸部長及環境部長間應先取得共識後，在訂出國際航空溫室氣體減量決議。
ICC（國際商會）	• 考量部門定義，協議內容，責任及報告。各國部門、技術及市場規模定義不同，國家法律不同，執行協議工具不同，國民福利不同。建議由市場自願決定減量技術，及成本有效協議。目前，國際鋼鐵、水泥、造紙及鋁業已有初步國際能效協議。
印度	• IEA 說明 CO2 排放相當高，印度水泥生產技術已具國際標準相當。國家資源環境不同，如何釐清部門減量責任。
澳洲	• 同意採用部門減量措施，APP 及 APEC 已執行。
德國	• 如何確保 UNFCCC 及 ICAO 目標一致，ICAO 如何融入 UNFCCC。
瑞士	• ICC 提出議題應同時於 AWGLCA 討論
吐瓦魯	• 部門減量應於 AWGLCA 討論
歐盟	• 部門辦法無法取代 KP 規則，同意部門減量應於 AWGLCA 討論，不同意與碳市場相連。部門辦法將需解決競爭性問題，需釐清。歐盟以積極處理航空業減排議題，未來如何加強 ICAO 合作。
加拿大	• 部門目標不能取代經濟發展目標。部門減量應於 AWGLCA 討論，部門目標如何確定，部門技術發展如何應用，部門如何定義。
紐西蘭	• 部門辦法需全球一致，以利跨國企業執行。部門減量應於 AWG 及 AWGLCA 討論。
丹麥	• ICAO 提案有挑戰性，應制訂行動計畫。
日本	• 部門減量辦法有助於推動全球共同參與減緩氣候變遷，應於 AWG 及 AWGLCA 共同討論。
中國	• 除部門方案，已開發國家仍因積極考量第二承諾期國家減量責任。開發中國家則可根據自身國情，採用自願適當之減量行動。部門 CDM 可行性態度持保留。建議 ICAO 有關溫室氣體減量決議應不違背公約架構原則。

（五）溫室氣體部門排放源類別

國家/機構	簡報發言內容
公約秘書處	• 參考 KP 3.1、15/CMP1、19/CMP1、20/CMP1 及 22/CMP1 與盤放清冊報告工作有關，附件一國家 CO 排放 2005 較 1990 增加 0.6%，占比 80%增加至 83%，歐盟增加 3.7%。
IPCC	• 2006 IPCC guideline 目前尚未被 UNFCCC 接受。GWP 值雖不同，但 CO2 是長期存在物質，與其他氣體(如 CH4,N2O)短期存在是不同程度的影響氣候變遷，未來將於 SB28 進一步討論 GWP 或其他氣候變遷影響比較表示方式。
ICAO	• 表示對 SBSTA 進展遺憾，感謝挪威研討會努力。要求各國應主動提供數據，尤其開發中國家。ICAO 可協助建置資訊平台。航空燃料使用資料被視為機密資料，將造成資撩收集困難。非附件一國家如何協助他們提升數據品質。量化單位及覆蓋範圍及數據需可比較性，ICAO 已開發出 TOP-Down 或 Bottom_up 共四種分析模式。未來統計將不分附件一及非附件一，亦不分國家主權而是航線及飛行區域。問題是很複雜，需要發很多時間討論。
挪威	• 第二承諾期 LULUCF 及農業可能範圍需進一步檢討。KP 2.2 要求 UNFCCC、ICAO 及 IMO 共同解決，但十年後毫無進展，是政治障礙而非技術障礙，未來 UNFCCC 應儘快納入國際航運資料。今年 MEPC 將提議 IMO 新技術指南，已解決 GHG 問題。挪威提議，國際航運排放量應設上限，設立國際航運調適基金協助開發中國家。同意國家分配辦法及部門辦法皆可靈活使用，充分討論資料收集，行政法律，處罰及排放上限等議題。
歐盟	• 歐盟支持 ICAO 排放交易，但對 ICAO2007 年大會結論失望。IMO 亦開始討論減量措施，但非強制性。國際航運可採京都模式或國家部門方法（由民航公司處理，受各自國家監督），基於航線而非航旗國。國際航運交易每年四百億美元，部分交易費應用於調適工作。Post 2012 國際航運應納入管制部門及氣體。
澳洲	• 不同意設立新工作組獨立討論國際航運議題。
吐瓦魯	• 國際航運是否釐清附件一及非附件一不同責任問題。歐盟要求納入國際航運排放交易，將增加開發中國家營運成本。
中國	• 基於可學研究進展及數據可比性，現階段不同意增加新排放源及氣體總類，不能影響已開發國家減排責任。國際航空不宜在此討論，而回歸於 ICAO 及 IMO 大會討論，並告知其結果。
紐西蘭	• 長期（100 年）GWP 值應加以釐清，支持討論國際航空減排討論。
俄羅斯	• 部門減量辦法，需考量競爭性可能問題，重申 KP 3.5 條有關防止經濟衝擊及貿易障礙原則。
日本	• 國際航運燃料排放管制，應不分國籍一致對待處理態度。
丹麥	• 國際航運應以共同而有區別責任處理。
加拿大	• INFCCC 及 ICAO 及 IMO 加強合作。
英國	• 肯定 IMO 倫敦會議努力，但遺憾未有專家出席本次會議。

國家/機構	簡報發言內容
新加坡	• 建議國際航空不宜在此討論，而回歸於 ICAO 及 IMO 大會討論，並告知其結果。
巴拿馬	• 國際航運議題建議在氣候公約框架下之方法學，進行討論。
埃及	• 同意挪威提議，設立國際航運調適基金協助開發中國家。同意俄羅斯需考量競爭優勢性可能問題，共同而有區別責任，避免造成經濟衝擊及貿易障礙原則。我們缺乏相關技術及資金協助。
南非	• 基於共同而有區別責任，懷疑設立國際航運調適基金協助開發中國家，國際航運排放交易可能衍生問題。
印度	• UNFCCC 僅能作為 ICAO 及 IMO 討論技術指導，而非政治協議必要原則。
泰國	• 應進一步觀察 ICAO 及 IMO 可能談判結果發展後，再討論。

伍、公約發展觀察與分析

一、 會議諮商談判重點

2009 年底前完成 Agreed Outcome 磋商，其內容與結構應該具備吸引力(attractive)、簡單(simple)、務實(practical)、創意(creative)與具備足夠彈性。並務實設定「排放減量之長期全球目標」，同時考量科學與可能技術發展與擴散等相關因素，以確保經濟持續發展，因為經濟發展乃是得以持續對於氣候變遷進行投資之先決條件。

美國 2008 年進行大選結果，決定其後續因應氣候變遷之立場與作法；此外，主要開發中國家能否加入國際減量管理體系，衝擊調適資金是否能夠儘速成立運用，且受到出資國與受惠國間的普遍認可，都具有絕對關鍵性影響。

由於公約決議採取共識決，現階段仍以附件一國家作為唯一受到公約具體減量約束的對象，短期內不易納入開發中國家減量責任。

二、 推動全球透明一致性碳市場

公約將持續推動以市場為基礎的京都機制，但現今碳市場的透明度低及投機性過高，恐有類似歐盟排放交易市場碳價格崩潰之週期性泡沫化疑慮。

排放交易需所有部門參與著重充分討論、創造短缺、標準設計、交易設限、完備公司排放數據及其他配套立法工作。建立全球透明一致性碳市場，方可促進流通及穩定價格，是全球走向低碳經濟之重要途徑，可同時遏制已開發國家溫室氣體排放及邁向永續發展方式。

惟依據各國推動碳市場機制的成功要素，必須具備明確之國家減量目標(Cap)及完整之產業 GHG 盤查資料庫(Database)等，國內現階段致力於產業 GHG 盤查登錄體系即是作為後續發展碳交易市場之必要利基。

三、 持續關注國際能源效率協定發展

能源消費量乃是造成氣候變化與其他環境問題之主要成因，因此控制能源需求量，乃是氣候變化政策與措施之主要部分。減少能源消費量最有效的可行方法，乃是改善使用能源器

具之能源效率。能源效率的改善對於社會總是具有效益，因為可以減少使用成本，導致投資報酬率之直接上升，因此對於使用者本身，即具備自我誘因。能源效率之改善，未必需要發展新穎或低碳的能源技術，來取代現有技術。因為各國的能源效率之間具有極大差異，顯示許多國家在能源效率方面依然具有極大的改善空間。在工業部門方面，若能針對主要能源密集工業的生產程序，擬定一項國際協定，將可能有效改善能源效率。對於住宅與運輸部門方面，若能在能源使用器具之生產與銷售國家引進能源效率國際標準，亦將具有改善能源效率之功效。

本次會議日本提案中鑑別出八個應該設定個別減量目標之部門，包括發電、能源密集產業(例如鍊鋼製鐵業)、農業、運輸業、商業、住宅部門。各部門之可能排放減量數量將依據各部門之能源效率指數來決定，因為此種方式可以在許多部門中取得雙贏之機會，且可以作為在具備不同情境之國家中提供對排放減量作出貢獻之彈性方式。美國、加拿大及新加坡支持。歐盟願意與其他締約國討論實施部門別方式之構想。冰島提議 UNFCCC 可以考量頒佈一般之部門別指標技術報告，以供使用於分析關鍵部門之排放量減緩潛能。但是，沙烏地阿拉伯反對，認為無法平衡各個部門之間的負擔及無法使對開發中國家之衝擊最小化。

儘管我國不是京都議定書締約國，但是我國溫室氣體減量之制度規劃大多朝與國際接軌方向進行。短時期內，雖然沒有立即被國際要求具體減量壓力，但是，為及早因應此國際壓力，我國應加速檢視各產業現階段能源效率標竿與國際競爭優

勢性比較。同時，我國更應致力於在符合後京都時期可能國際管制規則與現有國內制訂規則互相一致，是相當重要。可以避免資源重複與浪費於兩套不同系統上，並且降低能效改善計畫投資者之不確定性。並將危機化為契機，勇於面對低碳時代的挑戰。

四、 2008 年後續重要會議活動

日期	地點	會議名稱
5 月 19-20 日	比利時 布魯塞爾* Brussels, Belgium	• 國際碳行動夥伴組織(International Carbon Action Partnership, ICAP)召開「第一屆全球碳市場論壇 The 1st Global Carbon Market Forum on Monitoring, Reporting, Verification, Compliance and Enforcement Commission」
5 月 24-26 日	日本 神戶* Kobe, Japan	• G8 環境部長會議 G8 Environment Ministers' Meeting
6 月 2-13 日	德國 波昂 Bonn, Germany	• 京都議定書進一步承諾特設工作組第 5 屆第 2 期會議（AWG-KP 5）； • 聯合國氣候變化綱要公約長期合作行動特設工作組第 2 屆會議（AWG-LCA 2）； • 第 28 屆附屬機構會議(SBSTA 28 & SBI 28)
6 月 3-4 日	法國 巴黎* Paris, France	• 2008 OECD 論壇，主要議題：氣候變遷、成長與穩定 Climate Change, Growth and Stability。
6 月 5 日	紐西蘭 威靈頓 Wellington, New Zealand	• 世界環境日 WORLD ENVIRONMENT DAY，活動主題(slogan):Kick the Habit! Towards a Low Carbon Economy • UNEP 主辦，每年選定一個主辦城市（2008 年為紐西蘭威靈頓），並呼籲全球各地響應舉辦相關活動。
7 月 7-9 日	日本 北海道洞爺湖* Toyako, Hokkaido, Japan	• G8 高峰會議 the G8 Hokkaido Toyako Summit：主要議題 Environment and Climate Change

日期	地點	會議名稱
8 月 21-27 日	非洲 迦納 阿克拉 Accra, Ghana	• 京都議定書進一步承諾特設工作組第 6 屆第 1 期會議（AWG-KP 6）； • 聯合國氣候變化綱要公約長期合作行動特設工作組第 3 屆會議（AWG-LCA 3）；
12 月 1-12 日	波蘭 波茲南 Poznañ, Poland	• 聯合國氣候變化綱要公約長期合作行動特設工作組第 4 屆會議（AWG-LCA 4）； • 聯合國氣候變化綱要公約第 14 次締約國大會暨京都議定書第 4 次締約國會議（COP14/CMP4）。

* 由主辦單位邀請參與會議，其他公約會議仍以 NGO 身份報名參加。

陸、心得與建議

一、 公約會議願景

公約明訂應考量各國不同的經濟發展與自然環境，各國依循公約第 3 條基本原則「承擔共同但程度不同的責任與能力」，採取「「經濟有效」及「最低成本」措施來防制氣候變遷，成員有權促進永續性經濟發展，並將「經濟發展」納入防制氣候變遷的關鍵考量因素，並應由附件一國家須率先承擔責任，採取行動防制溫室氣體的排放。開發中國家則以提出可供量測（measurable）、報告（reportable）與查證（verifiable）的自願行動為主軸。

我國非京都議定書締約國且非附件一國家，現階段公約仍以附件一國家（已開發國家）作為唯一受到具體減量約束的對象，短期內不易納入開發中國家減量責任。2008 年世界局勢與 1992 年磋商 UNFCCC 時已有顯著改變，考量 IPCC 評估報

告所提出之各項科學發現變化時，應該考量演變中的各國排放量與經濟發展趨勢，以確保可以具備環境保護與經濟發展效益之方式來因應全球氣候變化。

國際減量目標之訂定均透過協商方式為之，若以爭取我國最佳國際談判條件及避免壓縮談判空間來考量，建議應可向外宣示未來減量努力目標，並視國際發展趨勢及可行技術成熟度等外在因素適時檢討；本署應持續辦理產業溫室氣體盤查登錄作業，並推動地方政府投入節能減碳作為，掌握未來減量空間。

二、 建置跨部會協調整合機制

全球氣候變遷議題涉及議題日趨精細，包括減量技術、衝擊調適、生物多樣性、能源安全、低碳社會經濟體系、產業航運減量、碳市場、森林管理、公共衛生等，已非單一部會足以因應，亟需建立一個穩定之跨部會工作協調與整合平台。本署可由甫成立之空保處溫室氣體減量管理辦公室，作為對外聯繫窗口，並設定不同議題，定期邀集相關部會參與會議討論；若有重要行動方案成型，依程序再提交行政院院會或行政院國家永續發展委員會決議據以推動。

本署投注於溫室氣體業務之人力，相較於其他國家嚴重不足，在推動相關業務時，除感嘆自身人力缺乏外，也常需面臨其他部會業務相關人員之專業素養不足，造成溝通與協調過程中常遭遇許多困難，當然這與國人環保意識與知識尚未普及、各單位本位主義心態無法摒除等因素都有關連。

為求更具效率地處理日趨錯綜複雜的氣候變遷課題，建議相關部會及各級地方政府應設置專責人員，長期負責推動因應氣候變遷聯繫工作；本署可規劃舉辦一系列訓練專題講座，相關人員亦應定期自我充實減緩調適技術資訊之管理認知。

此外，未來幾年內公約已排定之相關諮商會議眾多，涵蓋議題廣泛，國內應及早建立與會代表選派機制及籌措所需出國旅費來源，並建議相關部會擇定主管議題派員與會，實務掌握國際發展動態。

三、 積極參與國際氣候論壇活動

國際碳行動夥伴組織(International Carbon Action Partnership, ICAP)將於 2008 年 5 月 19-20 日比利時布魯塞爾召開第一次會議 Global Carbon Market Forum，據以推動全球性碳市場。該次會議將針對此碳市場之監督、報告、查證與執法等項議題。此項全球性碳市場將可支持 2012 年後京都時期之國際排放減量協定，目標是採取全球協調行動與市場機制來達到對抗氣候變化目標。

台灣基於溫室氣體減量法（草案）規劃願景，若能克服入會可能遭遇障礙，申請加入 ICAP 組織論壇成為觀察員，期許在符合國際規範或做法下，重新檢視減量認證之工作。同時，我國也能享有較大解決問題之彈性，並願意在現階段即以自身科技能力，對國際社會的溫室氣體減量需求有所貢獻。

柒、附件

- 附件一、聯合國氣候變化綱要公約
  長期合作行動特設工作組第一屆會議（議程與報告）
  AWG-LCA 1: the Ad hoc Working Group on Long-term Cooperative Action under the Convention (first session)

- 附件二、京都議定書進一步承諾特設工作組
  第五屆第一期會議（議程與報告）
  AWG-KP 5: the Ad hoc Working Group on further Commitments for Annex I Parties under the Kyoto Protocol (the first part of the fifth session)

- 附件三、特設工作組研討會（議程與簡報）
  AWG In-Session Workshop on Means to Reach Emission Reduction Targets

- 附件四、Earth Negotiation Bulletin:
  2008 Bangkok Climate Change Talks

附　　件

附件一

聯合國氣候變化綱要公約長期合作行動特設工作組第一屆會議（議程與報告）

AWG-LCA 1: the Ad hoc Working Group on Long-term Cooperative Action under the Convention (first session)

UNITED NATIONS

UNFCCC Framework Convention on Climate Change

Distr.
GENERAL

FCCC/AWGLCA/2008/1
28 February 2008

Original: ENGLISH

AD HOC WORKING GROUP ON LONG-TERM COOPERATIVE ACTION UNDER THE CONVENTION
First session
Bangkok, 31 March to 4 April 2008

Item 2 (a) of the provisional agenda
Organizational matters
Adoption of the agenda

Provisional agenda and annotations

Note by the Executive Secretary*

I. Provisional agenda

1. Opening of the session.
2. Organizational matters:
   (a) Adoption of the agenda;
   (b) Organization of the work of the session;
   (c) Election of officers other than the Chair and Vice-Chair.
3. Development of a work programme.
4. Other matters.
5. Report on the session.

* This document has been submitted after the due date because the decision to hold the session was only taken at the thirteenth session of the Conference of the Parties.

II. Background

1. At its thirteenth session, the Conference of the Parties (COP), by its decision 1/CP.13, launched a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012, in order to reach an agreed outcome and adopt a decision at its fifteenth session. It decided that the process shall be conducted under a subsidiary body under the Convention, the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWGLCA), that shall complete its work in 2009 and present the outcome of its work to the (COP) for adoption at its fifteenth session. It agreed that the first session of the AWGLCA should be held as soon as possible and no later than April 2008.

2. In accordance with decision 1/CP.13, the first session of the AWGLCA has been scheduled to be held at the United Nations Conference Centre of the Economic and Social Commission for Asia and the Pacific in Bangkok, Thailand, from 31 March to 4 April 2008, in conjunction with the first part of the fifth session of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol.

III. Annotations to the provisional agenda

1. Opening of the session

3. The first session of the AWGLCA will be opened by the Chair on Monday, 31 March 2008.

2. Organizational matters

(a) Adoption of the agenda

4. The provisional agenda for the session will be presented for adoption. Parties are invited to make statements after the adoption of the agenda.

FCCC/AWGLCA/2008/1	*Provisional agenda and annotations. Note by the Executive Secretary*

(b) Organization of the work of the session

5. *Background*: Parties are invited to refer to the overview of the session posted on the UNFCCC website[1] and to consult the daily programme, published during the session, for a detailed and up-to-date schedule of the work of the AWGLCA.

6. The Chair of the AWGLCA has prepared a note on the scenario for the first session. Delegates are invited to consult this note in preparation for the session.

7. Representatives of Parties and international organizations are requested to keep their oral statements as brief as possible and to give a hard copy to the conference officers in advance to facilitate the work of the interpreters. Those wishing to make a written statement available should bring copies for distribution.

8. The Subsidiary Body for Implementation, at its twenty-fourth session,[2] recommended that meetings should normally end by 6 p.m. but may, in exceptional circumstances, continue to no later than 9 p.m. This session of the AWGLCA will be organized accordingly.

[1] <http://unfccc.int/meetings/intersessional/awg-lca_1_and_awg-kp_5/items/4288.php>.
[2] FCCC/SBI/2006/11, paragraph 102.

9. *Action*: The AWGLCA will be invited to agree on the approach to the organization of work for the session.

FCCC/AWGLCA/2008/1	*Provisional agenda and annotations. Note by the Executive Secretary*
FCCC/AWGLCA/2008/2	*Scenario note on the first session. Note by the Chair*

(c) Election of officers other than the Chair and Vice-Chair

10. *Background*: At the closing plenary of the thirteenth session, the COP elected Mr. Luiz Figueiredo Machado (Brazil) as Chair and Mr. Michael Zammit Cutajar (Malta) as Vice-Chair of the AWGLCA for 2008. Pursuant to rule 27, paragraph 6, of the draft rules of procedure being applied, each subsidiary body shall elect its Rapporteur. The nomination of Ms. Lilian Portillo (Paraguay) for the post of Rapporteur was received after the session.

11. *Action*: The AWGLCA will be invited to elect its Rapporteur.

3. Development of a work programme

12. *Background*: As noted above, the COP, by its decision 1/CP.13, established the AWGLCA and tasked it with conducting a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012, in order to reach an agreed outcome and adopt a decision at its fifteenth session.

13. The COP further instructed the AWGLCA to develop its work programme at its first session in a coherent and integrated manner, and invited Parties to submit to the secretariat, by 22 February 2008, their views regarding the work programme, taking into account the elements to be addressed by the AWGLCA referred to in decision 1/CP.13, paragraph 1.

14. Decision 1/CP.13, paragraph 1, identifies four areas for enhanced action that should, inter alia, be addressed by the AWGLCA over the next two years: mitigation, adaptation, technology and finance, with enhanced action on technology and finance having the purpose of supporting and enabling mitigation and adaptation. The decision further provides a non-exclusive list of issues to be considered under each of the action areas.

15. The COP agreed that the process should be informed by the best available scientific information, experience in implementation of the Convention and its Kyoto Protocol, and processes there under, outputs from other relevant intergovernmental processes and insights from the business and research communities and civil society.

16. The COP further agreed that the sessions of the group would be scheduled as often as is feasible and necessary to complete the work of the group, and that the sessions of the group may be complemented by workshops and other activities, as required.

17. *Action*: The AWGLCA will be invited to develop its work programme in a coherent and integrated manner by identifying how to consider the issues identified in 1/CP.13, what inputs would be required and how the process will be informed by science, experience in implementation and insights from business and civil society, taking into account ongoing and planned work under the Convention and its Kyoto Protocol. The AWGLCA will also be invited to take note of the dates for its second session to be held in conjunction with the twenty-eighth sessions of the subsidiary bodies from 2 to 13 June 2008, in Bonn, Germany, and for its third session, to be scheduled for August or September 2008.

FCCC/AWGLCA/2008/MISC.1	*Views regarding the work programme of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention. Submissions from Parties*
FCCC/AWGLCA/2008/2	*Scenario note on the first session. Note by the Chair*

4. Other matters

18. Any other matters arising during the session will be taken up under this item.

5. Report on the session

19. *Background*: A draft report on the work of the session will be prepared for adoption by the AWGLCA at the end of the session.

20. *Action*: The AWGLCA will be invited to adopt the draft report and authorize the Rapporteur to complete the report after the session, under the guidance of the Chair and with the assistance of the secretariat.

Annex

Documents prepared for the Ad Hoc Working Group on Long-term Cooperative Action under the Convention at its first session

Documents prepared for the session

FCCC/AWGLCA/2008/1	Provisional agenda and annotations. Note by the Executive Secretary
FCCC/AWGLCA/2008/2	Scenario note on the first session. Note by the Chair
FCCC/AWGLCA/2008/MISC.1	Views regarding the work programme of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention. Submissions from Parties

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Provisional agenda of the
Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWGLCA) at its first session

Bangkok, 31 March to 4 April 2008

1. Opening of the session.
2. Organizational matters:
   (a) Adoption of the agenda;
   (b) Organization of the work of the session;
   (c) Election of officers other than the Chair and Vice-Chair.
3. Development of a work programme.
4. Other matters.
5. Report on the session.

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UNITED
NATIONS

UNFCCC Framework Convention on Climate Change

Distr.
LIMITED

FCCC/AWGLCA/2008/L.1
2 April 2008

Original: ENGLISH

AD HOC WORKING GROUP ON LONG-TERM COOPERATIVE ACTION UNDER THE CONVENTION
First session
Bangkok, 31 March to 4 April 2008

Agenda item 5
Report on the session

Draft report of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention on its first session

Rapporteur: Ms. Lilian Portillo (Paraguay)

CONTENTS

(To be completed)

I. Opening of the session

(Agenda item 1)

1. The first session of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) was held at the United Nations Conference Centre at the United Nations Economic and Social Commission for Asia and the Pacific, Bangkok, Thailand, from 31 March to 4 April 2008.

2. The Chair of the AWG-LCA, Mr. Luiz Figueiredo Machado (Brazil), opened the session and welcomed all Parties and observers. He also welcomed Mr. Michael Zammit Cutajar (Malta) as Vice-Chair of the AWG-LCA.

(To be completed)

II. Organizational matters

(Agenda item 2)

Adoption of the agenda

(Agenda item 2 (a))

3. At its 1st meeting, on 31 March, the AWG-LCA considered a note by the Executive Secretary containing the provisional agenda and annotations (FCCC/AWGLCA/2008/1).

4. At the same meeting, the agenda was adopted as follows:

1. Opening of the session.
2. Organizational matters:
   (a) Adoption of the agenda;
   (b) Organization of the work of the session;
   (c) Election of officers other than the Chair and Vice-Chair.
3. Development of a work programme.
4. Other matters.
5. Report on the session.

III. Reports on agenda items 2 (b) to 4

(To be completed)

IV. Report on the session

(Agenda item 5)

5. At its xx meeting, on xx April, the AWG-LCA considered the draft report on its first session (FCCC/AWGLCA/2008/L.1). At the same meeting, on a proposal by the Chair, the AWG-LCA authorized the Rapporteur to complete the report on the session, with the assistance of the secretariat and under the guidance of the Chair.

Annexes

(To be completed)

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UNITED NATIONS

UNFCCC Framework Convention on Climate Change

Distr.
LIMITED

FCCC/AWGLCA/2008/L.2
4 April 2008

Original: ENGLISH

AD HOC WORKING GROUP ON LONG-TERM COOPERATIVE ACTION UNDER THE CONVENTION
First session
Bangkok, 31 March to 4 April 2008

Agenda item 3
Development of a work programme

Development of a work programme

Draft conclusions proposed by the Chair

1. The Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) recalled its mandate contained in decision 1/CP.13 (the Bali Action Plan) and the elements that the group should address, as outlined in paragraph 1 of that decision.

2. The AWG-LCA took note of the views expressed by Parties and observer organizations in their submissions[1] and their statements made during the present session. The group had an exchange of views on the development of the two-year work programme as mandated in paragraph 7 of the Bali Action Plan. It invited its Chair to prepare a Chair's summary of the views expressed in this exchange.

3. The AWG-LCA further invited Parties and accredited observer organizations to provide additional information, views and proposals on paragraph 1 of the Bali Action Plan, as may be required for each session. It requested the secretariat to post these submissions on the UNFCCC website, as received, and to compile submissions by Parties into a miscellaneous document for consideration by the AWG-LCA.

4. The AWG-LCA agreed to undertake its work, seeking progress on all elements assigned to it by the Bali Action Plan, in a coherent, integrated and transparent manner. It further agreed to organize its work at each session to include each of the elements, taking into account the interlinkages among them and with the work of the Convention's subsidiary bodies in the context of the Bali Road Map.[2] These sessions shall be organized in such a manner for there to be sufficient time available for the negotiations of the AWG-LCA in order to enable the Conference of the Parties to reach an agreed outcome and adopt a decision at its fifteenth session.

[1] The submissions from Parties are contained in documents FCCC/AWGLCA/2008/MISC.1 and Add.1–3. In line with established practice, the secretariat has posted the submissions from organizations on the UNFCCC website at <http://unfccc.int/parties_and_observers/ngo/items/3689.php>.

[2] See document FCCC/CP/2007/6, paragraph 135.

5. The AWG-LCA considered that it would need to hold at least four sessions in 2009, of a total duration of up to eight weeks. It requested the secretariat to provide, at its second session, information on meeting facilities and resources needed and available for its work in 2009. In that regard, the AWG-LCA will start considering its work programme for 2009 at its second session in 2008, and complete it no later than at its fourth session in 2008.

6. The AWG-LCA agreed that its work should be facilitated by workshops and other activities to deepen understanding and clarify elements contained in the Bali Action Plan. Accordingly, the AWG-LCA requested the secretariat, under the guidance of the Chair in consultation with Parties, to organize the workshops listed in the annex. The AWG-LCA requested the Chair in his summary of each session to include the views expressed at the workshops.

7. The AWG-LCA further requested the secretariat, in accordance with paragraph 11 of the Bali Action Plan, to compile and make available an information note on ongoing work under the Convention related to issues identified in paragraph 1 of the Bali Action Plan.

8. The AWG-LCA invited other relevant intergovernmental processes, the business and research communities and civil society to take note of this work programme and invited outputs from other relevant intergovernmental processes and insights from the business and research communities and civil society in a timely manner consistent with paragraph 11 of the Bali Action Plan.

Annex

SESSION 2	
Agenda items	Workshops
• Shared vision for long-term cooperative action • Enhanced national/international action on mitigation • Enhanced action on adaptation • Enhanced action on technology development and transfer to support action on mitigation and adaptation • Enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation and technology cooperation	• Advancing adaptation through finance and technology, including NAPAs • Investment and financial flows to address climate change • Effective mechanisms and enhanced means for the removal of obstacles to, and provision of financial and other incentives for, scaling up of the development and transfer of technology to developing country Parties in order to promote access to affordable environmentally sound technologies; and ways to accelerate deployment, diffusion and transfer of affordable environmentally sound technologies
SESSION 3	
Agenda items	Workshops
• Shared vision for long-term cooperative action • Enhanced national/international action on mitigation • Enhanced action on adaptation • Enhanced action on technology development and transfer to support action on mitigation and adaptation • Enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation and technology cooperation	• Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries • Cooperative sectoral approaches and sector-specific actions, in order to enhance implementation of Article 4, paragraph 1(c), of the Convention
SESSION 4	
Agenda items	Workshops
• Shared vision for long-term cooperative action • Enhanced national/international action on mitigation • Enhanced action on adaptation • Enhanced action on technology development and transfer to support action on mitigation and adaptation • Enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation and technology cooperation	• Risk management and risk reduction strategies, including risk sharing and transfer mechanisms such as insurance • Cooperation on research and development of current, new and innovative technology, including win-win solutions • Shared vision for long-term cooperative action

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附件二

京都議定書進一步承諾特設工作組第五屆第一期會議（議程與報告）

AWG-KP 5: the Ad hoc Working Group on further Commitments for Annex I Parties under the Kyoto Protocol (the first part of the fifth session)

UNITED NATIONS

UNFCCC Framework Convention on Climate Change

Distr.
GENERAL

FCCC/KP/AWG/2008/1
28 February 2008

Original: ENGLISH

AD HOC WORKING GROUP ON FURTHER COMMITMENTS FOR ANNEX I PARTIES UNDER THE KYOTO PROTOCOL
Fifth session
Bangkok, 31 March to 4 April 2008, and Bonn, 2–12 June 2008

Item 2 (a) of the provisional agenda
Organizational matters
Adoption of the agenda

Provisional agenda and annotations

Note by the Executive Secretary*

I. Provisional agenda

1. Opening of the session.
2. Organizational matters:
   (a) Adoption of the agenda;
   (b) Organization of the work of the session.
3. Analysis of means to reach emission reduction targets and identification of ways to enhance their effectiveness and contribution to sustainable development:[1]
   (a) Emissions trading and the project-based mechanisms;
   (b) Land use, land-use change and forestry;
   (c) Greenhouse gases, sectors and source categories;
   (d) Possible approaches targeting sectoral emissions.
4. Consideration of relevant methodological issues.[2]
5. Other matters.
6. Report on the session.

* This document has been submitted after the due date because the decision to hold the session was only taken at the third session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol.

[1] Work to be initiated at the first part of the fifth session of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol.

[2] Work to be initiated at the resumed fifth session of the AWG.

II. Annotations to the provisional agenda

1. Opening of the session

1. The fifth session of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG) will be opened by the Chair on Monday, 31 March 2008, in Bangkok, Thailand, at the conference premises of the United Nations Economic and Social Commission for Asia and the Pacific.

2. Organizational matters

(a) Adoption of the agenda

2. The provisional agenda for the session will be presented for adoption. Parties are invited to make general statements after the adoption of the agenda.

FCCC/KP/AWG/2008/1	*Provisional agenda and annotations. Note by the Executive Secretary*

(b) Organization of the work of the session

3. *Background*: At its resumed fourth session, the AWG decided to hold the first part of its fifth session in March or April 2008 and to resume and conclude the session during the first sessional period in 2008 (June).[3] The first part of the fifth session of the AWG will be held in Bangkok, Thailand, from 31 March to 4 April 2008 in conjunction with the first session of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention. It will be resumed and concluded in Bonn, Germany, from 2 to 12 June 2008.

4. An in-session thematic workshop on the analysis of means that may be available to Annex I Parties to reach their emission reduction targets is scheduled to take place from Tuesday, 1 April to Thursday, 3 April 2008.

5. Parties are invited to refer to the overview of the intersessional meetings in Bangkok, as well as of the sessional meetings in Bonn, posted on the UNFCCC website[4] and to consult the Daily Programme, published during the sessions, for a detailed and up-to-date schedule of the work of the AWG.

6. The Subsidiary Body for Implementation, at its twenty-fourth session,[5] recommended that meetings should normally end by 6 p.m. but may, in exceptional circumstances, continue no later than 9 p.m. The session will be organized accordingly.

7. Representatives of Parties and international organizations are requested to keep their oral statements as brief as possible and to give a hard copy to the conference officers in advance to facilitate the work of the interpreters. Those wishing to make a written statement available should bring copies for distribution.

8. *Action*: The AWG will be invited to agree on the approach to the organization of work for the session.

FCCC/KP/AWG/2008/1	*Provisional agenda and annotations. Note by the Executive Secretary*

[3] FCCC/KP/AWG/2007/5, paragraph 18.
[4] <http://unfccc.int/meetings/intersessional/awg-lca_1_and_awg-kp_5/items/4288.php> and <http://unfccc.int/meetings/items/2654.php>.
[5] FCCC/SBI/2006/11, paragraph 102.

3. Analysis of means to reach emission reduction targets and identification of ways to enhance their effectiveness and contribution to sustainable development

(a) Emissions trading and the project-based mechanisms

(b) Land use, land-use change and forestry

(c) Greenhouse gases, sectors and source categories

(d) Possible approaches targeting sectoral emissions

9. *Background*: At the first part of its fifth session, the AWG will initiate work on the analysis of means that may be available to Annex I Parties to reach their emission reduction targets and on the identification of ways to enhance the effectiveness of these means and their contribution to sustainable development. At this meeting, sub-items 3 (a)–(d) will be taken up together.

10. The AWG, at its third session, invited Parties to submit to the secretariat, by 15 February 2008, information and views on the means to achieve mitigation objectives of Annex I Parties referred to in document FCCC/KP/AWG/2006/4, paragraph 17 (b).[6] At its resumed fourth session, it further invited them to include in these submissions their views on the topics to be covered and the experts/organizations to be invited to participate in the in-session thematic workshop referred to in paragraph 4 above.[7]

11. Also at its resumed fourth session, the AWG requested the secretariat to prepare an information note on the provisions of the Kyoto Protocol and decisions by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol relating to the means that may be available to Annex I Parties to reach their emission reduction targets.[8]

12. Four thematic sessions will be organized in the context of the workshop referred to in paragraph 4 above, each one to consider one of the means to reach emission reduction targets. The exchange of views at this workshop will provide the background to initiate work on the analysis of means that may be available to Annex I Parties to reach their emission reduction targets.

13. At its resumed fifth session, the AWG will continue work on the matters referred to in paragraph 9 above. At its resumed fourth session, the AWG requested the secretariat to organize, under the guidance of the Chair of the AWG, a round table on these matters[9] and invited Parties to submit to the secretariat, by 15 February 2008, their views on the topics to be covered and the experts/organizations to be invited to participate in the round table. This round table will be organized during the sessional period in June 2008.

14. *Action*: The AWG will be invited to initiate and advance work on the analysis of possible means to achieve mitigation objectives. The AWG will also be invited to identify and consider ways to enhance the effectiveness and contribution to sustainable development of the means that may be available to

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[6] FCCC/KP/AWG/2007/2, paragraph 24.

[7] FCCC/KP/AWG/2007/5, paragraph 19 (b) (ii). At the first part of its fourth session, the AWG invited Annex I Parties to include in these submissions information on the potential environmental, economic and social consequences, including spillover effects on all Parties, in particular developing country Parties, of available tools, policies, measures and methodologies available to Annex I Parties (FCCC/KP/AWG/2007/4, paragraph 24); work on these matters will be initiated at the first part of the sixth session of the AWG (FCCC/KP/AWG/2007/5, paragraph 21 (a) (i)).

[8] FCCC/KP/AWG/2007/5, paragraph 19 (b) (iii).

[9] FCCC/KP/AWG/2007/5, paragraph 19 (d) (ii).

Annex I Parties to reach their emission reduction targets, including specific issues to be addressed as well as related options put forward by Parties. It may wish to consider methods of work as well as further input that may be required to assist the group in reaching conclusions on these matters at the first part of its sixth session.

FCCC/KP/AWG/2008/INF.1	*Provisions of the Kyoto Protocol and decisions by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol relating to the means to reach emission reduction targets of Annex I Parties. Note by the secretariat*
FCCC/KP/AWG/2008/MISC.1	*Views and information on the means to achieve mitigation objectives of Annex I Parties. Submissions from Parties*
FCCC/KP/AWG/2008/MISC.2	*Views on the organization of the round table on means to reach emission reduction targets of Annex I Parties. Submissions from Parties*

4. Consideration of relevant methodological issues

15. *Background*: At its resumed fifth session, the AWG will initiate work on relevant methodological issues, including the methodologies to be applied for estimating anthropogenic emissions and the global warming potentials of greenhouse gases.

16. At its resumed fourth session, the AWG requested the secretariat to organize an in-session workshop on the matters referred to in paragraph 15 above.[10] This workshop will be organized during the sessional period in June 2008.

17. Also at its resumed fourth session, the AWG invited Parties to submit to the secretariat, by 21 March 2008, their views and information on methodological issues relevant to matters raised in document FCCC/KP/AWG/2006/4, paragraph 17 (b) (i) and (ii), as well as on the topics to be covered and experts/organizations to be invited to participate in the in-session workshop referred to in paragraph 15 above.[11]

18. *Action*: The AWG will be invited to initiate work on the consideration of relevant methodological issues. The AWG may also wish to consider the identification of any methodological requirements arising from the discussion on each of the means to reach emission reduction targets, as referred to under agenda item 3. It may wish to consider methods of work as well as further inputs that may be required to assist the group in reaching conclusions on these matters at the first part of its sixth session.

FCCC/KP/AWG/2008/MISC.3	*Views and information on relevant methodological issues relating to the analysis of means to achieve mitigation objectives. Submissions from Parties*

[10] FCCC/KP/AWG/2007/5, paragraph 19 (d) (iv).
[11] FCCC/KP/AWG/2007/5, paragraph 19 (d) (iii).

5. Other matters

19. Any other matters arising during the session will be taken up under this item.

6. Report on the session

20. *Background*: Draft reports on the work of the first and resumed parts of the fifth session will be prepared for adoption by the AWG at the end of the first and resumed parts of the session, respectively.

21. *Action*: The AWG will be invited to adopt the draft reports and authorize the Rapporteur to complete the reports after the first part of the fifth session and the resumed fifth session, under the guidance of the Chair and with the assistance of the secretariat.

Annex

Documents prepared for the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its fifth session

Documents prepared for the session

FCCC/KP/AWG/2008/1	Provisional agenda and annotations. Note by the Executive Secretary
FCCC/KP/AWG/2008/INF.1	Provisions of the Kyoto Protocol and decisions by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol relating to the means to reach emission reduction targets of Annex I Parties. Note by the secretariat
FCCC/KP/AWG/2008/MISC.1	Views and information on the means to achieve mitigation objectives of Annex I Parties. Submissions from Parties
FCCC/KP/AWG/2008/MISC.2	Views on the organization of the round table on means to reach emission reduction targets of Annex I Parties. Submissions from Parties
FCCC/KP/AWG/2008/MISC.3	Views and information on relevant methodological issues relating to the analysis of means to achieve mitigation objectives. Submissions from Parties

Other documents before the session

FCCC/KP/AWG/2007/5	Report of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol on its resumed fourth session, held in Bali from 3 to 15 December 2007

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Provisional agenda of the
Ad Hoc Working Group on Further Commitments for
Annex I Parties under the Kyoto Protocol (AWG) at its fifth session

Bangkok, 31 March to 4 April 2008, and Bonn, 2 to 13 June 2008

1. Opening of the session.
2. Organizational matters:
   (a) Adoption of the agenda;
   (b) Organization of the work of the session.
3. Analysis of means to reach emission reduction targets and identification of ways to enhance their effectiveness and contribution to sustainable development:[1]
   (a) Emissions trading and the project-based mechanisms;
   (b) Land use, land-use change and forestry;
   (c) Greenhouse gases, sectors and source categories;
   (d) Possible approaches targeting sectoral emissions.
4. Consideration of relevant methodological issues.[2]
5. Other matters.
6. Report on the session.

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[1] Work to be initiated at the first part of the fifth session of the AWG (April 2008). At this meeting, sub-items 3 (a)–(d) will be taken up together.
[2] Work to be initiated at the resumed fifth session of the AWG (June 2008).

UNITED
NATIONS

UNFCCC Framework Convention on Climate Change

Distr.
LIMITED

FCCC/KP/AWG/2008/L.1
2 April 2008

Original: ENGLISH

AD HOC WORKING GROUP ON FURTHER COMMITMENTS FOR ANNEX I PARTIES UNDER THE KYOTO PROTOCOL
Fifth session
Bangkok, 31 March to 4 April 2008, and Bonn, 2–12 June 2008

Agenda item 6
Report on the session

Draft report of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol on the first part of its fifth session

Rapporteur: Mr. Boo-Nam Shin (Republic of Korea)

CONTENTS

(To be completed)

I. Opening of the session

(Agenda item 1)

1. The first part of the fifth session of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG) was held at the United Nations Conference Centre at the United Nations Economic and Social Commission for Asia and the Pacific, Bangkok, Thailand, from 31 March to 4 April 2008.

2. The Chair of the AWG, Mr. Harald Dovland (Norway), opened the session and welcomed all Parties and observers. He also welcomed Mr. Mama Konate (Mali) as Vice-Chair of the AWG and Mr. Boo-Nam Shin (Republic of Korea) as Rapporteur.

(To be completed)

II. Organizational matters

(Agenda item 2)

Adoption of the agenda

(Agenda item 2 (a))

3. At its 1st meeting, on 31 March, the AWG considered a note by the Executive Secretary containing the provisional agenda and annotations (FCCC/KP/AWG/2008/1).

4. At the same meeting, the agenda was adopted as follows:

1. Opening of the session.
2. Organizational matters:
   (a) Adoption of the agenda;
   (b) Organization of the work of the session.
3. Analysis of means to reach emission reduction targets and identification of ways to enhance their effectiveness and contribution to sustainable development:[1]
   (a) Emissions trading and the project-based mechanisms;
   (b) Land use, land-use change and forestry;
   (c) Greenhouse gases, sectors and source categories;
   (d) Possible approaches targeting sectoral emissions.
4. Consideration of relevant methodological issues.[2]
5. Other matters.
6. Report on the session.

III. Reports on agenda items 2 (b) to 5

(To be completed)

IV. Report on the session

(Agenda item 6)

5. At its xx meeting, on xx April, the AWG considered the draft report on the first part of its fifth session (FCCC/KP/AWG/2008/L.1). At the same meeting, on a proposal by the Chair, the AWG authorized the Rapporteur to complete the report on the session, with the assistance of the secretariat and under the guidance of the Chair.

[1] Work to be initiated at the first part of the fifth session of the AWG.
[2] Work to be initiated at the resumed fifth session of the AWG.

Annexes

(To be completed)

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UNITED NATIONS

UNFCCC Framework Convention on Climate Change

Distr.
LIMITED

FCCC/KP/AWG/2008/L.2
4 April 2008

Original: ENGLISH

AD HOC WORKING GROUP ON FURTHER COMMITMENTS FOR ANNEX I PARTIES UNDER THE KYOTO PROTOCOL
Fifth session
Bangkok, 31 March to 4 April 2008, and Bonn, 2–12 June 2008

Agenda item 3 (a–d)
Analysis of means to reach emission reduction targets and identification of ways to enhance their effectiveness and contribution to sustainable development
Emissions trading and the project-based mechanisms
Land use, land-use change and forestry
Greenhouse gases, sectors and source categories
Possible approaches targeting sectoral emissions

Analysis of means to reach emission reduction targets and identification of ways to enhance their effectiveness and contribution to sustainable development

Draft conclusions proposed by the Chair

1. The Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG) took note of the information and views submitted by Parties on the means to achieve mitigation objectives of Annex I Parties.[1] It also took note of the information provided by the secretariat on the provisions of the Kyoto Protocol and decisions by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol relating to the means to reach emission reduction targets of Annex I Parties.[2]

2. The AWG initiated work on the analysis of means that may be available to Annex I Parties to reach their emission reduction targets and identification of ways to enhance their effectiveness and their contribution to sustainable development and to the ultimate objective of the Convention as set out in its Article 2.

3. The AWG held an in-session thematic workshop on 1–3 April 2008 on the means that may be available to Annex I Parties to reach their emission reduction targets. The Chair and Vice-Chair of the AWG co-chaired the workshop and provided a summary of discussions at its closing. The AWG took note of the views and information presented at the workshop, the summary report by the co-chairs (see annex to this report) and the possible ways to enhance the effectiveness of the means and their contribution to sustainable development that were discussed at the workshop.

[1] FCCC/KP/AWG/2008/MISC.1 and Add.1–3.
[2] FCCC/KP/AWG/2008/INF.1.

4. The AWG agreed that emissions trading and the project-based mechanisms under the Kyoto Protocol should continue to be available to Annex I Parties as means to meet their emission reduction targets and could be appropriately improved. In considering possible improvements to the mechanisms, due attention should be paid to promoting, inter alia, the environmental integrity of the Kyoto Protocol and the contribution of the mechanisms to sustainable development. It further noted that the use of such mechanisms should be supplemental to the implementation of domestic actions at the disposal of Annex I Parties.

5. The AWG also agreed that measures to limit or reduce greenhouse gas (GHG) emissions and to enhance removals resulting from anthropogenic land use, land-use change and forestry (LULUCF) activities should continue to be available to Annex I Parties as means to reach their emission reduction targets. The AWG noted that some of the definitions, modalities, rules and guidelines relating to LULUCF activities under Articles 3, 6 and 12 of the Kyoto Protocol, as contained in the annex to decision 16/CMP.1, apply only to the first commitment period of the Kyoto Protocol. It acknowledged that further discussions on this issue should take into account the principles that govern the treatment of LULUCF, as set out in decision 16/CMP.1.

6. The AWG acknowledged that the choice and effective use, in accordance with agreed rules and relevant decisions under the Kyoto Protocol where they apply, of means that may be available to Annex I Parties to reach their emission reduction targets depend on national circumstances and the international context.

7. The AWG will continue, at its resumed fifth session and at the first part of its sixth session, its work on the analysis of means that may be available to Annex I Parties to reach their emission reduction targets and on ways to enhance their effectiveness and their contribution to sustainable development. Work undertaken on these issues by the AWG will require the participation of experts and should take into account relevant results achieved and work under way in other bodies and processes under the Convention, especially its Kyoto Protocol. The AWG agreed to consider, with due attention to improving the environmental integrity of the Kyoto Protocol, in particular:

(a) Possible improvements to emissions trading and the project-based mechanisms under the Kyoto Protocol on their scope, effectiveness, efficiency, accessibility, contribution to sustainable development, capacity to generate co-benefits and the transfer of technology;

(b) How to address, where applicable, the definitions, modalities, rules and guidelines for the treatment of LULUCF in the second commitment period;

(c) How approaches targeting sectoral emissions could be used by Annex I Parties as a means to reach their emission reduction targets;

(d) Possible broadening of the coverage of GHGs, sectors and source categories and its implications, based on sound science;

(e) How approaches to limit or reduce emissions of GHGs not controlled by the Montreal Protocol from aviation and marine bunker fuels could be used by Annex I Parties as a means to reach their emission reduction targets, taking into account Article 2, paragraph 2, of the Kyoto Protocol.

8. In the context of its ongoing work, the AWG will also consider the implications for the carbon market, in particular the supply and demand for tradable units under the Kyoto Protocol, resulting from changes to the means that may be available to Annex I Parties to reach their emission reduction targets.

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附件三

特設工作組研討會
（議程與簡報）

AWG In-Session Workshop on Means to Reach Emission Reduction Targets

27 March 2008

ENGLISH ONLY

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

AD HOC WORKING GROUP ON FURTHER COMMITMENTS FOR ANNEX I PARTIES UNDER THE KYOTO PROTOCOL
Fifth session
Bangkok, 31 March to 4 April 2008, and Bonn, 2–12 June 2008

In-session workshop
Means to reach emission reduction targets
1–3 April 2008

In-session workshop on means to reach emission reduction targets

Detailed preliminary schedule

Tuesday, 1 April

Opening *(10.00-10.30)*

- Objectives and expected outcomes, Mr. Harald Dovland, Chair of the AWG

Thematic session 1. Emissions trading, the clean development mechanism and joint implementation *(10.30-13.00 and 15.00-18.00)*

A. Overview: Perspectives for the Kyoto mechanisms *(10.30-12.00)*

- Introduction, Mr. Harald Dovland, Chair of the AWG
- Overview presentations
  - Mr. Andrew Howard, UNFCCC secretariat
  - Mr. Dennis Tirpak, Coordinating Lead Author, contribution of Working Group III to the IPCC's Fourth Assessment Report
  - Mr. Henry Derwent, IETA
- Discussion

B. Emissions trading *(12.00-13.00)*

- Introduction, Mr. Harald Dovland, Chair of the AWG
- Presentations on Parties' experiences (up to 2 presentations)
- Discussion

C. The clean development mechanism and joint implementation (15.00-18.00)

- Introduction, Mr. Harald Dovland, Chair of the AWG
- Overview presentations
  - Mr. Georg Borsting, Chair of the Joint Implementation Supervisory Committee
  - Mr. Rajesh Sethi, Chair of the CDM Executive Board
  - Mr. Martin Krause, UNDP
- Views by Parties *(up to 6 presentations)*
- Discussion

Wednesday, 2 April

Thematic session 2. Land use, land-use change and forestry *(10.00-13.00 and 15.00-16.30)*

- Introduction, Mr. Mama Konate, Vice-Chair of the AWG
- Overview presentations
  - Ms. Maria José Sanz, UNFCCC secretariat
  - Mr. Peter Holmgren, FAO
  - Mr. Jim Penman, Coordinating Lead Author, 2006 IPCC Guidelines for National Greenhouse Gas Inventories
- Views by Parties *(up to 6 presentations)*
- Discussion

Thematic session 3. Possible approaches targeting sectoral emissions *(16.30-18.00)*

- Introduction, Mr. Harald Dovland, Chair of the AWG
- Overview presentations
  - Mr. Richard Baron, IEA
  - Mr. Jake Schmidt, CCAP
  - Ms. Jane Hupe, ICAO
  - Mr. Andrei Marcu, WBCSD
- Discussion

Thursday, 3 April

Thematic session 4. Greenhouse gases, sectors and source categories ***(10.00-12.30)***

- Introduction, Mr. Mama Konate, Vice-Chair of the AWG

- Overview presentations
  - Ms. Katia Simeonova, UNFCCC secretariat
  - Ms. Thelma Krug, co-chair, IPCC task force on national greenhouse inventories
  - Ms. Jane Hupe, ICAO

- Views from Parties *(up to 3 presentations)*

- Discussion

Closing, Mr. Harald Dovland, Chair of the AWG ***(12.30-13.00)***

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Non-paper

SUMMARY REPORT BY THE CO-CHAIRS OF THE IN-SESSION THEMATIC WORKSHOP

I. Introduction

1. At its resumed fourth session, the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG) requested the secretariat, under the guidance of the Chair of the AWG, to organize an in-session thematic workshop on the analysis of means that may be available to Annex I Parties to reach their emission reduction targets and the identification of ways to enhance the effectiveness of these means and their contribution to sustainable development.[1]

2. The workshop was held in Bangkok, Thailand, from 1 to 3 April 2008, during the first part of the fifth session of the AWG, and was co-chaired by Mr. Harald Dovland, Chair of the AWG, and Mr. Mama Konate, Vice-Chair.

3. The aim of the workshop was to provide an opportunity for informal discussions on each of the possible means that may be available to Annex I Parties to reach their emission reduction targets, as identified by the AWG at its second session,[2] and in particular to identify issues that the AWG may need to address under each of the means and start the identification of options to address these issues.

4. The workshop was open to all Parties and observers. It was divided into four segments, in line with the means specified by the AWG at its fourth session, as follows:

(a) Emissions trading and the project-based mechanisms under the Kyoto Protocol;

(b) The rules to guide the treatment of land use, land-use change and forestry (LULUCF);

(c) Possible approaches targeting sectoral emissions;

(d) Greenhouse gases (GHGs), sectors and source categories to be covered.

5. At the opening of the workshop, the Chair invited participants to consider three questions:

(a) Will each of the means continue to be applied after the first commitment period?

(b) Are changes to the rules for each of the means needed, either for legal reasons or to enhance their effectiveness and contribution to sustainable development?

(c) What specific changes are proposed?

6. Each segment was organized in the same manner. The secretariat reminded participants of the provisions of the Kyoto Protocol and decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol which are relevant to the topics addressed by the segment. This was followed by presentations by experts and further presentations by several Parties on their views on and experiences with the means. This in turn was followed by a focused discussion aimed at identifying ways to enhance the effectiveness of the means and their contribution to sustainable development.

7. At the closing of the workshop, the Chair provided a summary of main points discussed during the workshop.

[1] FCCC/KP/AWG/2007/5, paragraph 19 (b) (i).
[2] FCCC/KP/AWG/2006/4.

II. Summary of discussions

A. Emissions trading and the project-based mechanisms

1. Structure of the segment

8. The segment on emissions trading and project-based mechanisms was split into three parts. The first part focused on an overview of the role of market-based mechanisms in helping Annex I Parties to reach their emission commitments. The second part provided an opportunity to address emissions trading specifically, and the third part focused on the project-based mechanisms, namely the clean development mechanism (CDM) and joint implementation (JI).

9. In order to provide input to the discussion in each part, the Chair and Vice-Chair had invited experts to address the segment (see table 1). In addition, the following Parties were invited to present their views on and experiences with the CDM and JI during the third part of the segment: China, the European Community (EC), Japan, Tuvalu, Ukraine and the United Republic of Tanzania.

Table 1. Experts invited to address the first segment
Overview
Mr. Dennis Tirpak, Intergovernmental Panel on Climate Change (IPCC), coordinating lead author, Fourth Assessment Report of the IPCC
Mr. Henry Derwent, International Emissions Trading Association
Emissions trading
Mr. Artur Runge Metzger, European Commission
Mr. Mark Storey, New Zealand
Project-based mechanisms
Mr. Rajesh Kumar Sethi, Chair of the Executive Board of the clean development mechanism
Mr. Georg Borsting, Chair of the Joint Implementation Supervisory Committee
Mr. Martin Krause, United Nations Development Programme

2. Continuation of means after the first commitment period

10. There was broad consensus among participants that all three market mechanisms under the Kyoto Protocol should continue to be means available to Annex I Parties to reach their emission reduction targets. It was noted that this support sends a positive signal to the market that Parties wish to ensure the continuity of the Kyoto mechanisms in the future.

11. There was also support among participants for further expanding the reach of these mechanisms and moving towards a global carbon market with a single market price for carbon. It was noted that such expansion may be achieved through increasing the range of technologies, sectors and gases covered by market-based mechanisms and enhancing the participation of Parties in such measures. Many participants noted the essential role of carbon prices in engaging the private sector, driving long-term investment decisions and determining the degree of mitigation that may be achieved.

12. It was pointed out during the discussions that it is necessary to implement other measures to complement market-based approaches. Examples mentioned were measures to make higher-cost technologies more economic, provide for technology cooperation and sufficient financial and investment flows, and cover emissions sources not included in market-based approaches. Participants recalled that the use of market-based approaches needs to be supplemental to domestic action in meeting Annex I Parties' emission reduction targets.

13. Participants also stressed the importance of stringency in setting emission reduction obligations as the primary factor in ensuring that market prices remain sufficiently high to drive mitigation action. Some participants raised a concern that the high potential for offsets through project-based mechanisms could, depending on the stringency of obligations, result in carbon prices being too low to bring about sufficient mitigation.

3. Issues identified in relation to emissions trading

14. Participants emphasized that the development of a global carbon market requires further linking of market-based measures across Parties and the inclusion of credits from the project-based mechanisms. There may be a need for further guidance to provide for such linking and encourage the necessary commonality between nationally implemented schemes, while respecting the prerogative of Parties to align aspects of market-based measures with their own national circumstances.

15. A number of participants stated that emissions trading markets need to be more transparent in a number of aspects. In particular, robust emissions and market data are required in order to allocate emissions allowances appropriately and help ensure an adequate level of stringency in emission reduction obligations. It is also important to ensure that credible monitoring, verification and reporting arrangements are in place and that the transparency of transaction information is improved.

16. The need to ensure that rules do not unduly hinder the flexibility and effectiveness of market-based measures was also noted by participants. In this context, there may be a need to review the range of unit types established, the levels set for the commitment period reserve and the limits set on the carry-over of units into subsequent commitment periods.

17. Several participants noted the usefulness of considering whether emissions trading may be used as a source of finance to support action on mitigation and adaptation. Such finance may be raised, for example, through the auctioning of allowances. Issues may need to be explored in relation to the manner of raising and managing such finance, the recipients of the finance and the manner of its distribution.

4. Issues identified in relation to project-based mechanisms

18. Many participants at the workshop highlighted the importance of ensuring the environmental integrity of project activities under the CDM. In this context, there may be a need to consider new approaches for ensuring the additionality of CDM project activities, including opportunities for greater use of approaches involving benchmarks and standardized, multiple-project baselines.

19. Similarly, participants highlighted the importance of ensuring the efficient functioning of the CDM in order to realize opportunities for cost-effective mitigation and promote access to the CDM by non-Annex I Parties. There may be a need to consider a number of issues, including:

(a) Potential for simplifying the modalities and procedures for the CDM while maintaining its environmental integrity;

(b) Possible enhancements in the supervisory role and efficiency of the Executive Board of the CDM, including in relation to its procedures and its support by the secretariat;

(c) The role of designated operational entities under the CDM;

(d) The inclusion of new activities within the CDM, in particular other LULUCF activities;

(e) New approaches for eligible LULUCF activities under the CDM;

(f) Further measures to enhance the contribution of the CDM to sustainable development.

20. The issue of equitable regional distribution of the CDM was raised by many participants, who urged that the distribution of projects be improved, in particular in relation to least developed countries and countries in Africa. They noted that there may be a need to consider a number of issues, including:

(a) Potential for enhanced capacity-building and enabling environments;

(b) Potential for differentiation in the treatment of Parties under the CDM;

(c) The removal of barriers to the CDM in order to promote the undertaking of projects.

21. While most of the experience with project-based mechanisms so far has been gained through the CDM, participants also noted that enhancements may be applied to JI, in particular with regard to the role and efficiency of the Joint Implementation Supervisory Committee and the operation of the verification procedure that it supervises.

5. Issues identified in relation to new approaches to market-based measures

22. Noting that the existing market-based mechanisms may not be sufficient to fully utilize the potential contribution of the carbon market in tackling the challenge of climate change, participants proposed several new approaches to market-based mechanisms. These included greater use of national or sectoral programmes and 'no-lose' sectoral crediting mechanisms.

B. Land use, land-use change and forestry

1. Structure of the segment

23. In order to provide input to the discussion, the Chair and Vice-Chair of the AWG had invited experts to address the segment (see table 2). In addition, the following Parties were invited to present their views on and experiences with the implementation of the rules for LULUCF: Australia, Brazil, Canada, the EC, Japan, New Zealand and Tuvalu.

Table 2: Experts invited to address the second segment
Mr. Peter Holmgren, Food and Agriculture Organization of the United Nations
Mr. Jim Penman, author, *2006 IPCC Guidelines for National Greenhouse Gas Inventories*

2. Continuation of means after the first commitment period

24. In recognition of the importance of the LULUCF sector to climate change, there was broad consensus for continuing LULUCF activities after the first commitment period as a means available to Annex I Parties to reach their emission reduction targets. Participants considered that it is important to ensure the continuity of these activities and consistency with current rules applying to this sector.

25. Participants also stressed the importance of ensuring the environmental integrity of the Kyoto Protocol when considering any modifications to the current rules for LULUCF. They stressed the importance of the principles adopted in decision 16/CMP.1, with some stating that the most important underlying principle is that only direct anthropogenic removals or emissions should be accounted for.

3. Issues identified in relation to land use, land-use change and forestry

26. Most participants emphasized that simpler and more transparent rules would be easier to implement in subsequent commitment periods, and that clearer recognition of national circumstances would provide ways for Parties to achieve a more effective implementation of LULUCF provisions.

27. The concern was raised by some participants that the current rules and modalities do not provide incentives to realize the full mitigation potential of the sector. They expressed a preference for a more holistic approach that encompasses full land coverage and incorporates emissions and removals from

activities and pools that are not included under the current rules. In this regard, combining agriculture and LULUCF in a single sector would facilitate the development of more effective national policies.

28. Many participants stressed that sustainable forest management and forest services should be promoted as a way to ensure the long-term effectiveness of actions taken in the LULUCF sector.

29. It was argued by some participants that only minimum modifications to the current rules should be considered. It was generally felt that the implications of the inclusion of new activities and new pools, such as harvested wood products, need to be carefully considered.

30. As in the first segment of this workshop, there was support for expanding the scope of CDM project activities after the first commitment period to include other LULUCF activities.

31. Several participants suggested that, owing to the complexity and technical character of the issues raised, further discussions on LULUCF should be supported by work undertaken by experts.

C. Greenhouse gases, sectors and source categories to be covered

1. Structure of the segment

32. In order to provide input to the discussion, the Chair and Vice-Chair of the AWG had invited experts to address the segment (see table 3). In addition, the EC and Norway were invited to present their views on and experiences on the topic.

Table 3: Experts invited to address the third segment
Ms. Thelma Krug, Co-Chair, IPCC Task Force on National Greenhouse Gas Inventories
Ms. Jane Hupe, International Civil Aviation Organization

2. Continuation of means after the first commitment period

33. There was consensus among participants that the current treatment of GHGs, sectors and sources in the context of further commitments should continue, without introducing any major changes. They generally considered that the IPCC guidelines for national GHG inventories, as applied by Parties under the Kyoto Protocol, provide a solid basis for the assessment of emissions by sources and removals by sinks and that their use should be continued.

3. Issues identified in relation to greenhouse gases, sectors and source categories

34. Drawing attention to the fact that aviation and marine bunker fuels are among the fastest growing emission sectors, participants recognized the significance of these emissions and the need for Parties to continue efforts to limit or reduce them in the future. However, there were different views on how these emissions should be included under further commitments and on how the roles of the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) in addressing these emissions should evolve.

35. Participants proposed several approaches for addressing GHG emissions from aviation and marine bunker fuels in the context of further commitments. These included setting a global goal under the UNFCCC for these emissions; implementing country-based approaches that include emissions from bunker fuels in national emission totals; and implementing sectoral approaches.

36. Participants recognized that a range of policy instruments, such as emissions trading and carbon charges, may be implemented within such approaches. A number of participants supported the use of a share of any revenues arising from such instruments to further reduce emissions from aviation and marine bunker fuels or to support the implementation of adaptation measures in developing countries.

37. Several participants emphasized the need for enhanced cooperation between the UNFCCC and ICAO and IMO in order to identify and implement effective ways of limiting and reducing GHG emissions from aviation and marine bunker fuels.

38. Some participants also emphasized the need to consider national circumstances and the concerns of countries highly reliant on international transport when addressing emissions from international aviation and marine bunker fuels. They further noted the need to consider other issues such as potential impacts on competitiveness and international trade; ways to address aviation and marine bunker fuel emissions in a non-discriminatory manner; and possible differences in the treatment of aviation and maritime bunker fuels.

39. Different views were expressed by participants on the possibility of extending Annex A to the Kyoto Protocol by including additional gases for which the IPCC provides assessment methodologies. Participants drew attention to the fact that the inclusion of additional gases is linked to the subject of global warming potentials, which is to be considered by the AWG at its resumed fifth session.

40. Regarding the potential inclusion of the LULUCF sector, participants argued that the link between this sector and agriculture should be carefully examined. Some participants stated that possible implications for the emission reduction targets of Annex I Parties would need to be considered if LULUCF activities were to be included in Annex A to the Kyoto Protocol under further commitments.

D. Possible approaches targeting sectoral emissions

1. Structure of the segment

41. The Chair opened this segment by stressing that approaches targeting sectoral emissions differ from the other means to reach emission reduction targets in that such approaches are not currently included under the Kyoto Protocol. The Chair therefore noted the need for a broad discussion that clarifies the various types of sectoral approaches and considers what role they may play as means to reach emission reduction targets.

42. In order to provide input to the discussion, the Chair and Vice-Chair of the AWG had invited experts to address the segment (see table 4).

Table 4: Experts invited to address the fourth segment
Mr. Richard Baron, International Energy Agency
Mr. Jake Schmidt, Center for Clean Air Policy
Ms. Jane Hupe, International Civil Aviation Organization
Mr. Brian Flannery, International Chamber of Commerce

2. Issues identified in relation to approaches targeting sectoral emissions

43. The invited experts noted that several sectoral initiatives and voluntary agreements are already in place, for example, those implemented by the International Aluminium Institute, the International Iron and Steel Institute, the Cement Sustainability Initiative within the World Business Council for Sustainable Development, and ICAO.

44. Participants considered that approaches targeting sectoral emissions should complement national emission reduction targets for Annex I Parties but not replace them.

45. Discussions during this segment highlighted the following approaches targeting sectoral emissions:

(a) Sectoral technology cooperation through the sharing of information and transfer of technology and best practices;

(b) Voluntary or mandatory sectoral actions defined in quantitative terms (e.g. standards) or qualitative terms (e.g. adoption of best practices);

(c) Crediting of sector-specific actions in developing countries, including through 'sectoral CDM', as a means available to Annex I Parties to reach their emission reduction targets;

(d) Separate accounting of sectors outside national emissions totals.

46. Participants identified several issues to be addressed when further considering approaches targeting sectoral emissions, including: the definition of the sectors themselves; the need for flexibility and to take account of national circumstances such as national policies, the national energy base and the availability of natural resources; linkages across sectors; and the need for robust methodologies and sufficient data, in particular on mitigation potentials at the sectoral level.

47. Participants also referred to potential advantages of applying such approaches; for example, such approaches can effectively deliver mitigation benefits, have the potential to mobilize technology development and transfer in specific sectors, provide frameworks for financing, and could simplify some of the complexities associated with project-based cooperation.

48. Finally, referring to the cross-cutting nature of sectoral approaches, some participants noted the need for a broader consideration of this issue by the Ad Hoc Working Group on Long-term Cooperative Action under the Convention. Other participants suggested that the AWG may nevertheless need to look at specific aspects of such approaches.

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AWG In-session workshop on means to reach emission reduction targets

Bangkok, 1-3 April 2008

The Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol, at its resumed fourth session, requested the secretariat to organize, under the guidance of the Chair of the AWG, an in-session thematic workshop on the means that may be available to Annex I Parties to reach their emission reduction targets.

Related documents

Provisions of the Kyoto Protocol and decisions by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol relating to the means to reach emission reduction targets of Annex I Parties

Information note (124 kB)

Detailed schedule (125 kB)

Summary Report (124 kB)

Presentations

Thematic session 1: Emission trading, the clean development mechanism and joint implementation	
Presentation by Andrew Howard - UNFCCC	Overview
Presentation by Dennis Tirpak - IPCC Lead Author	Overview
Presentation by Henry Derwent - IETA (413 kB)	Overview
Presentation by Artur Runge Metzger - European Commission	Trading
Presentation by Rajesh Kumar Sethi - CDM EB Chair	CDM/JI
Presentation by Georg Borsting - JISC Chair	CDM/JI
Presentation by Martin Krause -UNDP	CDM/JI
Presentation by China	CDM/JI
Presentation by Japan	CDM/JI
Presentation by Tanzania	CDM/JI
Presentation by Ukraine	CDM/JI
Presentation by the EU	CDM/JI
Presentation by the New Zealand (459 kB)	CDM/JI
Presentation by Tuvalu	CDM/JI
Thematic session 2: Land use, land-use change and forestry	
Presentation by Maria José Sanz - UNFCCC secretariat	LULUCF

Further information

more

Presentation by Peter Holmgren - FAO (3556 kB)	LULUCF
Presentation by Jim Penman - IPCC Expert	LULUCF
Presentation by Japan	LULUCF
Presentation by the EU	LULUCF
Presentation by New Zealand (1034 kB)	LULUCF
Presentation by Canada	LULUCF
Presentation by Australia	LULUCF
Presentation by Tuvalu	LULUCF
Presentation by Brazil	LULUCF
Thematic session 3: Possible approaches targeting sectoral emissions	
Richard Baron, International Energy Agency -IEA	Sectoral
Jake Schmidt, Center for Clean Air Policy - CCAP	Sectoral
Jane Hupe, International Civil Aviation Organization - ICAO	Sectoral
Brian Flannery, International Chamber of Commerce - ICC	Sectoral
Thematic session 4: Greenhouse gases, sectors and source categories	
International Maritime Organization	Information on the work on greenhouse gas emissions from ships being carried out by the IMO (121 kB)
Katia Simeonova - UNFCCC secretariat	GHG
Thelma Krug, Intergovernmental Panel on Climate Change - IPPC	GHG
Jane Hupe, International Civil Aviation Organization - ICAO	GHG
Presentation by Norway	GHG
Presentation by the EU	GHG

Emissions trading and project-based mechanisms

1-3 April 2008
Bangkok, Thailand

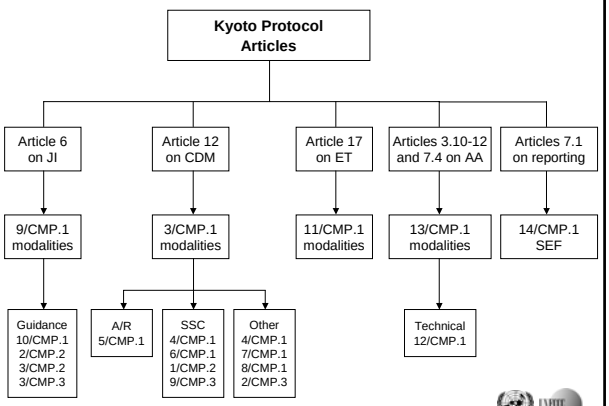
AWG-KP 5

Andrew Howard
Climate Change Secretariat

In-session workshop on means to reach emission reduction targets

Overview

- Main Kyoto Protocol and CMP decisions
  - relating to emissions trading and project-based mechanisms
  - based on document FCCC/KP/AWG/2008/INF.1
- Status of mechanisms implementation for the first commitment period



General mechanisms provisions

Kyoto unit definitions	3/CMP.1 5/CMP.1 9/CMP.1 11/CMP.1 13/CMP.1
Annex B Party eligibility for participation	2/CMP.1 3/CMP.1 9/CMP.1 11/CMP.1
Supplementarity to domestic action	2/CMP.1

Assigned amount accounting

Assigned amount modalities • Calculation and recording • Additions and subtractions • Transaction modalities (including limits) • Basis for the compliance assessment • Carry-over to the next commitment period	Articles 3.10-12 Article 7.4 13/CMP.1
Technical systems • Transaction procedures • Registries and the international transaction log	13/CMP.1 12/CMP.1
Reporting and compliance • Standard electronic format for reporting on Kyoto units • Compilation and accounting of emissions and assigned amounts	13/CMP.1 14/CMP.1

Emissions trading under Article 17

Involvement of legal entities	11/CMP.1
Commitment period reserve	11/CMP.1

CDM under Article 12

Institutions • Executive Board • Operational entities and their accreditation • EB rules of procedure	3/CMP.1 4/CMP.1
Procedures • Project cycle • Baselines and monitoring methodologies • CDM registry provisions • Review procedures	3/CMP.1 4/CMP.1
Small-scale projects • Definition of small-scale projects • Simplified project cycle • Simplified baseline and monitoring methodologies	4/CMP.1 1/CMP.2
Definitions and guidance for HCFC-22 projects	8/CMP.1

7

CDM afforestation and reforestation

Additional procedures • Additional A/R related definitions • Project cycle provisions • Participation requirements • Baselines and monitoring methodologies	5/CMP.1
Non-permanence provisions • Temporary CERs, long-term CERs • Expiry and replacement of tCERs and lCERs	5/CMP.1
Small-scale A/R projects • Definition of small-scale projects • Simplified project cycle • Simplified baseline and monitoring methodologies	6/CMP.1 9/CMP.3

8

JI under Article 6

Institutions • JI Supervisory Committee • Independent entities and their accreditation • JISC rules of procedure	9/CMP.1 2/CMP.2
Procedures • Project cycle • Participation requirements • Baselines and monitoring criteria • Role of CDM operational entities and methodologies	9/CMP.1 10/CMP.1
Definition of small-scale projects	3/CMP.2

9

Status of mechanisms implementation

- CDM and JI are operational
  - CDM-EB, JISC and secretariat support well established
  - Parties generally well advanced on DNAs, DFPs and procedures
- Technical systems in place
  - almost all Annex I Party national registries in place
  - Kyoto's international transaction log operational with CDM registry and Japan, New Zealand, Russia and Switzerland
- 6 Annex I Parties now eligible to participate in the Kyoto mechanisms; most others to follow by end-April 2008
- Recent weeks saw first Article 17 transfers of Kyoto units
- Considerable experience with national trading schemes

10

The Carbon Market

IPCC Working Group III Chapter 13 - Policies, Instruments and Co-operative Arrangements

Dennis Tirpak

World Resources Institute
International Institute for Sustainable Development

April 1, 2008

IPCC

Purpose of this Talk

- Review Information in the AR4 relating to the carbon market
- Describe Where we are Today

IPCC

Policies that provide a real or implicit price of carbon can create incentives for producers and consumers to invest in low-GHG products, technologies and processes

- Such policies could include economic instruments, government funding and regulation
- Carbon prices between 20-80 US$/tCO2 by 2030 and 30-155 US$/tCO2 by 2050 are consistent with stabilization at 550 ppm CO2-eq2 by 2100
- Studies that take into consideration induced technological change get lower prices: 5-65 US$/tCO2 by 2030 and 15-130 US$/tCO2 by 2050

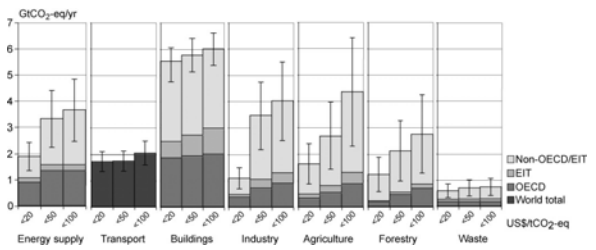
IPCC

Other Main messages…

- Improving, and expanding the scope of, market mechanisms (such as emission trading, Joint Implementation and CDM) could reduce overall mitigation costs
- The lower the stabilization levels (550 ppm CO2-eq or lower) the greater the need for R&D efforts and investment in new technologies during the next few decades

IPCC

An effective carbon-price signal could realise significant mitigation potential in all sectors



Note: estimates do not include non-technical options, such as lifestyle changes.

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There are a wide variety of national policies and instruments available to governments to create incentives for action

- Taxes and Charges
- Regulations and Standards
- Tradeable Permits
- Financial Incentives
- Voluntary Agreements
- Information Instruments
- Research and Development
- Non-Climate Policies

There applicability depends on national circumstances. All instruments can be designed well or poorly and to be stringent or lax. All must be monitored and enforced to be effective.

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Criteria for Evaluating National Policies and International Agreements include...

- **Environmental Effectiveness**
  - Needs to actually achieve meaningful reductions of GHG emissions
- **Cost Effectiveness**
  - Needs to achieve environmental and distributional goals at the lowest possible cost
- **Distributional effects**
  - Needs to be fair (equity and competitiveness) to be politically acceptable
- **Administrative Feasibility**
  - Needs to be easy to administer and with minimum legal constraints

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Emission Trading Systems are a main Means of creating a Carbon Market

- Firms are issued emission permits which may be bought or sold across firms to reach an emission target – Environmental effectiveness is determined by the volume of permits
- Advantages
  - Highly likely to achieve emission reductions
  - Can be more politically palatable than taxes
  - Provides flexibility to firms to seek out low cost options
- Disadvantages
  - Price volatility and price uncertainty
- Example
  - EU Emission Trading System, Switzerland

IPCC

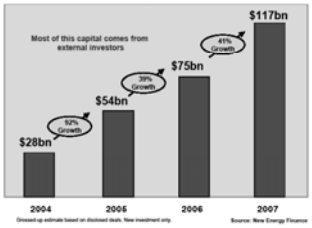
The Main Design Features Which Need to be Considered in Developing an Emission Trading System

- Level of stringency
- Coverage
- Offsets
- Cap-and-trade versus rate-based trading
- Method of Allocation
- Cost control measures
- Interactions with other policies and measures

IPCC

However, the carbon market needs to be supplemented with a package of other policies when producers and consumers do not respond to market signals...for example

Global Investment in Sustainable Energy



Investment has taken off since 2004

…increased substantially due mainly to regulations and financial incentives in a few countries…a carbon price could do the same over a longer time period

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Examples of Regulations and Financial Incentives responsible for the growth in investments for renewables

Regulations	Financial Incentives
• Renewable Performance Standards • Performance standards for new facilities • Green power purchasing requirements • Interconnection standards • Net metering rules • Generation disclosure rules • Contractor licensing • Equipment certification • (Solar) access laws/guidelines/zoning codes/building permits	• Feed in tariffs • Rebates • Grant programmes • Loan programmes • Bonds • Production incentives • Government purchasing programmes • Equity investments, including venture capital • Insurance programmes

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Where Is the Carbon Market Today?

IPCC

The 2007 Market Grew from €23 B in 2006 ≈1.6 GtCO2e

- Total Value €40 billion (≈2.7 GtCO2e)
- EUAs transactions ..€28 billion (1,600e)
- CDM & JI: €12 billion
  - CDM: 947 MtCO2e
  - JI: 150 MtCO2e

Source: Point Carbon

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ET Systems - Announced and/or Under Development Could Affect the Future Market

- Australia
- New Zealand
- Canada
- Japan (under study)
- United States
  - **Western Climate Initiative (7 States/2 Provinces)**
  - **Regional Greenhouse Gas Initiative (10 States)**
  - **Midwest Governors Association (6 States/1Province)**

  50 % US GHG emissions
  - **Federal legislation under development**

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What might the UNFCCC do to expand the market and make it more efficient and what should be left to national governments?

- UNFCCC
  - Promote continuity
  - Stringency
  - Rules/guidelines
  - Offsets
  - Encourage the linking of registries
- National Governments
  - Coverage
  - Allocation
  - Rules/guidelines
  - Interaction with other policies
  - Price control measures

In some cases there may not be a simple dividing line

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Summary

- A market-based mechanism can draw significant amounts of capital, both public and private, to the problem of climate change and to some extent transfer climate-friendly technology to developing countries.
- Preliminary analysis of the EU ETS suggests that the system has reduced emissions below what they might have been otherwise by 2.5-5 percent (Buchner and Ellerman – forthcoming)
- Significant lessons have been learned regarding emission trading systems and regulatory infrastructure, e.g., the need for good emission data
- These lessons can provide a roadmap for improving the CDM and expanding the carbon market to include new market participants and regulatory regimes.
- However, market continuity is also a significant issue if projects cannot recover payments for carbon credits beyond 2012.

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Acknowledgements

- Convening Lead Authors (CLA):
  - Sujata Gupta (India) and Dennis Tirpak (USA)
- Lead Authors (LA):
  - Nicholas Burger (USA), Joyeeta Gupta (Netherlands), Niklas Hohne (Germany), Antonina Boncheva (Mexico), Gorashi Kanoan (Sudan), Charles Kolstad (USA), Joseph Kruger (USA), Axel Michaelowa (Germany), Shinya Murase (Japan), Jonathan Pershing (USA), Tatsuyoshi Saijo (Japan), Agus Sari (Indonesia)
- Review Editors
  - Eric Haites (Canada) and Ramon Pichs (Cuba)

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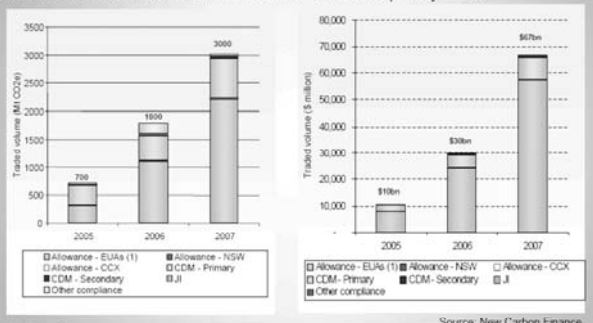
Update on the Carbon Market and Business Perspective on the Kyoto Mechanisms

5th session of AWG
1 April 2008
Bangkok

Henry Derwent IETA

Update on Carbon Market Activities
Total World Volumes

World volume in 2007 = 3bntCO2. 66% of this is EUA, 31% is primary CERs.



Source: New Carbon Finance

2008-2020: Forecasting a Global Carbon Market (not to scale!)

Participants' views on effectiveness of the Carbon Market

- 50% of surveyed market participants find the Carbon Market and effective instrument in reducing emissions and helping to address climate change
- 75% of surveyed EU ETS participants say that the price of carbon is a relevant parameter in investment decisions

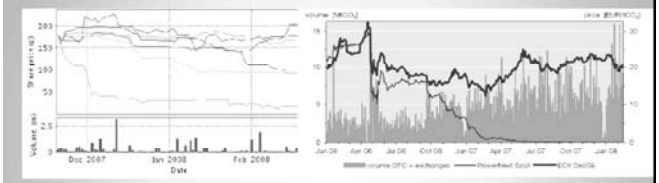
Source: 2nd IETA GHG Market Sentiment Survey & Point Carbon: Carbon 2008

Voluntary Market

- Relatively small market size:
  - Estimates for 2007 are that 75 Mt have been traded up from < 20 Mt in 2006
- Less transparent than regulated market
- Often seen as alternative to the CDM for very small project activities
- Around 10 different standards
- Meeting a market need?

Source: IETA & Point Carbon: Carbon 2008

Emissions Trading today: an astonishing achievement and still evolving rapidly



- multiple exchanges – Nymex entry on 17 March
- exchange trading for CERs beginning – ECX 17 March
- carbon indices introduced by Merrill Lynch and SocGen
- 2013, 2014 EUA Futures and EUA/AAU swaps being offered by ECX

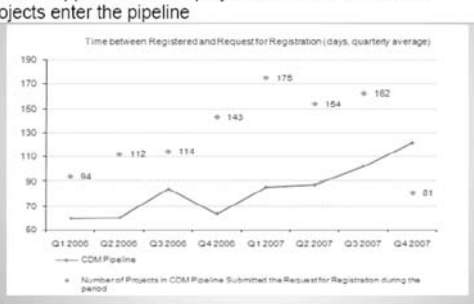
But continuing concerns over the Project-based Mechanisms

Lack of effectiveness due to:

- Work overload: increasing number of registration/issuance requests and reviews, which lead to delays in the registration and issuance process
- Integrity of CDM – balance between environmental integrity and scale
- Additionality: strong focus on financial additionality
- Transparency and communication between CDM EB and Project Proponents
- Lack of Guidance to DOEs, what EB expects from them in terms of quality of their work
- Irregularities regarding the responsibilities of the various bodies working under the CDM EB, in particular that of the Registration & Issuance Team and the Secretariat in relation to completeness checks

Bottleneck within the Process

- Time for approval of CDM projects increases while more projects enter the pipeline

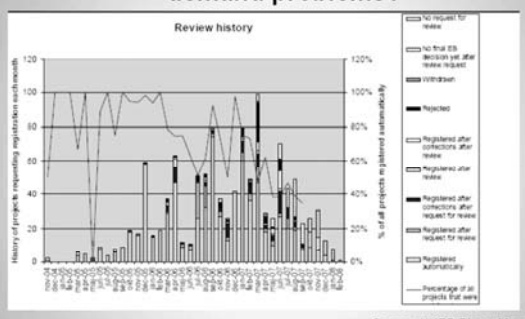


Source: UNEP Risoe

What the Private Sector Needs

- Certainty & clear guidance
- Precedent-setting – move away from learning-by-doing approach
- Additionality – flexibility to use the tool or alternative measure to demonstrate additionality, focus too much on financial additionality
- Capacity to deal with caseload – increasing number of projects entering the pipeline raises questions about sustainability of project-based registration approach instead of benchmark or programme approaches
- Review of the CDM – increasing commoditisation demands evaluation by external consultant of business model for CDM approval

CDMs beginning to fall away: supply or demand problems?



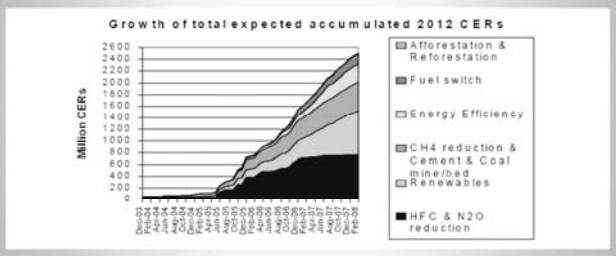
Source: UNEP Risoe, March 2008

Danger Signs: Negative Perceptions of the CDM

- Deadweight: WWF report — *Is the CDM fulfilling its environmental and sustainable development objectives?* — suggests that 20% of emission reductions certified under the mechanism may have happened even without CDM financing.
- Attacks on project types: "The CDM is blindly subsidizing the destruction of rivers, while the dams it supports are helping destroy the environmental integrity of the CDM," (Barbara Haya, International Rivers)
- Bad press in North America influencing scheme design: the "Corrupt Development Mechanism " or the "China Development Mechanism" : forthcoming Stanford reports

Source: WWF, International Rivers

Development of scheme types: nothing to be ashamed of



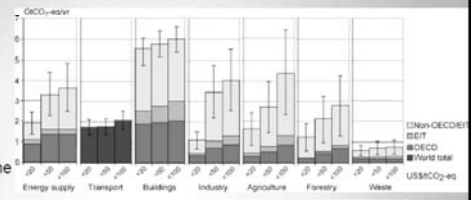
Source: UNEP Risoe, March 2008

Environmental integrity – private sector perspective

- Don't forget DOEs pre-filter projects
  - At a rejection rate of 12% of all projects in the pipeline, compared to 2% rejected by the Board
- Don't expect the private sector to enforce environmental integrity: rather to find the maximum emission reduction within rules and guidelines set by public sector
- Need for clear guidelines, e.g. on eligibility of large hydro projects
- Uncertainty about scope may offer extra profit for large risk appetites, but is no way to maximise either investment or emission reduction

The Common-Sense Economics of including international mechanisms or offsets

- the opportunities are there
- the impact is the same
- the prices are lower
- so the cost is lower
- the market appears to work



For more information:

International Emissions Trading Association

www.ieta.org

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Carbon Expo 2008
May 7 - 9
Cologne

Slovenian Presidency of the EU 2008

The EU Emissions Trading System (ETS)

Rationale and Lessons learnt

Artur Runge-Metzger
Head of International Climate Negotiations,
European Commission

In-session workshop on means to reach emission reduction targets,
AWG 5.1, Bangkok, 1-3 April 2008

Building a global carbon market

- The carbon market: cost-effective and flexible mitigation tool **and** source of finance for low-GHG technology development
- EU's aim: progressive development towards global carbon market
- Countries take part according to responsibilities and capabilities
- Backed by ambitious mitigation commitments in line with 2 degree objective
- Build on existing mechanisms, link schemes and develop new mechanisms

2

Role of domestic emissions trading systems

- Directly engage private sector
- The EU has gained experience in setting up the world's largest company-based emissions trading scheme EU ETS
- Linking emissions trading schemes across the world could help build the global carbon market
- Key = creating scarcity of tradable units
- Other key requirements: transparency, liquidity, long-term predictability and integrity (monitoring, verification and compliance)

3

Why EU ETS?

- Market-based instrument which allows for most cost-effective and targeted environmental policy-no market intervention!
- EU ETS is driver for carbon market: valued at around €40 billion globally (EU ETS: €28 billion) in 2007
- Cornerstone of Europe's strategy to implement Kyoto Protocol - major structural element for the post-2012 climate strategy
- EU ETS will contribute to reaching more than 40% of the EU15's Kyoto commitment 2008-2012 (i.e. 3.4%pts of -8% below 1990)!

4

Staged introduction of the EU ETS

- 1st trading period
  - Designed as a learning by doing phase
  - Successful set up of necessary infrastructure
  - Growing trade of allowances across Europe
  - Thanks to experience gathered in 1st trading period, companies and authorities are much better prepared
- 2nd trading period
  - Commission assessment of allocation plans ensured stringent cap and equal treatment of Member States
  - On the basis of all plans, the approved cap is 6.5% below the 2005 verified emissions for the ETS sector
  - The EU ETS will be successfully reducing emissions in the trading sector
- 3rd trading period aimed at reductions needed by 2020 (20-30%)

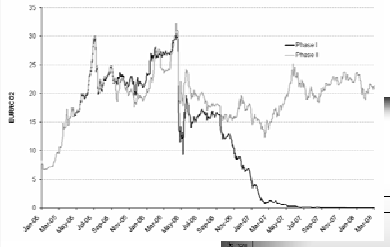
5

Lessons learnt from EU ETS

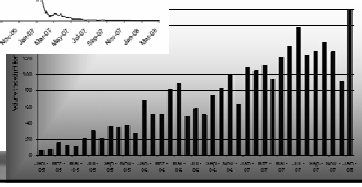
- Get stakeholders involved early when setting up ETS
- Start with short pilot phase – also to avoid locking into over-allocation
- Emissions trading needs stringent cap with scarcity – no oversupply
- Need to have robust data to start with!
- Keep emissions trading simple:
  - Need for strong regulator to ensure environmental integrity
  - Central cap setting, no more national allocation plans
  - Auction large share of allowances is fairest allocation method, ensure due auctioning process
  - Use revenues from auctioning for financing fight against climate change
  - Ensure further harmonisation of monitoring, reporting and verification,
  - Maximise transparency and legal certainty – no ex-post regulatory intervention
- Keep use of offsets (CDM/JI) in balance to drive investments in low carbon technologies at home

6

Prices and trade volume in the EU ETS



Trading volume
Jan 08:
180m €



Review of the EU ETS: enhancing financial flows

- EU Commission **proposes** auctioning as the principle allocation method and that Member States should use 20% of auctioning revenues for mitigation and adaptation, inter alia:
  - GHG reduction schemes, including GEEREF
  - Adaptation to CC impacts, including in developing countries
  - R&D for emission reduction (e.g. RE and CCS) and for adaptation
  - Measures to reduce emissions from deforestation
  - Commission analysis of the proposal estimates that revenues in the EU alone could increase to about 75bn€ annually by 2020 with 100% auctioning (at a price of 40€ per ton CO_2), even part of this is potentially a large source of funding
- Similar use envisaged for auctioning revenues from aviation under the ETS, here: 100% of revenues

8

Conclusions

- Europe has turned the concept of market-based climate policy into reality and a continent-wide carbon price signal has emerged that has a bearing on investments not only in the EU.
- The EU ETS in its current shape is the first step in an evolution to a global carbon market. The ETS provides for valuable lessons learnt – also for other schemes worldwide.
- The EU ETS will be even stronger and more effective in its current (2008-2012) and third phase (up to 2020). It can be a significant source of financial flows.
- The EU ETS is a key cornerstone of the broader EU approach to energy security, innovation, international competitiveness and its resolve to move towards a low-carbon economy.

9

Slovenian Presidency of the EU 2008

Thank you!

Clean Development Mechanism

1-3 April 2008
Bangkok, Thailand

Rajesh Kumar Sethi
Chair of the CDM Executive Board

AWG-KP 5

In-session workshop on means to reach emission reduction targets

1

Overview

How far we've come

CDM design features

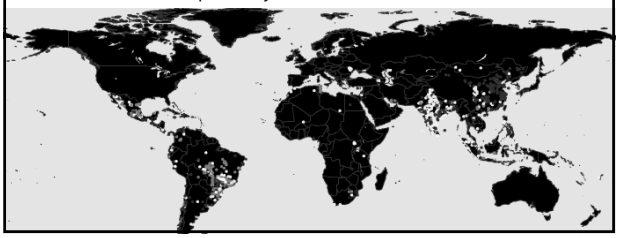
- Scope
- Governance
- Additionality
- Methodology approval

Concluding messages

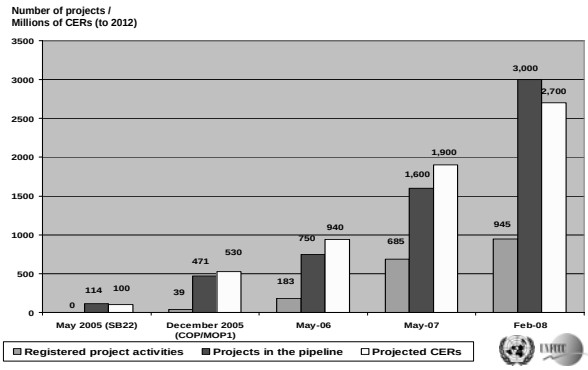
2

How far we've come | Global reach

- 2½ years of operational experience
- 945 registered projects in 49 countries
- Another 2000 projects in the pipeline
- 119 million certified emission reductions (CERs) issued
- 2.6 billion CERs expected by end of 2012



How far we've come | Growing demand



How far we've come | Investment and financial flows

Real investment to fulfill twin purposes of the CDM

- Assisting non-Annex I in achieving sustainable development and contributing to the Convention objective
- Assisting Annex I Parties in complying with their targets

- USD 25 billion in capital investment estimated for projects entering the CDM pipeline in 2006 alone
  (double the GEF-leveraged climate change investment over 10 years)

- USD 5.7 billion in capital investment expected from CDM renewable and energy efficiency projects registered in 2006
  (about triple the ODA support and equivalent to private investment in the renewable energy and energy efficiency fields in these same countries)

5

CDM design | Original challenges

- Ensuring environmental integrity
- Cost effectiveness
- Avoiding perverse incentives of seller and buyer to overstate emission reductions
- Choosing a top down or bottom-up approach
- Ensure transparency and allowing public scrutiny
- Keeping process times reasonable
- Centralized versus distributed structure

6

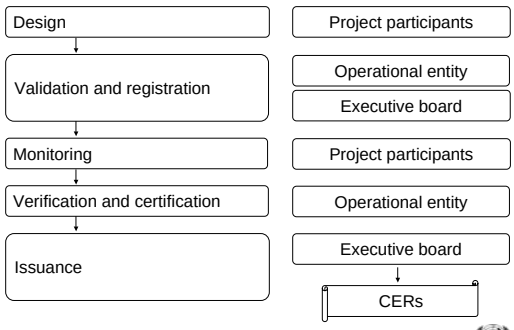
CDM design | Scope

- No positive or negative lists of allowable project types
- LULUCF activities in the CDM in the first commitment period, limited to only afforestation and reforestation
- Project participants from both Annex I and non-Annex I

- Lighter procedures for small-scale projects
- Recently increased scope by introducing programme of activities

7

CDM design | A carefully designed project cycle



8

CDM design | Governance

CDM governance balances authority and practicality

Work and responsibility is distributed
- DOEs validate projects, request registration, verify/certify emission reductions and request issuance
- DOEs decide on registration and issuance (EB review may change it)

But work occurs under central supervision of the Executive Board
- Accredits DOEs against standards
- Approves methodologies for baselines and monitoring
- Can review requests for registration of projects and issuance of CERs
- Establishes expert panels to formulate recommendations
- Supported by the secretariat

EB accountable to and guided by the CMP

9

CDM design | Additionality

Challenging exercise to define globally working standardized methods (competing views and methods) at operational level which describe a counterfactual situation in relation to a project activity

- Kyoto states that emission reductions are to be “additional” relative to a what would have happened in the absence of the project activity
- CMP provides guidance on what approaches can be taken (=subset of many choices)

To address this challenge, the process under CDM for addressing additionality as well as setting and selecting methodologies is designed to receive input by all stakeholders (project operator (orginator of proposal), public, Parties, expert panel) before EB approves

10

CDM design | Methodology approval

Top-down efficiency used to enhance bottom-up thoroughness

Bottom-up information ensured through broad inputs from
- Original proposal by project participants
- Comments from the public, private sector and Parties
- Review by expert panels set up by the Executive Board

With operational experience - facilitation from the top down
- Standardization of repeated components (“tools”) to ensure consistency and accelerate the approval process
- Expert input in areas and sectors where project participants may not be able to provide solutions (eg energy efficiency)
- Benchmarking to address additionality and baseline emissions
- Secretariat review for consistency and simplification

11

Concluding messages (I)

- CDM balances many complex and sometimes contradictory needs
  - Environmental integrity
  - Cost effectiveness/simplification
  - Distributed operational decisions
  - Consistency
  - Input/feedback loops
  - Minimization of process times
  - Transparency
- The “infant” CDM is maturing to a “junior” and is doing well
- Even in this stage, CDM is already a major force to
  - trigger private sector investment
  - finance additional emission reductions
  - provide assistance to achieving non-Annex I sustainable development

12

Concluding messages (II)

- CDM bears lessons on issues such as
  - Transparently defining an emission reduction that can be used by third party to offset an emission that otherwise would have been reduced by that third party in a way that is environmentally neutral
  - Transparently and consistently measuring and reporting effects that occur at activity level
  - Transparently verifying and accounting for effects
- When reviewing the CDM and the mechanisms, it is important to define clearly the design feature/step reviewed, the operational solution applied, to be able to compare it with other solutions.

Joint Implementation

1-3 April 2008
Bangkok, Thailand

Georg Børsting

Chair of the JI Supervisory Committee

AWG-KP 5

In-session workshop on means to reach emission reduction targets

1

Overview

Joint Implementation - JI Track 1 & Track 2

Track 2 (JISC)

- Scope
- Project cycle

Status/experiences so far

Challenges

Concluding messages

2

Joint Implementation | Basics of the mechanism

Joint implementation

- The mechanism known as "joint implementation", defined in Article 6 of the Kyoto Protocol, **allows Annex B Parties to acquire** emission reduction units (**ERUs) issued for projects implemented in other Annex B Parties that reduced emissions or enhanced removals**

Benefits

- Joint implementation offers advantages of **flexibility** and **cost efficiency** (lowest marginal cost of abatement) regarding the fulfillment of the Kyoto commitments
- The host Party may profit from **foreign investment** and **technology transfer**

3

Joint Implementation | Basics of the mechanism (II)

Additionality - projects shall provide a reduction in emissions/enhancement of removals that are additional to any that would otherwise occur

Crediting period - projects starting as of the year 2000 may be eligible as JI projects if they meet the relevant requirements, but ERUs may only be issued for a crediting period starting after the beginning of the year 2008. The status of emission reductions /enhancement of removals by JI projects after the end of the first commitment period may be determined by any relevant agreement under the UNFCCC.

Track 1 – **supervised by Party** - if a host Party meets all the eligibility requirements to transfer and/or acquire ERUs, it may verify emission reductions or enhancements of removals from a JI project as being additional. Upon such verification, the host Party may issue the appropriate quantity of ERUs.

4

Joint Implementation | Basics of the mechanism (III)

Track 2 – **supervised by the JISC** - the verification of emission reductions or enhancements of removals as being additional occur through the verification procedure under the Joint Implementation Supervisory Committee (JISC):

- An independent entity accredited by the JISC determines whether the relevant requirements have been met
- Subject to final positive determinations (by the JISC), the host Party may issue and transfer ERUs

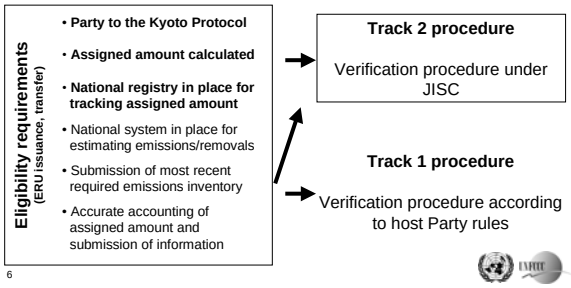
Choice of Track 1 or Track 2 - a host Party which meets all the eligibility requirements may choose to use Track 1 or the Track 2 (JISC) verification procedure

5

Joint Implementation | Basics of the mechanism (IV)

Two track approach

JI Track 1/Track 2 - eligibility required for ERU issuance/transfer



6

Joint Implementation | Scope – Track 2

Some similarities with the CDM

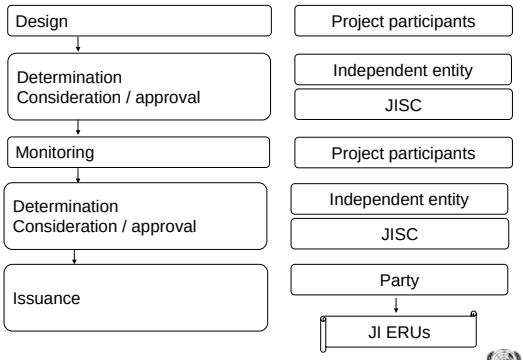
- No positive or negative lists of allowable project types
- Lighter procedures for small-scale projects
- Accreditation of entities
- Reviews possible
- Provisions for fees
- Management Plan
- Reporting to CMP

Important differences

- Mechanism within Annex B Parties – capped environment
- Two track approach
- Crediting period
- Guidance on baseline setting and monitoring by the JISC (e.g. may use CDM or identify other plausible approach on the basis of conservative assumptions). Not approval of methodologies by JISC - larger role for independent entities
- ERUs issued by Parties - conversion of AAUs/RMUs to ERUs
- No limitations on ERUs from LULUCF projects

7

Joint Implementation | Project cycle – Track 2



8

Joint Implementation | Status / experience so far

Track 1 & Track 2

- 23 Parties have submitted national JI guidelines
- 32 Parties have provided information on their designated focal points for joint implementation projects

Track 1

- CMP3 decision on track 1 information (ensuring information on all JI projects available)

Track 2

- Little over 1 year of operational experience
- All forms and guidance developed by the JISC
- 1 determination deemed final, 1 has been rejected
- 129 projects in the pipeline (PDDs submitted)
- 245 million tonnes of CO2-equ expected by end of 2012 from 129 projects in pipeline

9

Joint Implementation | Status – Track 2

129 PDDs published for stakeholders' comments
(14 open for comments)

Host Parties:

- **Bulgaria (10 PDDs)**
- **Czech Republic (1)**
- **Estonia (4)**
- **Germany (2)**
- **Hungary (2)**
- **Latvia (1)**
- **Lithuania (7)**
- **Poland (7)**
- **Romania (2)**
- **Russian Federation (72)**
- **Slovakia (1)**
- **Ukraine (19)**

Technologies:

- **Renewable energy** (biomass, wind, hydro)
- **Methane avoidance** (gas distribution, landfills, coal mine)
- **Destruction of nitrous oxide from chemical processes** (nitric acid production)
- **Energy efficiency** (manufacturing industries, district heating)
- **Fuel switch** (manufacturing industries, transportation, power generation)
- **Reduction of HFC, PFC and SF_6 emissions** (chemical and metal industries)

Emission reductions 2008-2012: **~ 245,000,000 t CO_{2equ}**

10

Joint Implementation | Challenges – Track 2

Challenges for the JISC

- Ensuring environmental integrity, avoiding overstatement of emission reductions
- Maintaining cost effectiveness
- Balance top down/bottom-up approach - guidance
- Ensure transparency and allowing public scrutiny
- Communication with independent entities and stakeholders
- Keeping process times reasonable
- Delivering on workload in a short time (relative late start as compared to CDM and potential for numerous projects in short timeframe)

Note: several similar issues to the CDM EB, but differ in degree due to JI projects take place between Parties with assigned amounts (set amount of AAUs) and the prominent role of host Parties

11

Concluding messages

- Joint Implementation is up and running - indications of high increase in activities
- JISC (Track 2) has put in place the procedures and is operational, but limited "operational" experience
- Potential for several hundred millions of CO2-equ in reductions from JI in the first commitment period
- Could go track 1 or track 2
- Some post 2012 issues
  - Continuation of JI beyond the first commitment period
  - Crediting of projects beyond 2012
  - Guidance to the JISC vs "changes" to the mechanism

12

United Nations Development Programme

AWG on Further Commitments
In-session workshop on means to reach emission reduction targets

CDM
Experiences and Lessons

UNDP, Bangkok, 1 April 2008

Putting CDM into *Development* Context

*"Our fight against global warming could set the stage for an eco-friendly **transformation of the global economy** -- one that spurs growth and development rather than crimps it, as many nations fear".*

UN Secretary General, Ban Ki-moon

CDM in the context of:

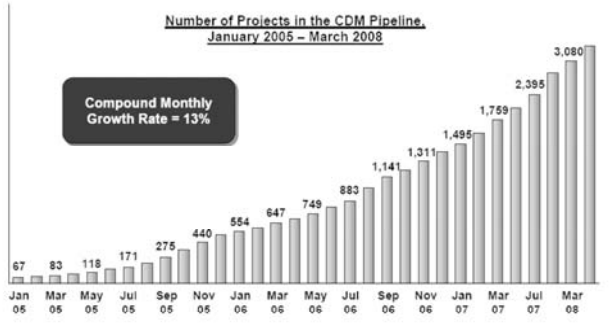
- Policies
- Markets
- Investments/ Risks
- ODA
- Governance
- Institutional Capacities
- Private Sector

Putting CDM into *Mitigation* Context

- About $200-300 billion/ year of additional **investment** needed: Energy Supply, Industry, Buildings, Transportation, Waste, Agriculture, Forestry, R&D.
- More than half of these investments will need to take place in developing countries.
- **Combining**, **sequencing** and **aligning** CDM financing with private sector investments, public domestic spending, ODA, Development bank financing, GEF…

Putting CDM in the context of *Carbon Markets* 2006 (US$ million)

Rapid growth of the CDM (volume and prices)



Geographical imbalance in the CDM

Location of CDM Projects

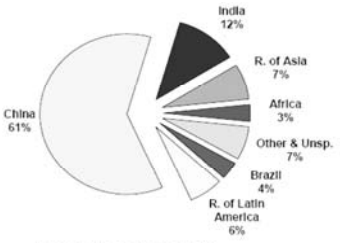
- 4 countries (China, India, Brazil and South Korea) account for 70% of CDM projects and 80% of CERs through to 2012
- Sub-Saharan Africa accounts for 2% of registered projects and 5% of CERs through to 2012
- 88 non-Annex 1 countries have yet to benefit from any registered CDM project activity – including 47 countries that possess DNAs

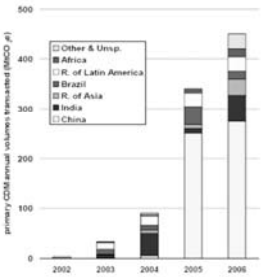
United Nations Development Programme

CDM Sellers

China leads supply

(share of volumes)





Jan. 2006 to Dec. 2006

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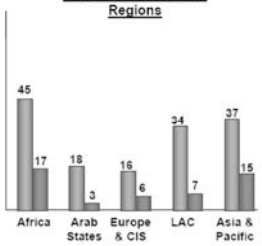
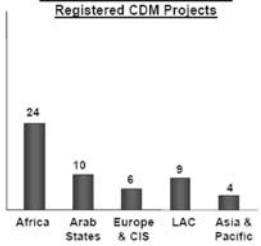
United Nations Development Programme

More than 50 countries have yet to see a CDM project

DNA Presence Across Regions



Countries With A DNA But No Registered CDM Projects



Number of countries

Number without a DNA

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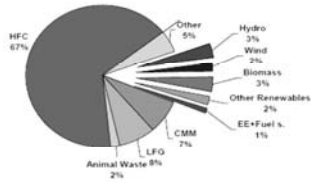
United Nations Development Programme

CDM Asset classes

Share of Clean Energy Rises

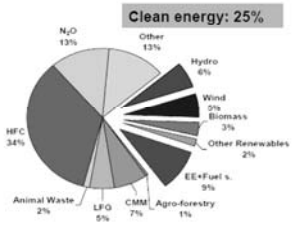
(share of volumes)

Clean energy: 11%



Jan. 2005 to Dec. 2005

Clean energy: 25%



Jan. 2006 to Dec. 2006

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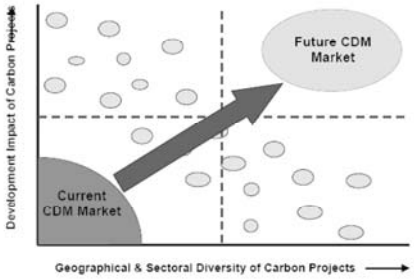
Moving the Carbon Market



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United Nations Development Programme

Lessons for the Future

1. **Investments**: CDM is helping to support long-term investments necessary for transition to low-carbon economy.
2. **Markets**: Developing countries and EITs have strongly responded to EU and Japan demand.

   Markets to manage GHG emissions have demonstrated their ability to source ERs.
3. **Enabling environment**: CDM needs the right market environment.

   Creating viable carbon markets in more countries and sectors requires: public policies, institutional capacities, investment pipelines.

   Need for combining and sequencing CDM with grant funding, public domestic spending, GEF.

   Renew international efforts such as the Nairobi framework to increase CDM distribution.

10

United Nations Development Programme

Lessons for the Future

4. **Sustainable Development**: Maximise SD impacts, including through innovations in CDM, in particular the programmatic approach, deemed methods, and possibly sector driven approaches.

   SD benefits have been incidental/add-ons rather than intrinsic in project designs; but this is trending in right direction with more SD per project appearing.
5. **Programmatic Approaches**: In addition to project-by-project approach, not instead.

11

Clean Development Mechanism- Experience and Expectations

Maosheng DUAN
Tsinghua University, China
April 1, 2008

Outline

1. China's Experience
2. Challenges Facing the CDM
3. Role of the CDM after 2012
4. Expectations for the CDM

China's Experience

- The CDM is a great success in China, in terms of not only expected emission reductions, but also raising public awareness on climate change and promotion of consideration of climate change issue in decision making
- Great efforts have been made from various aspects, including the government, universities, research institutes, international organizations and foreign governments, etc, to disseminate CDM concept and improve project development capacity

China's Experience

- Capacity building activities have covered all domestic actors in the CDM project cycle, from project owners to policy makers, etc.
- Capacity building is a continuous process
- Different training priorities at different stages of CDM market development, from concept to specific methodological/business issues, etc.

China's Experience

- The host country plays a central role at the early stage of CDM market development by building an enabling environment through formulating clear and transparent domestic rules, initiating capacity building activities, bearing necessary cost, etc.
- Successful examples are very important

Challenges Facing the CDM

- Low efficiency of the whole system
- Inconsistency treatment of similar projects
- Complicated methodological requirements
- Uncertainties regarding registration
- Uncertainties regarding market demand and price
- Very limited contribution to technology transfer

Role of CDM after 2012

- Similar great efforts are expected to make any similar new mechanism a success
- Although many outstanding issues exist with the current rules, CDM should continue to play an appropriate role in the future commitment period

7

Expectations for the CDM

- A more efficient, equitable, transparent and simplified mechanism with more certainties, greater technology transfer contribution and secured environmental integrity
- Clear and strong mitigation commitments as well as clear policy/commitment on utilization of CERs by developed countries
- Technology component of the CDM project should be strengthened and the developed countries should create necessary enabling environment

8

Expectations for the CDM

- Removal of additionality test for certain types of projects
- Possible roles of the host country government rather than the DOEs on certain issues
- Sustainable development assessment should remain the prerogative of the host country

9

Expectations for the CDM

- Developed country governments should promote CDM projects with more sustainable development benefits
- The CDM should only be a supplement to domestic mitigation actions of developed countries

10

Thank you

11

Contribution and Challenges of Kyoto Mechanisms

Shin OKAMOTO
Ministry of Economy, Trade and Industry
April 1, 2008

Kyoto Mechanisms－Overview

- **Role of Kyoto Mechanisms:**
  - helps countries to achieve commitments under the Protocol
  - contributes to cost-effective global emission reduction
- **Clean Development Mechanisms (CDM):**
  - structured in earlier stages
  - has been contributing through project formation, validation, registration, and credit issuance **s**

Japan's Policy and Contributions

The Kyoto Protocol Target Achievement Plan of Japan

All sectors will have to make every effort to achieve the Kyoto Protocol commitment on the basis of the domestic measures ･･･These efforts notwithstanding, Japan will fall short of achieving its Kyoto Protocol commitment by 1.6% of the total emission volume of the base year. It will be necessary to make up this difference by utilizing the Kyoto Mechanisms while respecting the general rule that the Kyoto Mechanisms are supplementary to domestic measures.

- The Japanese government is going to acquire **100 million tons of credit in 5 years (2008-2012).**
- Japanese Industries also can utilize the Kyoto Mechanisms: the power and steel industries are planning to acquire 120 and 44 million tons of credit in 5 years, respectively.
- **279 out of 3,312** total government-approved CDM projects are Japan's, the 2nd largest ranking following the UK.

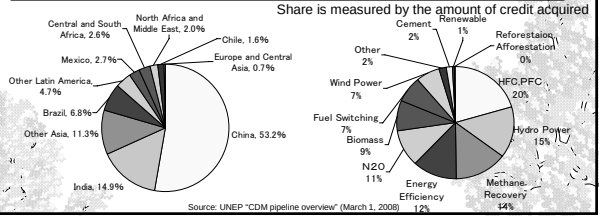
Challenges of CDM

The current CDM **needs fundamental review**:

- Only for Parties which have committed to reduction of an absolute amount of emission and Parties which have not
- Uneven geographical distribution of projects
- Non-eligibility of nuclear and CCS projects
- Low probability of achieving approval for energy efficiency projects

Implementation of CDM projects by region and by technological field

Share is measured by the amount of credit acquired



Source: UNEP "CDM pipeline overview" (March 1, 2008)

Improvement in Current Operation

For the first commitment period, we should undertake the following improvements immediately, in order to build a sound CDM system.

- Review process for registration.
- Effective management of the secretariat
- Sound market for DOEs
- Role of CDM as a policy instrument（promotion of CDM in fields such as Energy Efficiency)
- "New approaches to "additionality"
- Small-Scale CDM

Flexibility Mechanisms in the Future Framework

- Future flexible mechanisms should be discussed **in line with the discussion in AWGLCA**.
- **The top priority of the discussion is to build a framework where all the major economies participate in a responsible way**. The carbon trading system should be regarded as a flexible measure that is **complementary to the overall system**.
- Introduction of emissions trading in countries and regions **depends on the political decisions of each country**, taking into account the differences in their social, economic and institutional situations.

MEANS TO REACH REDUCTION TARGETS AND IDENTIFICATION OF WAYS TO ENHANCE THEIR EFFECTIVENESS AND CONTRIBUTE TO SD

THE FUTURE CDM

Presented at the In-Session Workshop AWG –KP, BANGKOK, THAILAND, 31 MARCH TO 4 APRIL, 2008

Richard S. Muyungi
Assistant Director of Environment
Vice President's Office-Dar-Es Salaam, United Republic of Tanzania

Synopsis

- Emission Trend and Sectors. Where to focus
- Current CDM barriers/experiences and lessons for the future
- Thoughts for enhancing SD and future CDM/mitigation in developing countries
- Conclusion

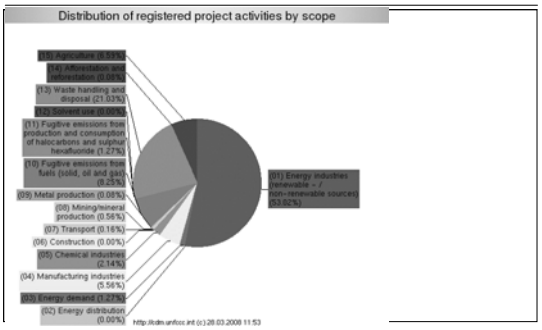
Emissions trend provide a basis for the best mitigation approach

We know from the IPCC AR4 that:

- The largest growth in global GHG emissions btn 1970 and 2004 has come from:
  - Energy supply;
  - Transport:
  - Industry; and
  - LULUCF and that
- Between 1970 and 1990 emissions from agriculture grew by 27% and from buildings by 26%
- In 2004 A1 countries held a 20% share in world population, produced 57% of world GDP, and accounted for 46% of global GHG emissions

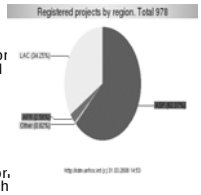
Sector	% emissions
Energy supply	145
Transport	120
Industry	65
LULUCF	40

Also from CDM EB we know that Sectors with potential to date would still be potential in the future



From existing projects and experiences we have learnt that

- CDM alone and in its current form cannot contribute significantly to the two elements of Article 12: Real Mitigation for A1 parties and SD for Non A1 parties (Tech Transfer, financial and CB)
- CDM has worked in some regions and sectors and in others not. Africa is literally out. Tanzania is among those with some few projects.
- For such a complex issue Capacity building approaches and implementation remain a challenge in terms of approach and delivery
- Initial financing, national capacity building and learning by doing have triggered projects in some countries



Thoughts for the future of CDM Beyond the 2012: Simplify Rules

- Simply CDM.

  The CDM is governed by a vast body of rules and guidelines, comprising:
  - the Marrakech Accords
  - COP/MOP decisions
  - CDM Executive Board decisions;
  - guidance from expert CDM bodies

These " International Rules" pose two types of barriers:

1. knowledge and understanding of the Rules
2. ability to implement CDM projects in compliance with Rules

Thoughts on the future of CDM

- The volume and complexity of these Rules make the CDM inaccessible, particularly to new players. They impose obligations on all stakeholders: Host Countries, Annex 1 Countries, project participants and CDM bodies.
- Simplification of these rules will be vital for the success and continuity of CDM beyond 2012.
- Note: Simplify the rules without changing the approach to ensure continuity (of existing projects) and confidence in the system

Thoughts for the future : Sustainable Development Criteria

- CDM EB must take part in a regulatory framework that ensures delivery on Sustainable development by CDM projects. Leaving the issue of SD at the prerogative of host country parties does not work. Some host country parties are taken for a ride in most cases.
- Three options can be explored:
  - EB, from experience to put in place minimum criteria for each project or category of projects SD that can be verified by DOEs
  - Employ a percentage approach (say 5% of the CERs to remain in the host country for SD purposes) or
  - Host Country parties to define SD criteria for each category of projects and submit to EB for use by DoEs for project validation (as we are doing for the forestry definition);

Thoughts for the future: Additionality and REDD

- Financial additionality should not be part of the aditionality requirements/test. Environmental additionality is the most important. As far as a project is locking or avoiding a unit of carbon this is what the world needs. Financial additionality is the biggest barrier to smaller business entities wishing to join CDM
- REDD methodologies need to be developed urgently - at least on the management/measurement issues to make it work as an important contribution to emission reduction and SD particularly in Africa

Thoughts for the future: Capacity Building

- Capacity Building should be undertaken through a multilateral approach consistent with the Framework decisions and not leaving everything on bilateral.
- Engaging and Facilitative capacity programmes that involve learning by doing. Developing an actual project.

Conclusion

- Domestic actions will remain key for substantive reductions
- Regional Balance and Equity in CDM's Future is paramount
- Focus on projects and Sectors that also contribute to adaptation; That might reduce the costs of addressing other sustainable development needs e.g. Heath vis-a-vis CDM waste mgt related projects
- Modification of the KP might be necessary to accommodate REDD, etc
- SD criteria must not be relegated to host parties; and
- While simplification is important; the fundamental objectives of CDM must be kept intact. SD and Mitigation

UKRAINE:
JI PROJECTS IMPLEMENTATION

Svitlana Nigorodova
Ministry of Environment of Ukraine

Ukraine welcomes the initiative of further international negotiations on Climate Change to halt the increase in global emissions within the next 10 - 15 years

The presentation reviews:

- Ukrainian legal basis aiming at UNFCCC and Kyoto Protocol implementation
- Recent actions to effective and sustained implementation of the Convention in Ukraine
- Ukrainian JI Projects

JI PROJECTS

analyzing the following elements:

- General information on JI Projects in Ukraine
- Main types of JI Projects in Ukraine
- Regions and Sectors of JI Projects in Ukraine

CLIMATE CHANGE & JI PROJECTS:

legal basis in Ukraine

1. Law of Ukraine on ratification of the UNFCCC
2. Law of Ukraine on Kyoto protocol ratification
3. Presidential Decree on UNFCCC and Kyoto Protocol implementation
4. Resolution of the Cabinet of Ministries of Ukraine on National Action Plan to implement the UNFCCC and Kyoto Protocol
5. Resolution of the Cabinet of Ministries of Ukraine on inter -Ministerial commission to implement the UNFCCC and Kyoto Protocol

6. Resolution of the Cabinet of Ministries of Ukraine regulating the procedures for the projects implementation
7. Order of the Ministry of Environment of Ukraine on approval of the Methodological guidelines for the JI projects preparation and implementation by the legal entities
8. Order of the Ministry of Environment of Ukraine on approving the requirements to the documents submitted to obtain support-letters for the owners of the source of anthropogenic emissions, where the JI Project to be implemented
9. Order of the Ministry of Environment of Ukraine on approving the requirements to JI Projects development

Recent developments (legislation):

- Draft Law of Ukraine «Regulating anthropogenic emissions and absorption of GHGs»
- Draft resolution of the Cabinet of Minister's of Ukraine on coordinated actions aiming at UNFCCC and Kyoto protocol implementation
- Draft resolution of the Cabinet of Minister's of Ukraine regulating the minimal value definition
- Draft resolution of the Cabinet of Minister's of Ukraine on inventory system of anthropogenic emissions and absorption of GHGs

⇩

Public Hearings Process

Ukraine enjoys a significant potential for essential GHG emissions reduction through Joint Implementation Mechanisms

JI Projects	Quantity
General number of the registered JI Projects	81
JI transmitted to the Supervisory Committee	16
Letters of Approval issued	11
Letters of Support issued	65

Total investments, billion, €	3,6
Estimated emissions reduction , mln. t CO_2 equivalent (for the period 2008-2012)	90,8

Main types of JI Projects in Ukraine

№	Type of Project	Value, mln. €	Estimated emissions reduction , mln. t CO_2 equivalent (for the period 2008-2012)
1	Industrial Processes	1 626,5	15 647 728
2	Renewable sources of energy	609,7	6 260 992
3	Reconstruction of central heating systems	459,4	4 652 799
4	Co-generation	382,3	10 270 440
5	Reconstruction of thermo power-generating units	167, 4	1 146 970
6	Methane utilization on the coal mines	116,6	22 904 376
7	Methane gathering and utilization	96,7	6 334 992
8	Co-generation on the gas transport systems	43,8	1 930 733
9	Utilization of the oven gas	40,7	1 375 100
10	Methane utilization on the gas transport systems	31.9	12 678 945
11	Catalytic removal of azotes	18,1	7 302 925
12	Methane utilization from the manufacturing waters	5,2	292 950

Regions and Sectors of JI Projects in Ukraine

- Sectors: energy, industry, forestry. Potential resource for government and private enterprises in solving of interrelated financial, economic, environmental & social problems.
- Geography of JI Projects in Ukraine: industrially developed Eastern regions, central and southern regions.

UKRAINE:

- Is intended to use its reserve of national quota of GHG emissions to attract foreign investments
- Supports the idea of prolonging use of the Kyoto protocol mechanisms
- Supports the idea of longer commitment period (up to 10 years) as some projects' cycles are longer then 5 years
- Considers the technology transfer mechanism to be a very effective tool and is ready to support development of the free technology transfer mechanism
- Is interested in implementing projects in the forestry sector

Slovenian Presidency of the EU 2008

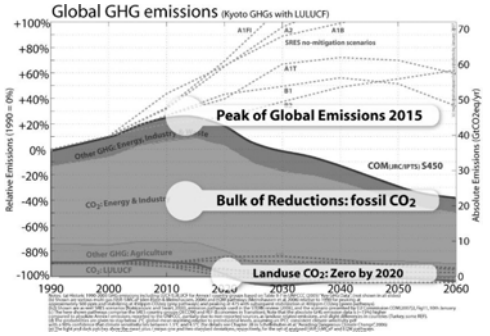
Building a global carbon market

The European Union's vision

Artur Runge-Metzger
Head of International Climate Negotiations, European Commission

In-session workshop on means to reach emission reduction targets,
AWG 5.1, Bangkok, 1-3 April 2008

The EU's global vision – 2 degrees objective



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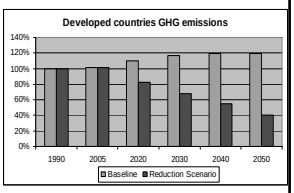
Mitigation by industrialised countries

- Common but differentiated responsibility: take the lead and make most of the effort
- EU commitments:
  - **20% unilaterally by 2020**
  - **30% in context global deal**
  - **60-80% by 2050**
- Carbon market as a key tool
- Binding and effective rules for monitoring and enforcing commitments



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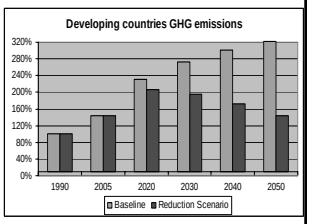
Mitigation in developing countries

- Reaching development objectives will be imperative; mitigation and adaptation
- Reduce growth of emissions asap, and absolute reductions after 2020

Toolbox:

- o No commitments for least developed countries
- o Sustainable development policies
- o Enhanced CDM
- o Performance-based funding
- o Sectoral approaches
- o Quantified emission limits



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Building a global carbon market

- The carbon market: cost-effective and flexible mitigation tool **and** source of finance for low-GHG technology development
- EU's aim: progressive development towards global carbon market
- Countries take part according to different responsibilities and capabilities
- Backed by ambitious mitigation commitments in line with 2 degree objective
- Build on existing mechanisms, link schemes and develop new mechanisms

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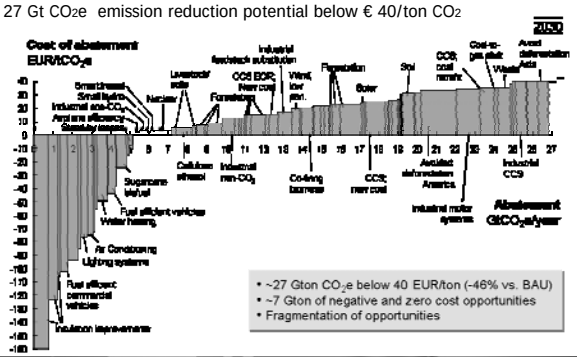
The role of the carbon market (I):

27 Gt CO_2e emission reduction potential below € 40/ton CO_2



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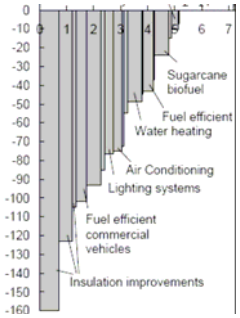
The role of the carbon market (II):

No. 1 = 6-7 Gt CO_2e: Harvest all low hanging fruits by 2020



- Each Parties' opportunity + responsibility mainly in household, buildings, transport
- Exchange good practice in policy design: e.g.
  - Abandon energy subsidies (fossil fuels: ~ € 130 billion p.a.)
  - Domestic company-based emissions trading
  - Set energy efficiency standards, building codes, labelling schemes, 1-Watt-Initiative
  - 'Ban the bulb': CFL, LED
  - Progressive taxation
  - Address potential cash flow issues, e.g. targeted loan schemes (e.g. refurbishment of existing power plants)

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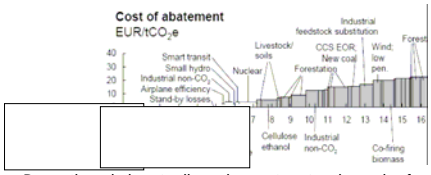
The role of the carbon market (III):

No. 2 = 10 – 12 Gt CO_2e: carbon market will be the main driver

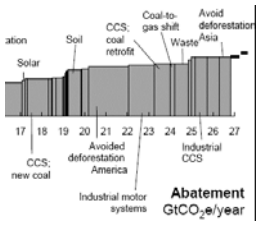


- Domestic emissions trading schemes to set carbon price for private sector.
- Less developed countries: strengthened CDM to drive technology transfer and economic transformation
- Complementary approaches needed to address sectors not covered by the carbon market, other barriers and possibly to scale up finance
- Advanced developing countries: move beyond offsetting, new mechanisms to incentivise increased mitigation contributions
- Carefully watch demand and supply!

8

The role of the carbon market (IV):

No. 3 = 10 – 12 Gt CO_2e: promote high-end options

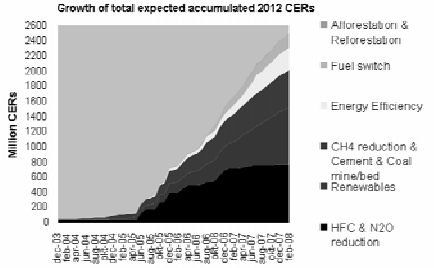


- Promote co-operation for research and technology development (e.g. joint ventures, PPP)
- Subsidies for demonstration, e.g. NZEC
- Direct subsidies for deployment of clean technologies, e.g. GEEREF, export credits, PPP, concessional IFI loans
- Reduce tariffs for advanced 'GHG-efficient' products and services
- Promote regulatory approaches gaining energy security/clean air benefits: e.g. mandatory standards (cars, appliances), fuel taxes, portfolio standards (e.g. renewable energy, CCS)

9

Clean Development Mechanism (I)

- CDM has delivered real and measurable benefits and generated a multi-billion dollar market (€28 billion in 2007)



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Continuity for the CDM post-2012

- EU Commission **proposal** would allow 2.63 Gt (1.4 Gt in the EU ETS, 1.23 Gt MS use) of CERs to be used until 2020 **independent of an international agreement**
- Includes ongoing projects registered before 2012 and projects established post-2012 in LDCs
- EU first to provide certainty for CER use post-2012 – no one else does so far!
- About one third of the necessary reduction effort towards 20% target from CDM/JI - other two thirds ensure real emission reductions in Europe
- Unlimited access to CDM/JI under the 20% target would lead to drop in CER price to €4 and increase of EU domestic emissions to about 4% above 1990 = contradicts EU objectives of climate policy leadership and energy security.
- Substantial increase as part of Copenhagen agreement: EU Commission **proposal** would allow half of the additional effort (~1.2 Gt extra: totalling ~70bn€ of transfers, i.e. ~6bn€ annually) to be met by CDM/JI or new mechanisms.

11

Clean Development Mechanism (II)

- Reform of CDM for post-2012 needs to address the following concerns:
  - strengthen environmental integrity: ensure real and additional emission reductions (key to offsetting mechanism)
  - address possible perverse incentives resulting from (low-cost) CDM
  - review current institutional set-up and procedures (Article 9)
- Strengthen CDM's contribution to technology transfer and economic transformation in less developed regions
- Need to move beyond offsetting for advanced developing countries will be key for post-2012 – explore new approaches, e.g. baseline/credit, sectoral approaches

12

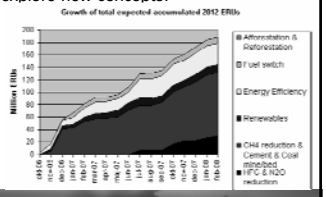
CDM – some proposals

- More executive and supervisory role of EB, including delegation of decision-making and strengthened professional support staff
- Revision of CDM decision-making procedures, including strengthening the basis and transparency of decision-making
- Assessment of roles and responsibilities of DOEs
- Increased use of technology benchmarks for baseline setting and additionality testing
- Dialogue with host countries on how to strengthen contribution to SD and tech transfer
- More differentiated approach to CDM will help improve regional distribution

13

Joint Implementation

- JI has delivered benefits, but not yet realised its full potential
- Role for JI post-2012: stimulating international collaboration and channeling investment and technology towards certain mitigation opportunities and sectors, which otherwise lack access to the global carbon market
- **JI allows for institutional learning about market-based approaches and a transitional step before wider application of cap-and-trade**
- Need to discuss JI post-2012 and explore new concepts:
  - May need to continue with a two-track approach with internationally supervised procedure (track 2) for countries that still lack institutional and legislative framework for JI track 1
  - Explore synergies and parallels with revision of CDM for track 2 procedure, e.g. on simplifying and streamlining institutional set-up and procedures and strengthening environmental integrity
  - Explore new concepts such as programmatic JI



14

Shared vision of a low-carbon future:

Annex I "Offsetting" is not enough

Scenario category	Region	2020
A-450 ppm CO_2-eq[b]	Annex I	–25% to –40%
	Non-Annex I	Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia

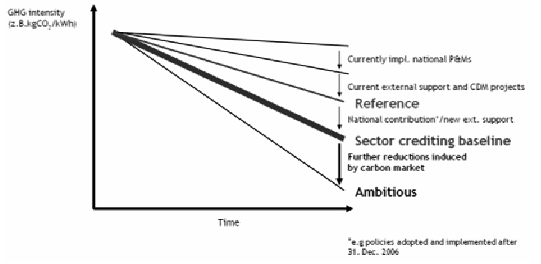
IPCC 2007, WGIII, ch. 13

- How can the carbon market build on "measurable, reportable and verifiable mitigation action" by developing countries?
- What means of support are needed in addition to the carbon market?
- In which way can the carbon market most effectively contribute to sustainable development and technology transfer? What is needed in which countries and which sectors?

15

Need to explore new mechanisms to incentivise enhanced mitigation:

e.g. no-lose sectoral crediting mechanism



Source: Ecofys

16

Conclusions

- Significant role of the carbon market already today – should be strenghtened post-2012. An environmentally more effective **CDM should continue to play a role**
- Offsetting is not enough – carbon market offers promising potential if we succeed in **developing new tools** that build on differentiated contributions by developing countries
- Carbon market is **part of the solution** but not a panacea – needs to be combined with other tools to further technology cooperation, financial flows and investment

17

Slovenian Presidency of the EU 2008

Thank you!

The NZ ETS - An "all sectors & all gases" approach

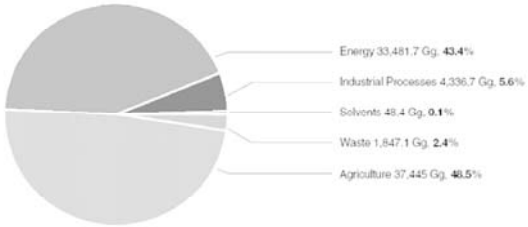
New Zealand Government sustainability

NZ ETS design reflects our international position

- New Zealand has long advocated:
  - Quantified emission reduction commitments
  - Least cost approaches
  - Broad coverage of gases and sectors
- Domestic design of NZ ETS incorporates these principles

New Zealand Government sustainability

Current greenhouse gas emissions by sector



New Zealand Government sustainability

Strategic issues and challenges for NZ

- **How can a small country like NZ make a difference? –** Focus our efforts within the context of effective global action
- **Unique emissions profile –** all sectors all gases
- **For major emitting sectors there are limited low cost abatement opportunities -** need for a least cost approach that utilises the Kyoto mechanisms

New Zealand Government sustainability

Objective of the NZ ETS

To support and encourage global efforts to reduce GHG emissions by:

- Reducing New Zealand's net emissions below business as usual levels and
- Complying with our international obligations including our Kyoto Protocol obligations:

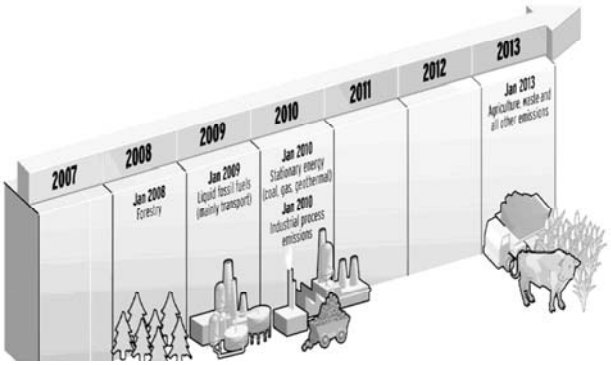
While maintaining **economic flexibility, equity and environmental integrity at least cost**

New Zealand Government sustainability

Key design features of the NZ ETS

1. Cap and trade
2. Kyoto compliant
3. Kyoto units (e.g.CERS, ERUs) can be used for compliance with minimal restrictions
4. All sectors and all gases by 2013
5. Point of obligation mix of upstream and mid stream
6. No free allocation for those who can pass costs on

Timeline for implementation



Impacts/effects of the ETS

- As of April 2007 NZ faced a projected liability for CP1 of 45.5 million units
- Implementation of the ETS is expected to approximately ½ this liability
  - In part by devolving the liability from tax payer to emitter
  - In part by reducing emissions
- Electricity and transport fuel prices will increase
- Free allocation of units to trade exposed sectors during CP1 will partially mitigate some of these cost increases

International linkages

The NZ ETS will be relatively small (especially as it is predominantly an upstream model)

Linking to the international market is therefore essential to ensure:

- liquidity
- Alignment of the price of units in the NZ market with international prices

Importance of the Kyoto mechanisms

- The Kyoto mechanisms provide the means to link the NZ ETS to the global market
- Participants in the NZ ETS have a strong interest to ensure that Kyoto mechanisms continue to provide a stable supply of high quality units post 2012

Importance of the Kyoto Mechanims(2)

- Bilateral linking (e.g. with Australia, the EU ETS and other emerging schemes) may be an important option in the future
- The first-best option is to ensure an efficient, transparent, global carbon market, converging around a single price of carbon

Progress with implementation

1) Legislation is before Parliament

2) Expect bill to become law by mid 2008

Key concerns of stakeholders

- NZ economy to be fully exposed to a new, uncertain carbon market – concerns about price levels and volatility
- Trade exposed sectors exposed to price of carbon ahead of major trade competitors – risk for leakage
- Concern about future of global carbon market post 2012
- Want to know that NZ efforts are environmentally effective, and that they contribute to an effective global effort

Conclusion

To be successful an ETS must:

- Be consistent with international obligations
- Drive behaviour change
- Be equitable across sectors
- Maintain environmental integrity
- Be linked to international carbon markets
- Not provide free allocation to firms that can pass on costs
- Remain adaptable to future changes in international agreements

Further information

- All documents are available from www.climatechange.govt.nz
- For discussion on the presentation:
  mark.storey@mfe.govt.nz
  bryan.smith@maf.govt.nz

Clean Development Mechanism: Sectoral Considerations

Environmental integrity

*** Important to maintain or enhance the environmental integrity of the CDM.**

*** The CDM is an offsetting mechanism so all emissions reduction must be real, additional, measurable and verifiable. Some slippage due to unilateral projects;**

*** Expanding the CDM to include sectoral or programmatic approaches likely to make it more difficult to show that the offset emissions are real, additional, measurable and verifiable.**

Alternative Sectoral Approaches for Developing Countries

* Safer way to develop sectoral emissions reductions in developing countries under AWG LAC that don't have inherent environmental integrity problems of offsetting mechanisms

* Nationally appropriate mitigation actions by developing countries under the AWG LAC process consider means to achieve sectoral emissions reductions within that process

* Positive incentives developed under the Convention process through new revenue sources such as auctioning of AAUs to generate sufficient funds

Income generation

* Emission trading we need to centralised the allocation of AAUs so that these can be auctioned.

* The revenues gained from auctioning AAUs placed in a central fund to support nationally appropriate mitigation actions in developing countries – key sectors

CDM Review:

* Once sectoral arrangements under the AWG LAC process established then we may be able to consider rule changes for CDM

* CDM could then be made more accessible to fund sustainable development mitigation efforts in **lower emitting developing countries** which are not participating in sectoral arrangements under AWG LCA.

How can this be done?

Review of :

* accessibility rules to favour low emitting developing countries (subject to outcomes of AWG LAC)

* rules concerning geographic distribution;

LULUCF

1-3 April 2008

Bangkok, Thailand

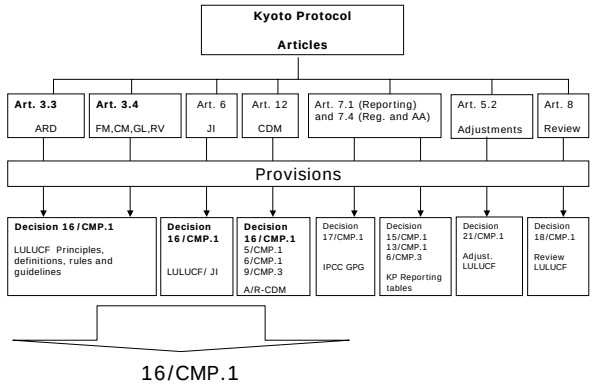
AWG-KP 5

In-session workshop on means to reach emission reduction targets

María J. Sanz
UNFCCC Secretariat

Overview

- Articles, provisions and decisions related to LULUCF
- Main elements in the decision 16/CMP.1



Kyoto Protocol Articles

Article 3.3. Afforestation, reforestation and deforestation compulsory;

Article 3.4. Eligible additional human-induced LULUCF activities (FM, CM, GM, RV);

Article 3.7. When LULUCF is taken into account in the establishment of assigned amounts;

Article 6. Joint Implementation projects (any LULUCF activity);

Article 12. CDM projects include Afforestation and Reforestation activities

Guiding principles of 16/CMP.1

- Based on sound science
- Consistent methodologies over time estimation and reporting
- Aim in Art. 3.1 not to be changed
- Mere presence of C stocks excluded
- Contribution to conservation of biodiversity and sustainable use of natural resources
- Not to transfer commitments to a future commitment period
- Reversal of any removal be accounted for at appropriate point of time
- Accounting excludes removals resulting from:
  - Elevated CO_2 concentrations
  - Indirect N deposition
  - Effects of activities and practices before the reference year

Definitions

Decision	Elements	Art.
16/CMP.1	Forest definition (area, tree cover, height)	3.3 3.4
	Activities	3.3 3.4

Activities included first CP

Decision	Elements	Art.
16/CMP.1	Compulsory activities: • Afforestation • Deforestation • Reforestation	3.3
	Eligible activities: (1CP, lands will remain accounted in subsequent CPs) • Forest management • Cropland management • Grazing land management	3.4
	Project activities: • Afforestation/Reforestation (CDM) • All (JI)	 12 6

Pools included first CP

Decision	Elements	Art.
16/CMP.1	Pools: • Above • Below • Dead wood • Litter • Soil organic carbon	3.3 3.4 6 12

Particular rules for the first CP

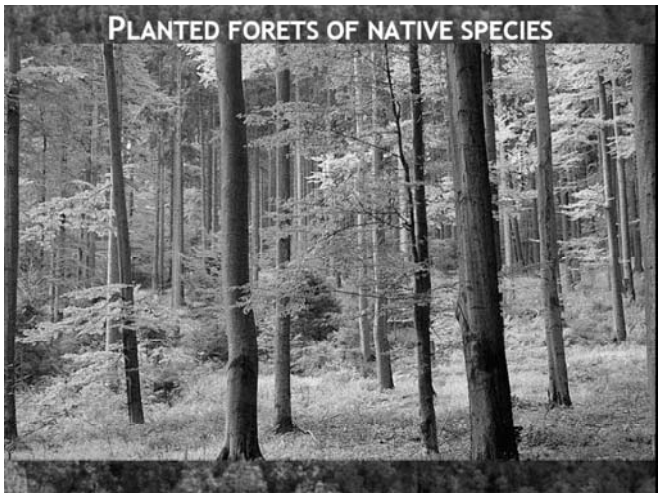
Decision	Elements	Art.
16/CMP.1	• Gross-net approach A/R/D • Special provision when Party results in a net source under art. 3.3. (9 megatonnes of carbon per year of 1CP)	3.3
	• Gross-net approach for FM • Forest management cap, appendix to 16/CMP.1 • Net-net approach for CLM, GLM, revegetation	3.4

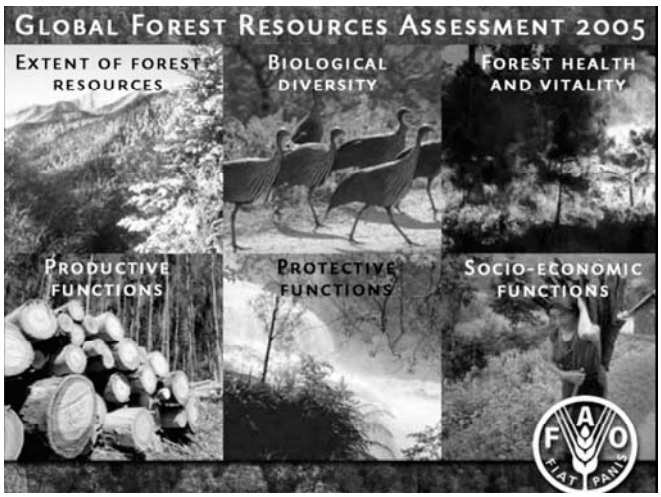
Thank you for your attention!

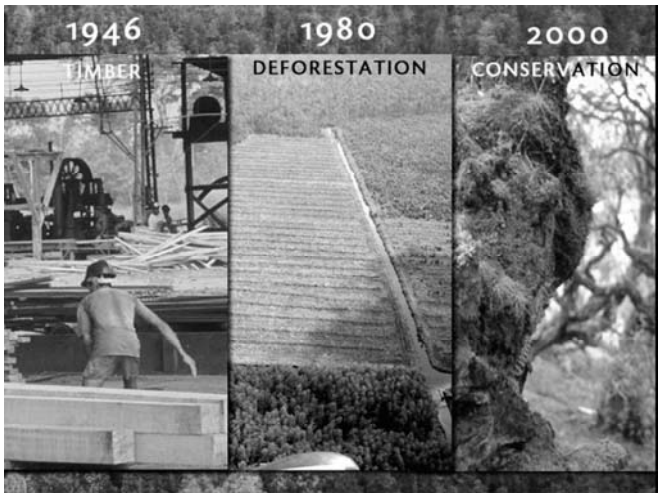
Forest Resources Monitoring, Assessment, Reporting

Global ↔ National

Peter Holmgren, FAO







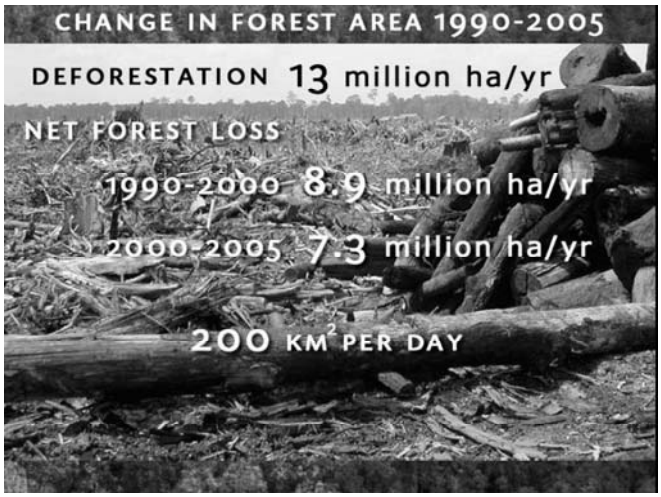
Forest policy objectives

Economic
- Poverty
- Food security
- Wood productivity and supply
- Valuation of forest products and services
- Equity
- Trade

Socio-cultural
- Rural livelihoods
- Indigenous peoples rights
- Rights of access
- Tenure and Land ownership

Inter-sectoral
- Agriculture
- Energy
- Transport
- Industry

Environmental
- Biological diversity
- Soil and water protection
- Climate change
- Desertifictaion
- Air pollution
- Invasive species
- Wildfire
- Pests



Country involvement (FRA 2005)

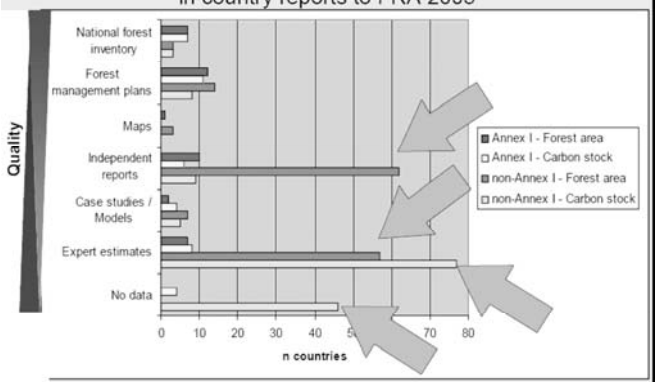
172 national correspondents

229 country reports

800+ contributors

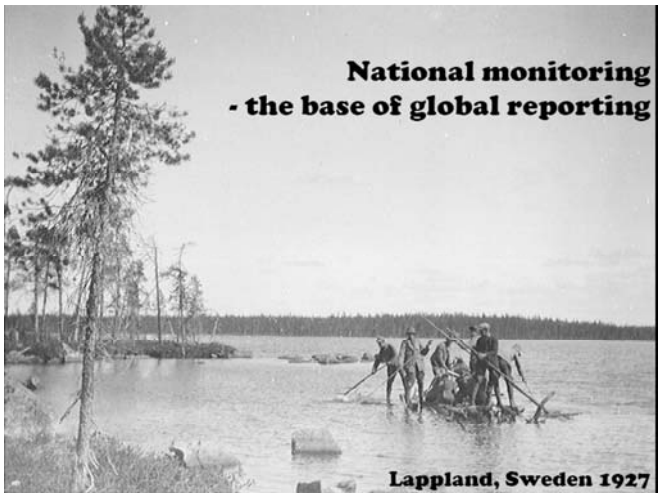
Data sources (FRA 2005)

Sources of trend data for forest area and forest carbon stock in country reports to FRA 2005



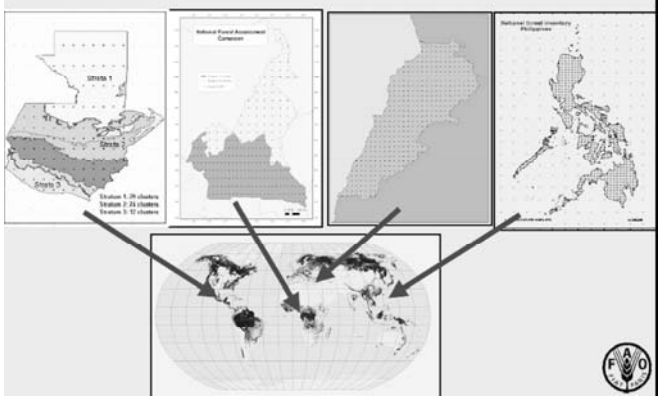
Data collection options

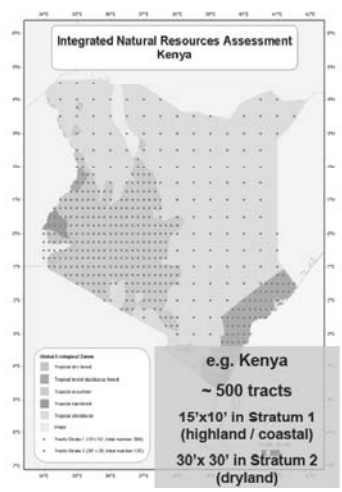
Method	Feasible variables	Pros	Cons
Field Measurements	Biophysical	Precise	Only measurables
Field Observations	Biophysical Land use	Wide range	Judgements
Remote Sensing	Some area measures	Cost-effective (?)	Limited scope
Interviews	Uses, Users, Values, Tenure, Conflicts	Captures socio-economics	Demanding



FAO country support

Examples





Sampling

Nationwide

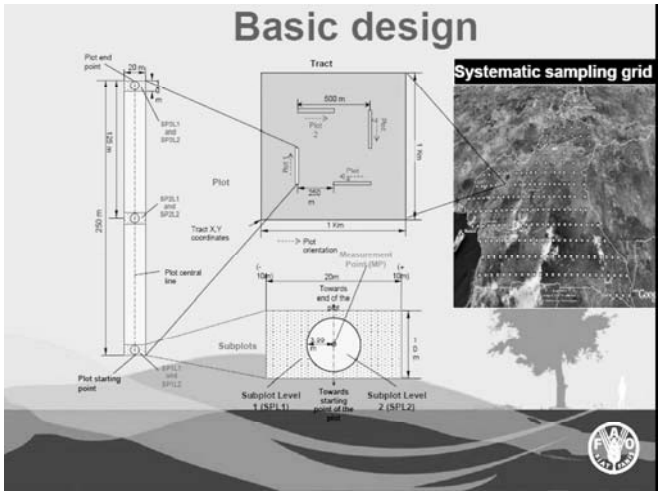
Low intensity field sampling (100-1000)

Systematic (based on lat./long. grid)

Permanent plots for long term monitoring

Stratification may be applied to improve sampling efficiency based on "stable" strata (ecological zones)

Basic design



Data collection

Local interviews

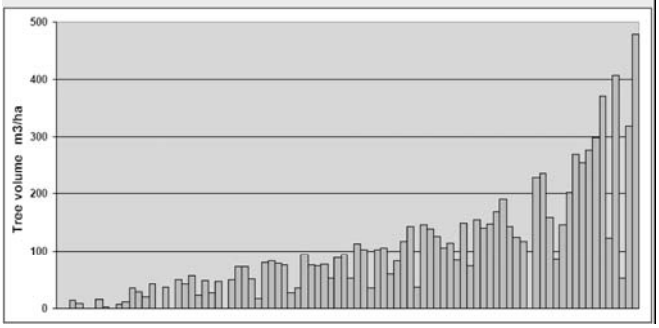
Measurements of biophysical parameters

Direct observations

Country example – Growing stock

Trees are everywhere

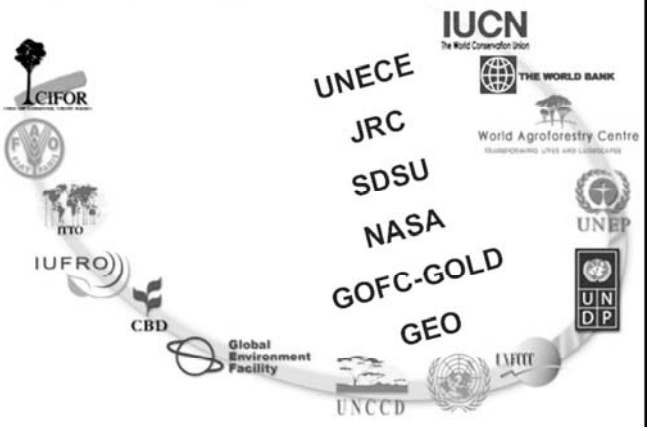
Forest volume on inventoried tracts



Country example – Growing stock

Conclusion: Monitor <u>all</u> land!

Towards FRA 2010 - Partners



FRA 2010 - Meeting the needs

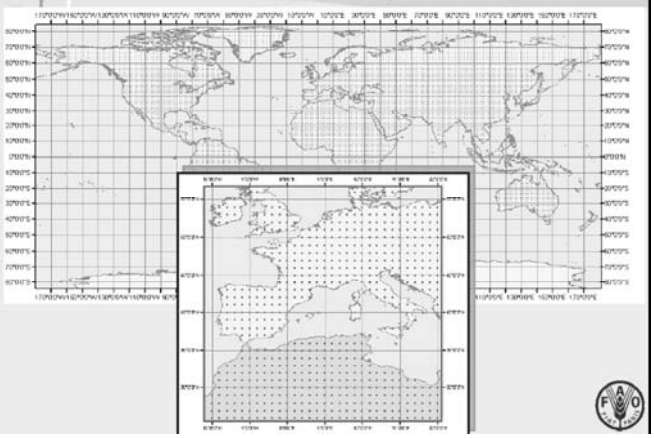
- **Sustainable Forest Management**
- **CBD 2010 Targets**
- **UNFF Global Objectives**
- **Climate modeling**
- **...**

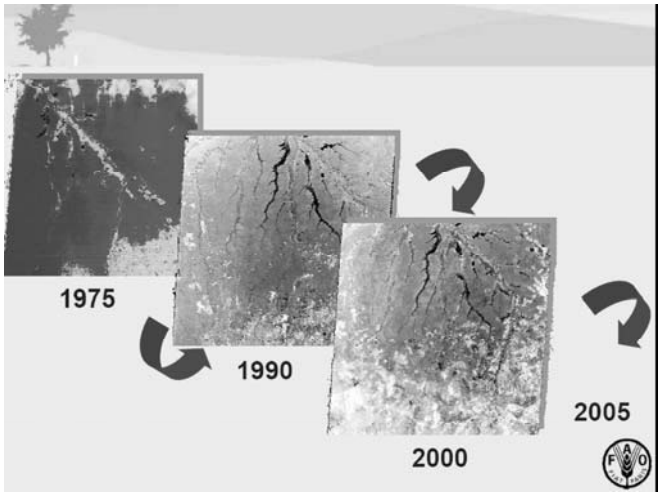
FRA 2010 - Country report tables

T 1	Extent of forest and other wooded land
T 2	Forest ownership and management rights
T 3	Forest designation and management
T 4	Forest characteristics
T 5	Forest establishment and regeneration
T 6	Growing stock
T 7	Biomass stock
T 8	Carbon stock
T 9	Forest fires

T 10	Other disturbances affecting forest health and vitality
T 11	Wood removal and value of removal
T 12	NWFP removal and value of removal
T 13	Employment
T 14	Policy and legal framework
T 15	Institutional framework
T 16	Education and research
T 17	Public revenue collection and expenditure

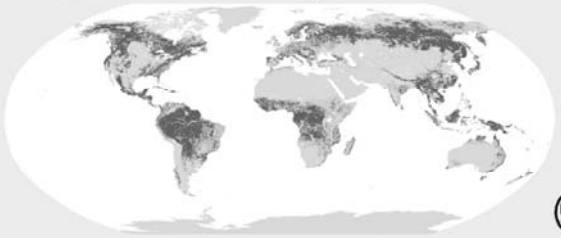
Remote sensing survey





Remote sensing survey

- Distribution of forests
- Accurate trend statistics
- Regional, biome & global level
- Option to intensify for countries



Conclusions

1. Strong synergies in monitoring between Climate Change needs and Overall needs
2. Monitoring ≠ Accounting
3. But Accounting requires Monitoring
4. Unique opportunity for investing in Forestry/Land use knowledge

THANK YOU

www.fao.org/forestry/fra2010

LULUCF in the negotiations

AWG-KP-5 Bangkok April 2008

Jim Penman

Introduction

LULUCF and agriculture:

- ~ 30% of anthropogenic emissions and mitigation potential identified in AR4
- needed to achieve the objective of the Convention – as an integral part of commitments, not just a flexibility.
- should be considered together to deliver the optimal contribution from sequestration, materials substitution and energy to meeting UNFCCC Art 2

Kyoto to Marrakesh – why so complex?

- Countries a) wanted flexibility from LULUCF to meet commitments already agreed, but b) had concerns about LULUCF – the issues of *scale, uncertainty, and risk.*
- Resolving the tension between a) and b) produced entry into force, but only via the trauma of COP6. Agreement finalised at COP11
- *Will these ghosts haunt the path to Copenhagen?*

Scale

- In 1997 the Kyoto LULUCF contact group negotiated Art 3.3 activities (ARD since 1990).
- Art 3.4 activities were to be agreed later, for 2nd CP.
- Late in Kyoto Art 3.4 activities were included as possibilities for meeting 1st CP commitments – but not specified
- *Deciding the activities and how to include required thousands of person-hours of negotiating time.*

Scale

- COP6 bis agreed Art 3.4 activities (forest management (FM), crop land management (CLM), grazing land management (GLM) and revegetation (RVeg)

This deal enabled entry into force. It controls scale by:

- FM caps – provide certainty on maximum allowances but give little incentive to additional action.
- Net-net accounting CLM, GLM , RVeg; much better incentives, helps factor out any background trends in the emissions or removals.

Scale - factoring out - history

- Historical concern: could the residual uptake overwhelm the commitments?
- Residual uptake is the mismatch between known sources of GHG emissions, known sinks and the rate of atmospheric CO_2 increase
- RU is significant: possible causes – young forests, carbon fertilisation, nitrogen fallout
- Anxiety removed by Art 3.4 forest management caps and net-net accounting for other activities.
- *Could factoring out anxiety return?*

Scale - factoring out - future

- CLM, GLM, RVeg are under net-net accounting – already agreed that this deals with the issue
- Risk of unforeseen uptakes entering system much reduced by better understanding of what drives forestry emissions and removals, and better inventory data that can be linked to projections.
- *This causal understanding essential to negotiating forest management uncapped in future agreements.*

Uncertainty

- LULUCF inventories very underdeveloped at the time of Kyoto
- Have seen big advances since then, a) agreement of IPCC Good Practice Guidance for LULUCF (2003), the 2006 Guidelines, and b) development of inventory systems and review under KP reporting requirements - LULUCF data now much improved.
- *Need to continue to apply IPCC methods in a consistent fashion and maintain the UNFCCC/KP review system.*

Risk

- Risk (= permanence risk) not an issue where there is long term responsibility for carbon stocks.
- In a legally binding regime this translates *permanence risk* into *compliance risk.*
- Carbon stocks vary e.g. due to fire incidence or pest attack. These are predictable, on average. But they produce *statistical fluctuations* in national inventory totals – potentially problem for compliance

Risk - cont

- *Even without LULUCF statistical fluctuations occur*, up to a few % of national total emissions over a 5 year commitment period - countries allow for this when accepting commitments.
- Increasing averaging period would reduce LULUCF (and other) fluctuations but complicate accounting if the commitment period was different.
- Alternatively countries could sign up to commitments on the basis of a conservative assessment of what LULUCF will achieve, taking the statistical fluctuations into account

Particular issues

- **CDM:** Consider simplification of rules including possibility of sectoral approach – part of package
- **Achieving continuity:** provided Art 3.3 and 3.4 activities are a subset of any broader inclusion, and common IPCC methodologies are used, there will be continuity.
- **Accounting rules** Net-net and gross-net treat the sector the same way in the commitment period. The difference is in the base year – gross-net accounting omits LULUCF emissions. But this is unbalanced; should consider LULUCF in the base year too, so adopt net-net accounting.

Particular issues

- **Special rules** – Full coverage would reduce the need for special rules
- **HWP:** methodologically, harvested wood products are a dead organic matter pool and can be treated as such in determining a country's emissions to or removals from the atmosphere from LULUCF.
- **Anthropogenic emissions –** use of managed land gives responsibility for carbon stocks were management takes place, including disturbances on unmanaged land leading to change from unmanaged to managed land.

In summary…

- solutions exist
- we can have full coverage, proper incentives to optimise the contribution from sequestration, materials substitution and energy
- the ghosts of the past need not haunt the future.

Japan’s National Experience from Treatment of Forest under KP

FOREST CARBON SINK STRATEGY OFFICE, FORESTRY AGENCY

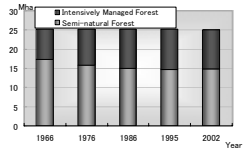
Tatsuya WATANABE
Forestry Agency, JAPAN

April 2, 2008
Bangkok Climate Change Talks 2008

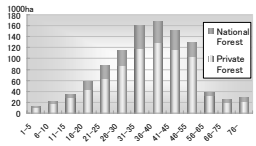
Forest area and land use change

- High forest cover ratio; land use change is comparatively rare
  - Forest area: 24.8 million ha → 67% of total land area
  - Total LUC between FL and NonFL is less than 0.2Mha during last 40 years
- Considerable parts of forests have been planted since 1950s (10Mha)
- 80% of planted forest area is immature and requires adequate care (tending ,weeding, thinning etc.)

Forest Area

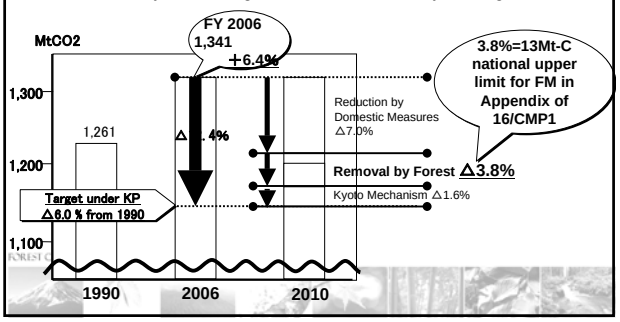


Age Structure of Planted Forest



Kyoto Target Achievement Plan and the role of forestry sector

- National target for Forest C Sink is 13Mt-C(=47Mt-CO_2)
- Reduction by forest is significant to achieve the Kyoto Target.



Rules of LULUCF sector

- In Fist Commitment Period, ‘Forest Management’ under Kyoto Protocol article 3.4 was defined as follows;
  - *‘Forest management’ is a system of practices for stewardship and use of forest land aimed at fulfilling relevant ecological, economic and social functions of the forest in a sustainable manner; (16/CMP.1)*
- Considering the concept of definition above, Japan has been enhancing forest management practices focusing on sustainability of forest productivity as well as multiple function of forest.

FOREST CARBON SINK STRATEGY OFFICE, FORESTRY AGENCY

Policy and measures to enhance forest C sink

- Aiming at achievement of the Kyoto target, a number of additional domestic measures have been introduced to forestry sector
  - 10-year Forest Sink Measures to Prevent Global Warming (2002-2011)
  - Promotion of “Utsukushii Mori Zukuri” (National Movement for Fostering Beautiful Forests) (2007-)
  - Enhancement of reporting and verification system for forest carbon accounting (2002-)
  - Special Measures Law for Promotion of Thinning (submitted to the ongoing Diet session)

Utsukushii Mori Zukuri

Promotion of “美しい森林づくり”
(National Movement for Fostering Beautiful Forests)

- Aiming to achieve the Kyoto Target and hand over beautiful forests and nature-rich land to future generations, this movement enhances forest management practices and enriches forest diversity.

Target

1. **Implement thinning for 3.3Mha (2007-2012)**

0.55Mha/yr (trend base ×1.6)

Additional measures and budgets have been introduced to reduce forest owners burden since 2007

2. **Improve forest diversity looking 100 years ahead** through introducing longer rotation period and conversion to broad-leaf forests

Administration

Relevant Cabinet Ministers Meeting

Cooperation

National People’s meeting

Actions

- Facilitation of forest owners
- Promotion of broader participation (includes private companies, NPOs)
- Promotion of utilization of wood products and woody biomass

Toward the Future

- The FM concept for 1st CP is consistent with following description in IPCC AR4.
  - *"In the long term, a sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual sustained yield of timber, fibre or energy from the forest, will generate the largest sustained mitigation benefit."*
- In consideration of rules for the treatment of forest, particular attention should be paid to this description.
- The approach realizing SFM and the above concept requires coherent efforts of the Parties.

Slovenian Presidency of the EU 2008

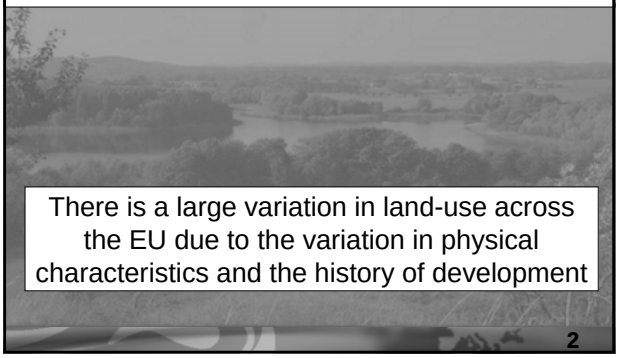
LULUCF in the post 2012 regime

Peter Iversen, EU

In-session workshop on means to reach emission reduction targets,

AWG 5.1, Bangkok, 1.-3. 4. 2008

Characteristics of the LULUCF sector in the EU

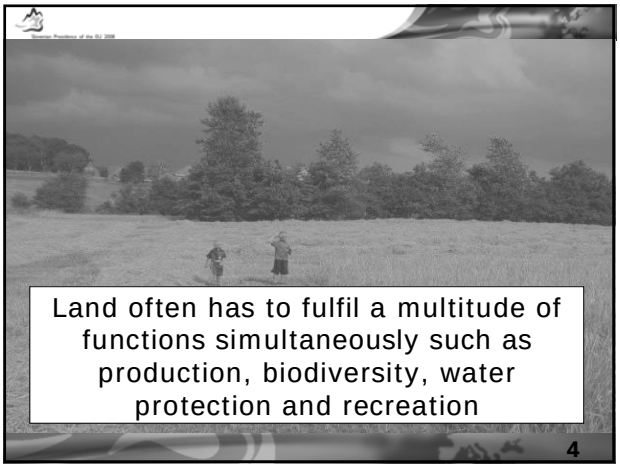


There is a large variation in land-use across the EU due to the variation in physical characteristics and the history of development

2

Present day landscapes are diverse and fragmented both in terms of ownership and function

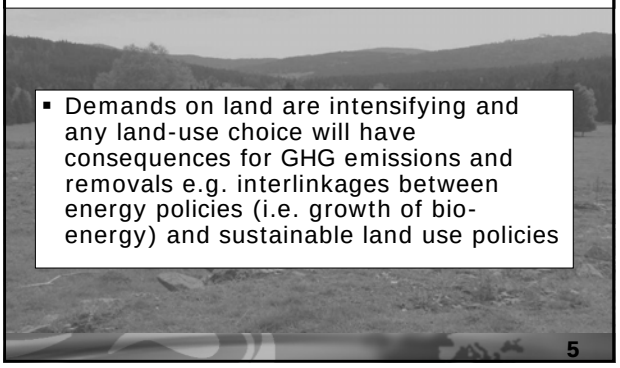
3



Land often has to fulfil a multitude of functions simultaneously such as production, biodiversity, water protection and recreation

4

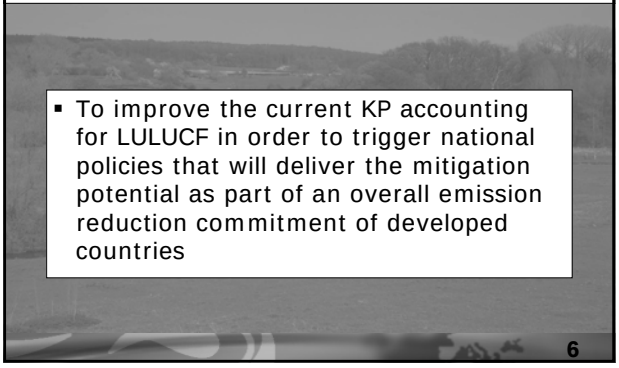
LULUCF in the future



- Demands on land are intensifying and any land-use choice will have consequences for GHG emissions and removals e.g. interlinkages between energy policies (i.e. growth of bio-energy) and sustainable land use policies

5

What do we want?



- To improve the current KP accounting for LULUCF in order to trigger national policies that will deliver the mitigation potential as part of an overall emission reduction commitment of developed countries

6

How?

- The review of current accounting rules for the LULUCF sector should seek to provide a basis for further incentives to promote:
  - Emission reductions in the sector,
  - The use of sustainable biomass for energy,
  - The use of wood products and
  - The sustainable use and management of agricultural and forest land

7

Some principles (1)

- Accounting for agriculture and forestry should reflect real anthropogenic mitigation action
- Simplified and more robust accounting rules

8

Some principles (2)

- Accounting for emission sources and sinks should promote mitigation opportunities while avoiding possible perverse incentives

9

Some principles (3)

- The contribution of agriculture and forestry to the climate change policy framework should be considered holistically.
- Other economic, social and environmental functions should be taken into account and synergies should be promoted.

10

The way forward

- The EU is committed to explore options to deal with this sector in line with the principles described above. In particular, the EU is interested in analysing options relating to:

11

Issue to be addressed

- Coverage, i.e., which land-use activities should be included
- Nature of commitments, i.e, the voluntary vs. mandatory nature of accounting for land-use activities
- Integration of LULUCF into national Annex 1 commitments and accounting for LULUCF activities
- Compatibility with the current system, i.e. smoothing the transition between current Kyoto and future rules

12

LULUCF Post 2012

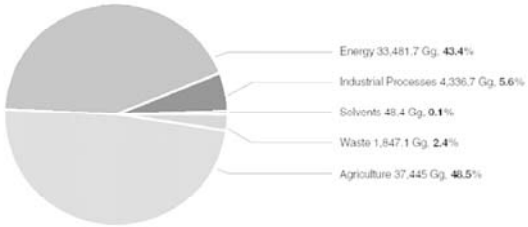
New Zealand's experiences in incorporating LULUCF in an all sectors, all gases emissions trading scheme

Bangkok, April 2008

Key Messages

- NZ is a land-based economy – so forestry and agriculture are core to our climate change policy
- NZ implementing an all sectors, all gases emissions trading scheme – agriculture and forestry included
- LULUCF mechanisms are very important for sustainable development, mitigation and adaptation in NZ
- Our experience is that, while many of the LULUCF rules are sound and effective, some are:
  - Impractical to implement in a devolved ETS regime
  - hard for private stakeholders to understand
  - unnecessarily restrictive in terms of land use flexibility within planted production lands; impinging on sustainable development and adaptation
- Aspects of LULUCF need to be reviewed; the issues are complex and will need significant negotiating time
- Recognising national circumstances will be important.

NZ is a land-based economy

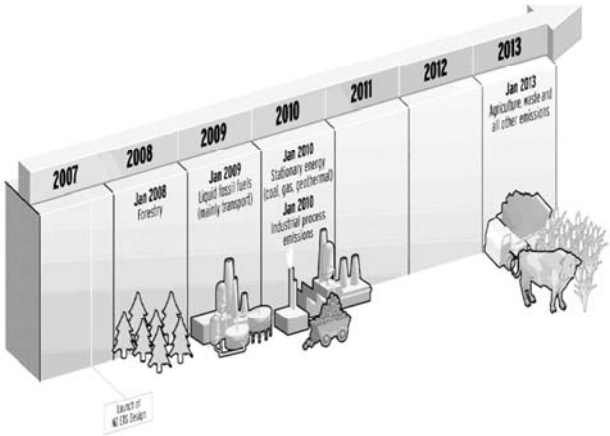


Forests in New Zealand

- Pre-1990 estate
  - natural forests 6.4 million ha (77% public, 23% private)
  - Exotic planted production 1.2 million ha (5% public, 95% private)
  - Forest management not elected
- Post-1989 estate
  - Exotic planted production 0.6 million ha (100% private)
  - Plus around 1 million ha of grazing land with some indigenous woody vegetation - typically cleared but management could change with ETS incentives

Emissions Trading Scheme: Key in-principle decisions

- Economy-wide ETS covering all sectors and all gases
- Key obligation - participants report their emissions and surrender units equal to those emissions
- Sectors' entry into ETS will be staggered
- Units of trade will be a New Zealand Unit (NZU)
- Kyoto Protocol units can be used to meet ETS obligations
- NZUs will be convertible to Kyoto Protocol units
- Each NZU must be backed by a Kyoto unit
- Legislation now before New Zealand Parliament



Forestry sector in NZETS – January 2008

- Forestry parts of ETS broadly follow Kyoto Protocol rules
- Without this :
  - Government would potentially allocate many units not backed by Kyoto units
  - Landowners would not face the costs NZ faces
- ETS therefore distinguishes between pre-1990 and post-1989 forests

Post-1989 forest owners in NZETS

- Exotic and indigenous forests can participate
- Can elect to receive units for tree growth (from 1 Jan 2008) together with liability for future carbon loss
- Liabilities capped to level of units received
- All units are convertible to Kyoto units and may be sold internationally
- Adds significantly to rate of return

Post-1989 forests in NZETS: environmental co-benefits

- Positive benefits for:
  - adaptation
  - soil and water quality
  - erosion control
  - biodiversity
  - Mitigation – displacing agriculture and offsetting agriculture emissions

Pre-1990 exotic forest owners in NZETS

- BAU forestry faces no obligations or direct costs, but equally receives no credits for carbon stored
- Landowners face significant liabilities for deforestation of exotic production forests
- Will affect values of land in planted production, dynamic land use, and sustainable development
- Deforestation of pre-1990 natural forest: not included in the draft legislation – since controlled by other legislation and initiatives

Looking to Post 2012 (Forests)

- Post-1990 (Art 3.3 Afforestation and Reforestation) generally work well in a devolved ETS system
  - Some refinements would enhance their application (e.g. harvesting emissions, 'fast-forest-fix')
  - Need continuity to provide confidence for investors
- Pre-1990 (Art 3.4 Forest management) not practical to implement in ETS:
  - Caps on emissions and removals would somehow have to be allocated to individuals
  - Separating new activity from BAU and natural effects is the key challenge for post-2012
  - Needs significant review if it is to be made practical and effective
- Deforestation regime (Art 3.3) – limits dynamic land use in planted production lands.
  - Tends to lock in land use in planted production lands, with significant impacts on sustainable development and adaptation
  - New Zealand would like to see flexibility in managing carbon stocks under an 'estate management' approach for planted production lands, while ensuring environmental integrity
  - Opportunity to generate co-benefits

In summary

- LULUCF mechanisms are very important for sustainable development, mitigation and adaptation in NZ
- Our experience is that, while many of the LULUCF rules are sound and effective, some are:
  - impractical to implement in a devolved ETS regime
  - hard for private stakeholders to understand
  - unnecessarily restrictive in terms land use flexibility within planted production lands; impinging on sustainable development and adaptation
- Aspects of the LULUCF need to be reviewed; the issues are complex and will need significant negotiating time
- Recognising national circumstances will be important.

Land Use, Land-Use Change and Forestry:

Canada's views and experience

In-session workshop

AWG-KP 5.1
April 2, 2008

Canada

Canada's key LULUCF goals

- Enhance the effectiveness of means within the LULUCF sector to achieve mitigation objectives by:

1. Improving the incentive structure for sustainable land management.
2. More accurately reflecting what happens to LULUCF carbon.
3. Ensuring that rules focus on anthropogenic emissions and removals.

2

Canada

Improve incentive structure

- TO DO: Improve the incentive structure for sustainable land management created by the current rules.
- WHY: A more holistic treatment of agriculture and forestry improves our ability to implement integrated domestic policies that enhance sinks and reduce emissions.
- HOW: Base accounting on the 2006 IPCC Guidelines (AFOLU) and reassess the rules for forest management.

3

Canada

Improve tracking of LULUCF carbon

- TO DO: Improve the effectiveness of rules by more accurately reflecting what happens to LULUCF carbon.
- WHY: The current approach for harvested wood products is not accurate. There is no incentive to explore policies that affect the production, storage and disposal of carbon in harvested wood products.
- HOW: The 2006 IPCC Guidelines provide methodological guidance for harvested wood products under alternative approaches.

4

Canada

Focus on anthropogenic E/Rs

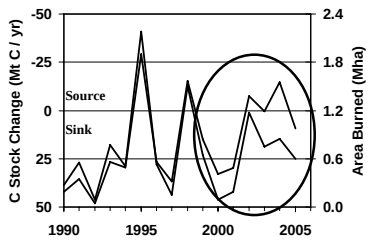
- TO DO: Ensure that the rules focus on anthropogenic emissions and removals.
- WHY: The impact of natural disturbances can outweigh the impact of anthropogenic activities. Article 3.4 does not focus only on anthropogenic emissions and removals, thereby restricting incentives for enhancing mitigation through forest management.
- HOW: Examine methodological solutions based on experience with the Kyoto Protocol structure.

5

Canada

Canada's experience

- Natural disturbances (fire and insect) have a major influence on the managed forest.



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Canada

Process forward

- At KP-AWG 5.2 (June 2008, Bonn):
  - Begin in-depth methodological discussion by a LULUCF sub-group
  - In-session workshop/roundtable presentations on methodological aspects and potential options to continue to address the issues identified here.
  - Rules need to be understood by all Parties in the new agreement - further consideration likely needed by AWG-LCA and/or COP SBSTA

7

Canada

Canada's key LULUCF goals

1. Improve the incentive structure for sustainable land management that will reinforce development of appropriate domestic incentives to enhance mitigation through LULUCF.
2. More accurately reflect what happens to LULUCF carbon in order to create incentives for mitigation, e.g. through management of harvested wood products.
3. Ensure that rules focus on anthropogenic emissions and removals in order to realize the mitigation potential of LULUCF.

8

Canada

Department of Climate Change

Ad hoc Working Group on further Commitments for Annex I Parties under the Kyoto Protocol

In Session Workshop on means to reach emission targets

Australian Perspectives on approaches to LULUCF

Greg Picker
April 2008

Broad Principles

- What matters is what happens in the atmosphere
  - comprehensive coverage of emissions and removals
  - Leave mitigation options open
- Implications for all elements of this workshop.
  - Gas, sources and sectors
  - Use of wide range of approaches to ensure necessary global abatement occurs

Special consideration of LULUCF?

Uncertainty is a hurdle

- Difficulty in measurement
- Quickly changeable sector
- Geographically specific

- Led to multiplicity of approaches
- The situation has fundamentally changed since we negotiated the Kyoto Protocol and the Marrakesh Accords

Need for robust measurement systems

- Effective measurement systems can provide confidence in emission and removal estimates
  - Essential prerequisite to underpin further action
- Australia's National Carbon Accounting System
  - Built to provide data for KP accounting
  - Being used in deforestation activities

Incorporation of the LULUCF sector

- There are technical challenges in LULUCF, but -
  - Just another sector
  - LULUCF needs to be fully included as a significant part of the range of abatement activities open to Parties
- Action on LULUCF, as in other sectors, needs incentives
  - LULUCF should be fully incorporated into markets

Next generation approaches to LULUCF accounting

- Comprehensive treatment of LULUCF sector – let's not start with the premise that all of our current rules are right
- Should be consistency between rules on LULUCF between Parties and situations
- Need to ensure linked elements are included to ensure no perverse outcomes
  - Biofuels
  - Harvested Wood products

LULUCF Reporting Issues

- Information collected and reported should be comprehensive, consistent and policy relevant.
  - Emissions reported when and where they occur
  - Balance between accuracy and practicality
  - Several issues need to be resolved, including inter-annual variability and natural disturbances

Australian Government
Department of Climate Change

Thanks for your attention

greg.picker@climatechange.gov.au

Treatment of LULUCF

Need to make sure that we do not re-write the Marrakech Accords

Need to keep accounting approaches as simple and transparent as possible

Need to ensure principles included in 16/CMP.1 are applied

Article 3.3

Afforestation, Reforestation and Deforestation since 1990, remains as is.

Art 3.4

The Conference of Parties serving as the meeting of the Parties to this Protocol shall, at its first session or as soon as practicable thereafter, decide on the modalities, rule and guidelines as to how and which, additional human-induced activities …… in the agricultural soils and the land-use change and forestry categories shall be added to, or subtracted from the assigned amount for Parties included in Annex I, taking into account…..

….Such a decision shall apply in the second and subsequent commitment periods….

16/CMP.1 establishes modalities, rules and guidelines and how and which activities will be applied.

IPCC Guidelines Revision

Problems with IPCC proxy for anthropogenic emissions in the context of “managed” and “unmanaged land”

Emissions from human induced fires and pest outbreaks excluded if found on unmanaged land

Harvested Wood Products

If we are to consider harvested wood products we must keep the accounting framework as simple as possible

A simplified approach may be to account for accumulation of carbon stocks in the producer country only.

If carbon stocks are exported from Annex I then counted as an emission

Carbon stocks imported into an Annex I country not enter accounting framework

(This simplifies the accounting framework and does not create a carbon benefit from importing HWP potentially derived from deforestation activities.)

Clean Development Mechanism:

Activities under the CDM should remain as: afforestation and reforestation

Need to "fix" the problem created by decision of CDM Executive Board regarding eligibility of land.

Creates an incentive to clear land after 1990

Consideration of LULUCF activities...

Thelma Krug
Ministry of the Environment

Principles guiding LULUCF

- Treatment of LULUCF has been negotiated after its adoption
  - Text of the KP not sufficiently detailed
- Consensus after long negotiations
  - set of principles that guide the treatment of LULUCF
  - instrumental to the definition of the activities included under Articles 3.4 and 12 of the KP

Principles guiding LULUCF

- **that the treatment of LULUCF activities be based on sound science;**
- **that consistent methodologies be used over time for the estimation and reporting of these activities;**
- **that the environmental integrity and the effectiveness of the KP towards the achievement of the long-term objective of the Convention would NOT be affected by the accounting of LULUCF activities;**
- **that the mere presence of carbon stocks be excluded from accounting;**
- **that the reversal of any removal due to LULUCF activities be accounted for at the appropriate point in time; and**
- **that accounting excludes removals resulting from CO_2 fertilization, indirect nitrogen deposition and the dynamic effects of age structure resulting from activities and practices before the base (*reference*) year.**

Principles guiding LULUCF

- **Brazil believes that Annex I Parties should maintain the same set of principles agreed to in Marrakech and adopted in Montreal, in 2005..**

LULUCF activities under the KP

- ***Article 3.3***
- ***Article 3.4***
- ***Article 12***

LULUCF activities under the KP

- **Article 3 para 3** … net changes in GHG emissions by sources and removals by sinks resulting from direct human-induced land-use change and forestry activities, **limited to afforestation, reforestation and deforestation activities since 1990**, measurable as verifiable changes in carbon stocks in each commitment period, **shall be used to meet the commitments under this Article of each Party included in Annex I**.

Article 3.4 of the KP

- **Protocol text**
  - … COP/MOP shall, at its first session or as soon as practicable thereafter decide upon modalities, rules and guidelines as to ***how, and which, additional human-induced activities*** related to changes in GHG emissions by sources and removals by sinks in the ***agricultural soils and the land-use and forestry categories*** shall be added to, or subtracted from, the assigned amounts for Parties included in Annex I. … Such a decision shall apply in the ***second and subsequent commitment periods***.

Article 3.4 of the KP

- **Decision 16/CMP.1 (**FCCC/KP/CMP/2005/8/Add.3)
  - **Decision 16/CMP.1 (**FCCC/KP/CMP/2005/8/Add.3) provides for the additional human-induced activities that an Annex I Party may choose to account under Article 3.4, limited to **forest management, cropland management, grazing land management, and revegetation.**

Article 3.4 of the KP

- Brail believes that in order to be consistent with the Kyoto Protocol, the set of LULUCF activities agreed in decision **16/CMP.1**, in 2005, shall also apply in the second and subsequent commitment periods.

Article 3.4 of the KP

- Possible amplification of the activities under Article 3.4, beyond those identified in Decision 16/CMP.1?
  - Climate change relates to a change in climate which is attributed, directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.
  - **This definition, in our opinion, constrains the choice of new LULUCF activities that Annex I Parties may wish to include under Article 3.4, to demonstrate compliance in the next commitment period.**

Article 3.4 of the KP

- **IPCC definition of anthropogenic greenhouse gas emissions and removals by sinks**
  - those occurring on "managed land"
  - assumes that the preponderance of anthropogenic effects occurs on this land
  - recognizes that no area of the Earth's surface is entirely free of human influence (e.g., CO_2 fertilization).
- **Decision 16/CMP.1**:
  - discount factor and limits on the amount of carbon removal that can be accounted for
- **If natural and indirect effects cannot be factored out from those direct effects on carbon stock changes, some activities under Article 3.4 will have to be capped and discount factors have to be applied, following the approach adopted in the first commitment period.**
- **It is important to recall that Article 3.4 activities are added to, or subtracted from, the assigned amounts for Parties included in Annex I.**

Activities under LULUCF

Article 3.4 of the KP

- **Practical methods for factoring out natural and indirect effects on carbon stock changes from those directly human-induced need to be developed**, if consideration is to be given to the inclusion of additional activities under Article 3.4.
- IPCC was asked to develop practicable methodologies to factor out direct human induced changes in carbon stocks and emissions and removals from changes in carbon stocks and emissions and removals due to indirect and natural effects, as well as the effects due to pre-reference year practices in forests
- **Response** *: "The scientific community cannot currently provide a practicable methodology that would factor out direct human-induced effects from indirect human-induced and natural effects for any broad range of LULUCF activities and circumstances".*

- Considering that:
  - three years have already passed
  - IPCC had indicated that research efforts were being carried out and were expected to provide an increasing understanding of the feasibility and practicability of a broadly based approach to the issues of separability and attribution
- Brazil suggests that IPCC be invited again to address the issue of factoring out, to facilitate the consideration of other LULUCF activities under Article 3.4, in case Parties decide to re-open Decision 16/CMP.1.

Article 12 of the KP

- Decision **16/CMP.1**
  - eligibility of LULUCF limited to afforestation and reforestation.
  - treatment of LULUCF activities under Article 12 in the future commitment periods shall be decided as part of the negotiations on the second commitment period.

Article 12 of the KP

- It is our understanding that:
  - (1) Article 12 of the Protocol does not include LULUCF activities
  - (2) the treatment of LULUCF mentioned in Decision 16/CMP.1 does not affect the eligibility of activities that have already been decided upon
    - Hence, the only eligible activities under the CDM for future commitment periods shall be afforestation and reforestation
      - only LULUCF activities where anthropogenic effects on carbon stock changes can be verified, unless the issue of factoring out of non-anthropogenic effects can be resolved.

Beyond technicalities…

- Article 4.1.(d) of the Convention states that all Parties shall take steps to protect and enhance sinks and reservoirs of greenhouse gases.
  - In the case of LULUCF, this means that all Parties have an obligation to maintain the stocks of carbon in the biosphere that happen to fall within their jurisdictions.
- Article 3.4 of the Kyoto Protocol states that Annex I Parties are to inventory and report their respective stocks, as well as the changes in such stocks.

Beyond technicalities…

- Both of these provisions are additional to, and different from the commitments to reduce or limit emissions of greenhouse gases.

Sectoral approaches to greenhouse gas mitigation

In-session workshop
AWG – UNFCCC – Bangkok
2 April 2008

Richard Baron – IEA

Baron, Reinaud, Genasci, Philibert (2007) *Sectoral approaches to greenhouse gas mitigation – Exploring issues for heavy industry.* IEA Information Paper. www.iea.org

What is meant by "sectoral approaches"

UNFCCC (intergovernmental) "Cooperative sectoral approaches and sector-specific actions, in order to enhance implementation of Article 4.1(c) of the Convention" – Bali A.P.

Technology focus

Asia-Pacific Partnership

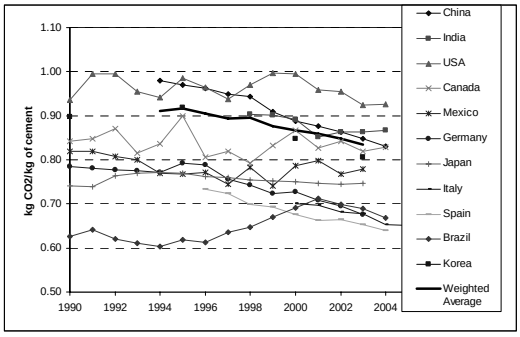
EC / ACEA-JAMA-KAMA (public-private)

Aluminium: IAI
Cement: WBCSD-CSI
Iron and steel: IISI
(private sector)

Sectoral analyses to inform emission commitments

- Estimate and *compare* sector-level performance. Criterion: tCO_2 per unit of output
  - Different levels of performance indicate a potential for overall improvement
  - Caveat: recent trends unlikely to fully reflect CO_2 reduction policies
- Domestic policies also affect performance
  - Best policy practice – triggering most energy efficient and carbon-lean choices – must be shared by governments
- Identify where international collaboration or coordination may be useful

Example: CO_2 emissions per tonne of cement



IEA (2007) *Tracking industrial energy efficiency and CO_2 emissions.*

International sectoral actions
Agreements - Policies

- Why and where?
  - Enhance effectiveness of domestic policies
    - ◆Address competitiveness concerns in certain activities
  - 'Tipping and network effects'*
- What do these international approaches consist of?
  - From sharing best practice to benchmarking
    - ◆E.g. power generation handbook (APP – public/private)
    - ◆Heavy industry associations: benchmarking
  - Technology R&D
    - ◆E.g. International Iron and Steel Institute's CO_2 breakthrough project (private sector)
  - Binding international policy coordination
    - ◆E.g. EU ETS (governmental) made possible (not imposed by) the Kyoto Protocol mechanisms

*Bodansky, 2007, *International sectoral agreements in a post-2012 climate framework.* Pew Center on Global Climate Change

In summary – Sectoral approaches and mitigation commitments

- International sectoral analyses and comparisons
  - Identify potentials for lower GHG emissions through best practice
    - ◆Including best practice in policy (G8 Gleneagles Plan of Action)
  - Caution: today's performance inadequate to face up to climate change challenge
  - The need for a GHG price signal
- International sectoral approaches of various kinds are underway – more could be envisioned
  - Countries accounting for a critical mass in given sectors could act to transform global markets (e.g. end-use efficiency)
  - Pool resources for technology development and deployment
  - Could offer an avenue to address competitiveness concerns as carbon cost is set to rise – modalities to be determined

Sectoral Approaches to the Post-2012 Climate Change Policy Architecture

Jake Schmidt, Director of International Programs
Center for Clean Air Policy

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UNFCCC In-Session Workshop
Bangkok, Thailand
1-3 April 2008

About the Center for Clean Air Policy (CCAP)

- Washington and Brussels-based environmental think tank
- Committed to advancing pragmatic and cost-effective climate and air quality policy through analysis, dialogue, and education
- CCAP's 30-country climate policy dialogue has produced agreements on emissions trading, design of Clean Development Mechanism, now focused on post-2012 climate policy
- Working with key developing countries (China, India, Brazil, Mexico) and U.S. states to design climate policies
- Helped design the EU CO_2 emissions trading program
- Running multi-stakeholder dialogues in the U.S. and the EU to build agreement on elements of a US national climate policy package and EU strategy
- Active participant in past and current negotiations on land-use change and forestry under the UNFCCC and other fora

What is a Sectoral Approach to Post-2012 GHG Reductions?

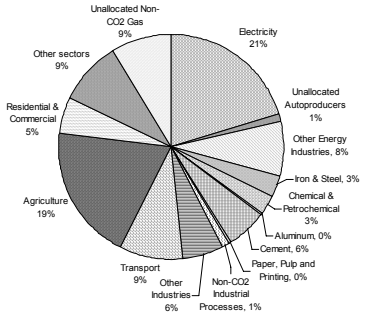
- Method for encouraging sectoral emissions reduction contributions in non-Annex I countries (e.g. steel, cement, electricity) post 2012. Designed to:
  - encourage deployment of low carbon technologies in these sectors in all countries and
  - Move toward leveling the playing field for carbon in internationally competitive sectors
- For Annex I countries, national carbon reduction targets could be developed in part via bottom-up sectoral intensity – one possible approach to "comparable effort"

Why focus on internationally competitive sectors?

- Internationally competitive sectors like cement, steel, paper, and aluminum account for roughly 5% of global emissions (~9% of non-Annex I GHG emissions)* BUT
  - » are disproportionately important politically because of fears of loss of competitiveness, leakage, and jobs/plant migration
- Once these sectors are addressed, it will be easier for A1 countries to set aggressive national reduction targets

* Doesn't include emissions from LULUCF; Only direct emissions, which don't account for emissions associated with electricity use in these sectors

Non-Annex I Sector GHG Emissions in 2000 (w/o LUCF)



Source: Author's calculation, see Schmidt et al., 2005; IEA, 2002; Scheele and Kruger, 2004; Schaefer et al., 2004

Sectoral Approaches

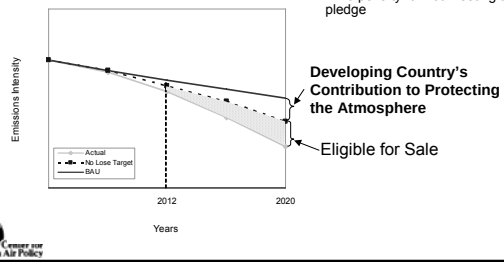
- Several sectoral frameworks being discussed:
  - » **Transnational sectoral**
  - » **Sectoral bottom-up**
  - » **Sectoral carbon finance**

Transnational Approach

- All companies and/or countries face the same emission/intensity targets or mandates,
  - » regardless of their location, area of operation, or other factors.
- Could be designed to allow certain parameters – such as the financial and technological assistance provided and the deadlines for reaching the benchmark – to vary from nation to nation
  - » similar to the way in which the Montreal Protocol is structured (a "transnational approach with differentiation" in incentive levels and deadlines).
- One key difference with Montreal Protocol, however, is that underlying natural resource base (coal, oil, renewables, etc) was not a factor
  - » setting single standard for carbon in sectors will have much broader economic implications than MP chemicals

Sectoral Bottom-up Approach

- A voluntary "no lose" intensity target (e.g., ton CO_2 / ton of steel) is established in developing countries
- Emissions reductions beyond the "voluntary pledge" are eligible for sale
  - » No penalty for not meeting the pledge

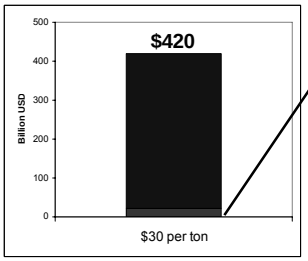


"Technology Financing and Assistance Package"

- Industrialized countries, International financial institutions (IFIs), Export credit agencies (ECAs) provide:
  - » A package of technology finance and assistance incentives **to help participating non-Annex I countries establish and meet more aggressive "no lose" targets and increase deployment of advanced technologies**
- Could be financed through the allowance values or auction revenues in developed country emissions reduction programs
  - » e.g., through an international set aside (i.e., portion of allowances taken out from the outset) OR
  - » Countries setting aside portion of allowances or auction revenues in domestic trading system (e.g., as Germany is doing with the auction revenues for the EU ETS sectors)

How Much Money Could be Generated: An Example*

Value of A1 Allowances in 2020 per year



- If 5% of A1 allowance value set aside for advanced technology deployment could generate
  - » $21 billion per year

* Based upon 20% below 1990 levels target for all Annex I emissions

Sectoral Carbon Finance

- Broadens today's project-by-project CDM approach to encompass a sector rather than a single project.
- Effects of multiple actions are taken at multiple sites, instead of measuring the effects site by site as in the CDM.
- Application of a standardized sectoral baseline – probably based on emissions intensity.
- Standardized additionality may also be appropriate, where some technologies automatically qualify for crediting.
- International financing is limited to carbon financing.

Conclusions

- Sectoral approaches could help Annex I countries meet their post-2012 mitigation commitments:
  - » Carbon credits generated for beating "no lose" targets or carbon finance baselines could be used to help meet A1 targets
  - » Create frameworks for providing technology & capacity building incentives to non-A1 as outlined in the UNFCCC and KP
    - – $ could be generated from allowance value or auction revenues
- Move the int'l process forward to addressing "level playing field" and therefore minimize domestic concerns on aggressive A1 targets

Ad hoc Working Group on further Commitments for Annex I Parties under the Kyoto Protocol

Emissions from international air transport and related policies

ICAO - International Civil Aviation Organization

Jane Hupe, Chief Environmental Unit

International Civil Aviation Organization

- Specialized Agency of the United Nations
- Created in 1944 by the Convention on International Civil Aviation (Chicago Convention)
- Membership: 190 Contracting States
- Structure: Assembly, Council & other standing bodies
- Data, SARPs (Annexes), Guidance (Docs) & Policies (A-Res)
- Strategic Objective on Environmental Protection **:** Minimize the adverse effect of global civil aviation on the environment
- ICAO Global Climate Goal: to **Limit or reduce the impact of aviation GHG emissions on the global climate;**

Aviation and climate change

- Aviation contributes about 2% of globally produced CO_2 and accounts for 13% of fossil fuels consumed by transport (IPCC, 2007).
- Around 2 Billion passengers are transported by air.
- International traffic represents almost 60% of the total scheduled passenger traffic and about 83% of freight air traffic.
- Total scheduled passenger traffic worldwide is forecast to increase at an average annual rate of 4.6 per cent for the period 2005–2025.

1970 CAN (Noise)

1977 CAEE (Emissions)

1983 CAEP

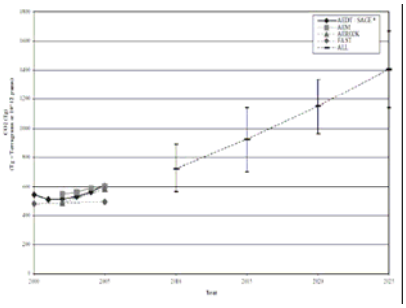
- Technical feasibility
- Environmental effectiveness
- Economic reasonableness
- Interdependencies of measures

QUANTIFICATION

CAEP MODELLING RESULTS

-Initial assessment of available models

-Initial trends for CO_2 (ICAO Goals Assessment)



•Total aviation CO2 emissions model results (2000-2025).
•Note: AEDT / SAGE (2000-2004) results have been adjusted down by 5% to account for the revised modelling assumptions resulting from migration from SAGE Version 1.5 to AEDT / SAGE in 2005. Projections of future technology developments are not included in this assessment

ONGOING WORK ON QUANTIFICATION

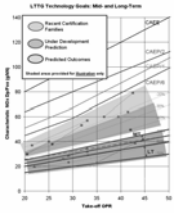
1. New Pax and Fleet Forecasts over 30 years horizon (2006 to 2036) and covering scheduled and non-scheduled operations by May 2008
2. Scenarios and projections of the traffic forecast for 2050
3. Cost-Effectiveness analysis of new NOx stringencies
4. Economic analysis of the financial impact of including international aviation in existing trading schemes
5. Literature review of the cost-benefit analysis of existing trading schemes

ONGOING WORK ON QUANTIFICATION (cont'd)

6. Evaluation of the various emissions models and databases - by June 2008
   1. AEDT/SAGE; AEM; Aero2K; and FAST
   2. Airports; Fleet; Population; and Movements
7. Goals assessment / GHG trends for 2006;2016;2026;2036 and possibly for 2050 - by June 2009 (pre-final)
   May include future technology and operational improvements
8. NOx Stringency Policy Assessment (-5%;-10%; -15%; -20%; becoming effective in 31/12/2012 and 31/12/2016) - by June 2009

MITIGATION - Technology

- ICAO continuously reviews its environmental standards, promoting more efficient, cleaner aircraft.
- Today's aircraft are 70% more fuel efficient than 40 years ago. NOx emissions have been reduced by some 40 per cent, soot and hydrocarbons virtually eliminated and continued improvement is expected.
  - NOx Stringency (Annex 16) first adopted in 1981 and made more stringent in1993,1998 and in 2004, when ICAO adopted new Standards to be applicable in 2008, 12% lower than the existing Standards.
  - NOx Technology Goals: 45% (2016) and 60% (2026) below CAEP/6



Work in progress on technology and standards - 2010

- CO_2 / fuel efficiency metrics and parameters
- Fuel burn Technology Goals
- Environmental impact of alternate fuels
- New NOx Stringency (to be included in Annex 16)
- Review of NOx Technology Goals
- New Environmental Technical Manual for emissions

Operational Measures

- Emissions savings can come from improvements in air traffic management (ATM) and other operational procedures
- Most important fuel saving opportunities come from the implementation of CNS/ATM systems - more direct routings and the use of more efficient conditions such as optimum altitude and speed
- CO_2 emissions are directly proportional to fuel burn
- Optimize fuel consumption = reduced emissions
- 1 tonne of fuel is equivalent to 3.16 tonnes of CO_2

MITIGATION - Operational

- Voluntary agreements template
- Circular 303
- NADP noise and emissions
- Chapter 16 Global plan
- Environmental benefits of CNS/ATM measures: Rules of Thumb / parametric model

Work in progress on operational measures - 2010

- Fuel burn operational goals
- New guidance on CDA – Continuous Descent Arrival
- Global plan and support to regional/state implementation of the operational concept
- Guidance on computing, assessing, and reporting on aviation emissions
- Environmental indicators

MITIGATION – Market-based measures

ICAO HAS CONSIDERED

- Voluntary Measures
- Emissions Charges
- Emissions Trading

CAEP/5 "Economic Analysis of cost-effectiveness of Potential Market-based Options for Reduction of CO_2 Emissions from Aviation" (January 2001)

- *"Open emissions trading was found to be the most economically efficient approach, as compared with taxes and charges and voluntary measures for meeting the specified targets and the only viable one capable of meeting the most stringent (Kyoto Protocol) emission reduction targets*

MITIGATION – Market-based measures

- *Voluntary Measures:* ICAO/CAEP developed a template to facilitate voluntary agreements and collects information for the purpose of information sharing among stakeholders.
- ***New*** report on Voluntary Emissions Trading for Aviations
- *Emissions Trading:* ***New*** (Draft) Guidance document (ICAO Doc 9885) identifies a range of emission trading issues involved in including aviation in an open trading scheme.
- *Charges:* ***New*** Local Air Quality Emission Charges Guidance
- Changes to the ICAO Policy on Charges for Airports and Air Navigation Services

Future initiatives

Workshop on aviation and carbon markets

Montreal, 18-19 June 2008

- **Discuss and familiarize participants on key issues related to aviation emissions and carbon markets. A variety of approaches including emissions trading and carbon offset programmes will be reviewed.**
- **Explore potential ways and means of creating a global carbon market solution for international civil aviation.**

Work in progress on market based measures - 2010

- 3 Scoping Studies
  - 1. Issues related to linking GHG emissions trading schemes including aviation
  - 2. Potential for emissions offset measures to mitigate effects of aviation on climate change
  - 3. Potential for using emissions trading and offsets to address local air quality
- Updated Report
  - 1. Report on Voluntary Emissions Trading
- Carbon Offsets
  - ICAO is developing a harmonized, per-passenger emissions methodology, along with guidance on calculation methods and reference tools

ADAPTATION

- **Climate Change will impact aviation operations as we expect more intense and frequent weather events, causing e.g. delays, re-routing, and possible airport infrastructure damage**

WMO/ICAO/ICCAIA – early warning and monitoring – proposal initiated by WMO/ICAO in CAEP for the further installation of sensors at aircrafts

TECHNOLOGY TRANSFER AND FINANCING

- **Under consideration by the GIACC**

OUTREACH

- **Events – ICAO/CAEP prepares workshops and CAEP experts participate in main ICAO events (e.i. Colloquium on aviation emissions)**
- **IPCC reports – ICAO/CAEP experts contributed to the Special Report and on the update of IPCC Guidelines**
- **ICAO Environmental Report – ICAO/CAEP experts provided articles and helped review the report**

36th Session of the ICAO Assembly

(18 to 28 Sept 2007)

- 1488 delegates registered
- 179 Delegations
- 44 Observer Organizations

New Env. Policy
Consolidated statement of continuing ICAO policies and practices related to environmental protection

A36-22

- Appendix H: Aviation impact on local air quality *New*
- Appendix I: Aviation impact on global climate – Scientific understanding *New*
- Appendix J: Aviation impact on global climate – Cooperation with UN and other bodies *New*

A36-22

- Appendix K: ICAO Programme of Action on international aviation and climate change *New*
- Appendix L: Market-based measures, including emissions trading *New*

ICAO's mandate within the UN

A36-22 (J): Aviation impact on global climate - Cooperation with UN and other bodies

- Ensure that ICAO exercises continuous leadership on environmental issues relating to international civil aviation, including GHG emissions
- Continue to study policy options to limit or reduce the impact of aircraft engine emissions, to develop concrete proposals and provide advice as soon as possible to the Conference of the Parties of the UNFCCC
- Continue to cooperate with organizations involved in policy-making in this field, notably UNFCCC and SBSTA

Programme of action on International Aviation and Climate change (Appendix K)

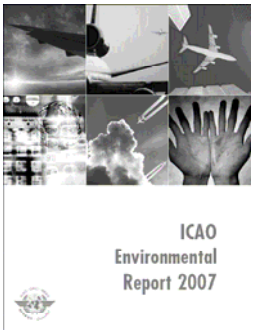
- **Group on International Aviation and Climate Change (GIACC)**
  - **Senior Government Officials**
  - **Aggressive Program of Action**
  - **Implementation Framework: strategies and measures that States can use to achieve emissions reductions**
    - **Voluntary measures**
    - **Effective dissemination of technology**
    - **More efficient operational measures**
    - **Improvements in air traffic management**
    - **Positive economic incentives**
    - **Market-based measures**

Group on International Aviation and Climate Change (GIACC)

- GIACC/1 (Feb 08) reviewed aviation emissions-related activities within ICAO and internationally
  - GHG on going activities in CAEP
  - Cooperation with UN Bodies (UNFCCC/IPCC)
  - Information on National/regional activities
  - Information from Industry on possible actions to reduce aviation emissions (airlines; airports; air navigation services; and business aviation);
  - Discussion and exchange of views on elements of a framework for action;
  - Aspirational goals
  - Future Schedule

Future Schedule - GIACC and AWGLCA

ICAO/GIACC PROCESS	UNFCCC/AWLCA PROCESS
GIACC/1 – 25-27 Feb08	AWGLCA/1 – 31Mar-4Apr08
GIACC/2 – 14-16 Jul08	AWGLCA/2 – 2-13 Jun08
GIACC/3 – 16-18 Feb09	AWGLCA/3 – Aug/Sept08
GIACC/4 – 1-3 Jun09	AWGLCA/4 – 1-12 Dec08
High Level Meeting in connection with COP/15 (date tbd)	AWGLCA/5 – Mar09
	AWGLCA/6 – 1-12Jun09
	AWGLCA/7 – Aug/Sept09
	AWGLCA/8 – 30Nov-11Dec09 (COP/15)
CAEPSG/2-Sept08	
CAEPSG/3-Jun09	
CAEP/8-Feb10	
	WORKSHOPS/INFORMAL GROUPS



Thank you!

For more information:

ICAO Web Page
www.ICAO.int/

ICAO Environmental Report 2007
www.ICAO.int/icao.env/

International Chamber of Commerce
The world business organization

AWG Workshop,
Possible Approaches Targeting Sectoral Emissions
Bangkok, April 2, 2008

ICC Perspectives on Sectoral Approaches

Dr. Brian P. Flannery
Environment & Energy Commission (Vice-Chair)

The International Chamber of Commerce

- Represents 7,500+ member companies in 130+ countries, including
  - Small, medium and multi-national enterprises
  - All sectors
- Engages in wide range of policy areas: seek to contribute members' experience, expertise and views
- Participates in many multilateral forums:
  - "Category 1" NGO to ECOSOC
  - Engaged in numerous UN and international activities, e.g. CBD, CSD, UNEP, WTO, G8
  - Serve as business focal point in UNFCCC

www.iccwbo.org

Possible Rationale for Sectoral Approach

- Attempt to avoid competitiveness issues inherent in differentiated national targets
- Means to address technological issues directly, leading to sharing of best practice, raising performance standards, enhancing environmental performance, technology transfer, enabling frameworks etc.
- Possible way to promote:
  - Broader participation
  - A more efficient CDM

Existing Sectoral Agreements

- Numerous existing examples:
  - Voluntary initiatives, commitments by sectors
  - Voluntary *international* agreements: Cement, Steel, Aluminium
  - Public-private partnerships, e.g. APP
  - Sector-based national / regional regulatory frameworks
  - Measurable, reportable results
- Pursue a variety of goals, objectives

Emissions	Emission intensity
Research	Education
Reporting	Technological co-operation

- Typical elements
  - definition of the sector
  - parties to the agreement
  - nature of the agreement, e.g. on emissions, GHG intensity, standards, … and the timeframe to achieve the outcome
  - procedures for accountability, e.g. how to measure, to whom, and with what consequences

Sectoral Approaches in UN FCCC/KP

- Agreements under UN FCCC/KP commitments are taken by governments—business and industry are affected through national implementation
- Bali context: achieving deep, long-term emissions cuts (through 2050)
- No common understanding now of how such an international sectoral approach would be formulated or implemented
- While business and industry typically organize through associations to consult –and in some cases reach agreement– with national governments, few, if any, sectors have capacity to negotiate or legally commit at international level on their members' behalf
  - Lack comprehensive membership
  - Lack governance procedures to bind members
- National and International business associations are in a position to share views, and welcome the opportunity to participate in discussions of sectoral approaches

Important Considerations

- Definition, boundaries of sectors
- National circumstances
  - Availability of Indigenous resources (coal, hydro)
  - Starting point and legacies: technological base, infrastructure, stage of development, existing regulations, markets
- Role of sectors in overall national and global economy
  - Supply chain from inputs / service providers / customers
  - Resource, economic and social linkages
  - Market circumstances
- How to address emerging sectors potentially based on large scale, currently non-commercial technologies: hydrogen, carbon capture and storage—with no existing business model
- Ability/capacity/opportunity for formal interaction in policy development between regulators/negotiators and sectoral representation/ trade associations

Continued...

Important Considerations

Continued

- Nations, not companies, are bound by international agreements
- Company's legal obligations depend on national implementation
- Tools/approaches to implement agreement on Sectoral Approach
  - Sectoral caps/objectives on emissions, emissions intensity
  - Technical Standards, labels, reporting
  - Policies
- Economic importance, impact on national welfare, and role of sectors in national economies differs from country to country
- Sectoral approaches can deliver benefits, but are unlikely to minimize or equalize economic and social impacts economy-wide

Initial Recommendations

The ICC believes that sectoral policy approaches should:

- Encourage voluntary, sector-based approaches
- Allow markets to develop and select technologies
- Evaluate and give priority to options based on cost-effectiveness
- Maintain a comparable effort among sectors and countries
- Minimize economic damage to existing, still economic capital stock
  - Focus on new investment
  - Encourage efficiency improvements in existing capital stock
  - Incentivize early retirement of inefficient equipment

Continued...

Continued...

Initial Policy Recommendations

The ICC believes that sectoral policy approaches should:

- Utilize realistic expectations of foreseeable technical progress
- Maintain flexibility for companies and sectors within the context of regional and national circumstances
- Consider economy-wide links between sectors
- Assess economy-wide & trade implications, taking account of supply & value chain linkages
  - Sectors often draw on the same pool of limited resources
  - Changes in a sector may inhibit/enable change in other sectors
  - Need to consider implications for imports & exports, trade & investment

ICC will bring a range of business views and experiences with sectoral approaches into these ongoing negotiations

Thank You

www.iccwbo.org

Greenhouse gases, sectors and source categories under the Kyoto Protocol

AWG KP –5
In-session workshop on means to reach emission reduction targets

Katia Simeonova
Manager, Reporting and Analysis Programme

Outline

- Greenhouse gases (GHGs), sectors and source categories under the Kyoto Protocol
- Decisions relating to GHGs, sectors and source categories covered under the Kyoto Protocol
- Progress on reporting and review under the Kyoto Protocol

Greenhouse gases, sectors and source categories under the Kyoto Protocol

Article 3 paragraph 1: gases and sectors covered under Annex A

- Greenhouse gases

  Carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6)

- Sectors

  Energy, industrial processes, solvent and other product use, agriculture, and waste

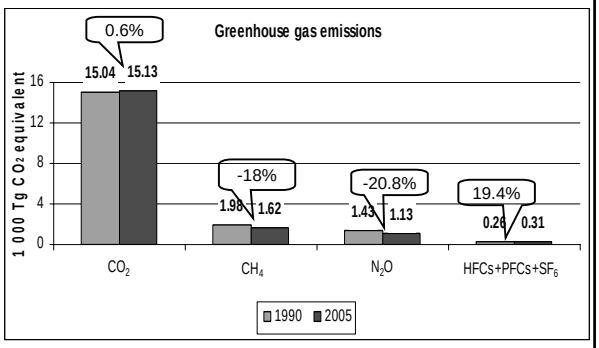
Other issues relating to GHGs and sectors under the Kyoto Protocol

- Article 3, paragraphs 3 and 4: LULUCF is not included in Annex A, but at the accounting side
- Article 2, paragraph 2: emissions from bunker fuels (aviation and marine) to be addressed by Annex I Parties working through ICAO and IMO
  - →Reporting of these emissions in the annual GHG inventories
  - →Not included in the national totals

Methodological issues under the Kyoto Protocol

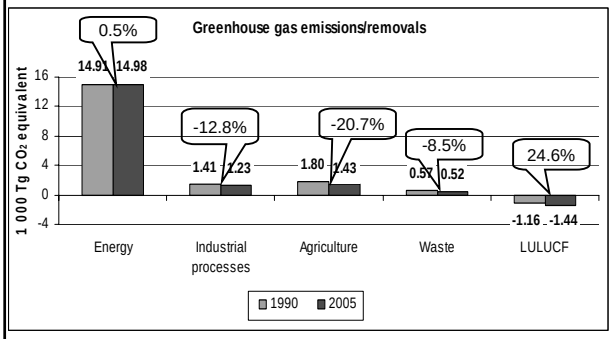
- Decision 2/CP.3:
  - → Use of the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories
  - → Actual emissions of HFCs, PFCs and SF6 should be estimated and reported, where data are available
  - → Global warming potentials (100-year time horizon) should be those provided by the IPCC Second Assessment Report
  - → Bunker fuel emissions should not be included in national totals, but reported separately (the SBSTA to further elaborate on the inclusion of these emissions in the overall greenhouse gas inventories of Parties)
  - → Emissions resulting from multilateral operations pursuant to the Charter of the United Nations shall not be included in national totals, but reported separately; - other emissions related to operations shall be included in the national emissions totals of one or more Parties involved

Emission profile of Annex I Parties for 1990-2005



Source: FCCC/SBI/2007/30

Emissions and removals of Annex I Parties for 1990-2005 by sector



Source: FCCC/SBI/2007/30

Decisions relating to GHGs, sectors and source categories covered under the Kyoto Protocol

Institutional framework: national system (decision 19/CMP.1)

- Guidelines for national systems for the estimation of anthropogenic greenhouse gas emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol
  - →Applicability
  - →Definitions
  - →Objectives
  - →Characteristics
  - →General and specific functions

Reporting framework (decision 15/CMP.1)

- Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol
  - →Applicability, general approach and objectives
  - →Greenhouse gas inventory information, including on Article 3, paragraphs 3 and 4
  - →Changes in national systems
  - →Other issues: Kyoto units, changes in the registry, Article 3, paragraph 14 information, policies and measures, and Article 10 and 11

Review framework (decision 22/CMP.1)

- Guidelines for review under Article 8 of the Kyoto Protocol
  - →General approach
  - →Review of the national GHG inventory, assigned amount and other Kyoto units information
  - →Review of national systems and national registries
  - →Review of the national communications, Article 3, paragraph 14 information and expedited procedures for the review to reinstate eligibility

Review framework: adjustments (decision 20/CMP.1)

- Good practice guidance and adjustments under Article 5, paragraph 2, of the Kyoto Protocol
  - →Definition for application of adjustments
  - →Technical guidance on methodologies for adjustments
  - →Objective, general approach, methods and conservativeness and sector specific elements
  - →List of inventory review resources to calculate adjustments, provisions for review and table of conservativeness factors

Reporting and review framework for LULUCF

- Decision 17/CMP.1 Good practice guidance for land use, land-use change and forestry activities under Article 3, paragraphs 3 and 4
- Decision 18/CMP.1 Criteria for cases of failure to submit information relating to estimates of greenhouse gas emissions by sources and removals by sinks from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol
- Decision 6/CMP.3 Good practice guidance for land use, land-use change and forestry activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

Progress on reporting and review under the Kyoto Protocol

Initial report and review under the Kyoto Protocol

- Decisions 13/CMP.1, 15/CMP.1 and 22/CMP.1
- Deadline for submission of the initial report: 1 January 2007
  - →36 reviews conducted
  - →32 reports published and 4 are under preparation
  - →One review scheduled for April 2008 and one in September 2008
- Parties became eligible to participate in the Kyoto mechanisms 16 months after the submission of the initial report and successful completion of the reporting, review and compliance cycle

Thank you!

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME

WMO UNEP

Issues relating to GHG, Sectors and Source Categories in IPCC Inventory Guidelines

AWG5 - Kyoto Protocol

Bangkok, April 2008

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME

UNEP WMO

National Inventories of GHG

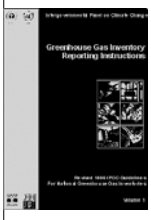
- IPCC evolutionary approach for national inventories of GHGs
  - ✓ 1995 IPCC Guidelines for National Greenhouse Gas Inventories
  - ✓ Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories
  - ✓ Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (2000)
  - ✓ Good Practice Guidance for LULUCF (2003)
  - ✓ 2006 IPCC Guidelines (2006)

IPCC - NGGIP Products

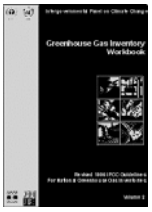
"1995" and "Revised 1996" IPCC Guidelines for National Greenhouse Gas Inventories

<http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.htm>

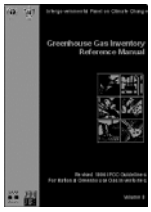
(cf. COP Decisions 4/CP.1, 9/CP.2, 10/CP.2, 2/CP.3 & *17/CP.8*)



Volume 1
Reporting
Instructions



Volume 2
Workbook
+
IPCC Software



Volume 3
Reference
Manual

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME

UNEP WMO

Revised 1996 IPCC Guidelines

- Provide methodologies, default data and instructions for estimating emissions of all six GHG + ozone and aerosol precursors for the following sectors:
  - ✓ Energy
  - ✓ Industrial Processes
  - ✓ Solvent and Other Product Use
  - ✓ Agriculture
  - ✓ LUCF
  - ✓ Waste

IPCC - NGGIP Products

IPPC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories

<http://www.ipcc-nggip.iges.or.jp/public/gp/english/> (All UN language versions)

Complements the Revised 1996 IPCC Guidelines - Published in 2000

Endorsed by SBSTA12 (June 2000)

Other decisions include: Dec.20/CMP.1

For Non-Annex-I Parties: Dec.17/CP.8 encourages its use.

Background Papers: IPCC Expert Meeting on Good Practice Guidance and Uncertainty Management in National GHG Inventories

Published in late 2002

<http://www.ipcc-nggip.iges.or.jp/public/gp/gpg-bgp.htm>

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME

UNEP WMO

IPCC GPG and Uncertainty Management

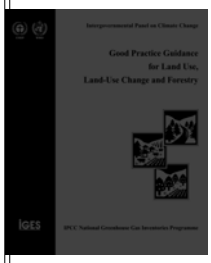
- Consistent with the 1996 IPCC Guidelines
  - ✓ Covers all six GHGs
  - ✓ Sectors: Energy, Industrial Processes, Agriculture and Waste
  - ✓ Use of GWP is limited to
    - reporting results of the analysis of uncertainty
    - key category analysis

IPCC - NGGIP Products

IPCC Good Practice Guidance for Land use, Land-Use Change and Forestry

<http://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf.htm>

- Actions by SBSTA at 19th, 20th, 21st sessions and Dec. 13/CP.9 , Dec. 15/CP.10, Dec.17/CMP.1



•Complements the Revised 1996 IPCC Guidelines for LULUCF sector.

•*GPG-LULUCF* provides supplementary methods and good practice guidance for estimating, measuring, monitoring and reporting on carbon stock changes and greenhouse gas emissions from LULUCF activities under Article 3, paragraphs 3 and 4, and Articles 6 and 12 of the Kyoto Protocol.

UNEP
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME
WMO

GPG for LULUCF

- Land use representation
  - ✓ Forest land
  - ✓ Cropland
  - ✓ Grassland
  - ✓ Wetlands
  - ✓ Settlements
  - ✓ Other land
- **Reporting categories in GPG can be traced back (mapped) to those of the Revised 1996 IPCC Guidelines**

UNEP
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME
WMO

GPG for LULUCF

- **Greenhouse Gases**
  - ✓ **CO_2**
    - Living biomass, dead organic matter and carbon organic soil
  - ✓ **CH_4**
    - Fire sub-category
  - ✓ **N_2O**
    - Fire, soil organic matter mineralization, nitrogen inputs, cultivation of organic soils sub-categories
- **Includes managed wetland (peatland and flooded lands), settlement remaining settlement, belowground biomass, drainage and rewetting of forest soils and natural disturbances (fires, storms, insects on managed land).**

UNEP
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME
WMO

GPG for LULUCF

- Provides guidance for estimation of human-induced activities agreed under Article 3.3 (deforestation, afforestation, reforestation) and Article 3.4 (forest management, cropland management, grassland management, revegetation) of the Kyoto Protocol.

UNEP
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME
WMO

GPG for LULUCF

- Provides supplementary methods and *good practice* guidance specifically linked to (LULUCF) activities in the Kyoto Protocol
- Provides *good practice* guidance for LULUCF projects hosted by Parties listed in Annex B (Article 6 projects) and afforestation / reforestation projects hosted by Parties not listed in Annex B of the Kyoto Protocol (Article 12, Clean Development Mechanism or CDM projects)

UNEP
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME
WMO

Issues included in GPG LULUCF

- **FACTORING OUT INDIRECT, NATURAL AND PRE-1990**
- For the purpose of accounting under the Kyoto Protocol for the first commitment period, "factoring out" has been addressed through the cap for carbon credits for forest management under Articles 3.4 and 6.
  - ✓ *"The "factoring out" issue is currently under consideration by the IPCC … (2003)"*

UNEP
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME
WMO

Issues included

- **DISTURBANCES**
  - ✓ Include fire, windthrow, insects, droughts, flooding, ice storms, etc. Although disturbances
- **INTERANNUAL VARIABILITY**
  - ✓ It is *good practice* to document whether the methods selected for the estimation of carbon stock changes and non-CO2 greenhouse gas emissions are sensitive to interannual variability of environmental conditions during the commitment period, and to report how interannual variation was addressed in the inventory calculations.

2006 IPCC Guidelines

- FCCC/SBSTA/2002/13
  - ✓ Invites the IPCC to revise the Revised 1996 IPCC Guidelines, taking into account the relevant work under the Convention and the KP
    - Built upon the 1996 GLs, GPGs, inventory expert's experience
    - Evolutionary approach wherever scientific and technical knowledge had improved

IPCC - NGGIP Products

2006 IPCC Guidelines

2,000 pages. Adopted by IPCC 25 (Mauritius, April 2006)

- ✓ Revision of the Revised 1996GLs was completed in April 2006. http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.htm
- ✓ SBSTA 30 (June 2009) to consider its implementation.

Volume Structure

- Overview
- Vol 1 - General Guidance and Reporting
- Vol 2 - Energy
- Vol 3 - Industrial Processes and Product Use
- Vol 4 - Agriculture, Forestry and Other Land use - AFOLU
- Vol 5 - Waste

2006 IPCC Guidelines

- **Estimation methods and complete coverage of all direct GHGs for which GWP values are available in the IPCC TAR**
  - ✓ CO_2 ; CH_4 ; N_2O
  - ✓ HFCs (HFC-23, HFC134a, HFC152a)
  - ✓ PFCs (CF_4, C_2F_6, C_3F_8, C_4F_{10}, C_5F_{12})
  - ✓ SF_6
- **nitrogen trifluoride (NF3)**
- **trifluoromethyl sulphur pentafluoride (SF5CF3)**
- **halogenated ethers (e.g. C4F9OC2H5, CHF2OCF2OC2F4OCHF2, CHF2OCF2OCHF2)**
- **other halocarbons not covered by the Montreal Protocol (e.g. CF3I, CH2Br2, CHCl3, CH3Cl, CH2Cl2).**

2006 IPCC Guidelines

- Estimation methods for some direct GHG for which GWP values were not available from the IPCC at the time of the writing
  - ✓ Countries unable to incorporate these gases in key category analysis or to include them in national total GWP weighted emissions
  - ✓ Provide estimates in mass units using methods in the GLs

2006 Guidelines

✓Energy

- Overview of the CCS system
  - – provides emission estimation methods for CO2 capture, CO2 transport, CO2 injection and underground CO2 storage.
- Methane from abandoned coal mines
- Uncontrolled combustion of coal added

2006 Guidelines

✓ Industrial Processes and Product Use

- Additional methods for new categories and new gases
  - – Production of lead, zinc, titanium dioxide, petrochemicals, and liquid crystal display manufacturing
  - – New gases in the IPCC TAR
    - » NF_3, SF_5CF_3, and halogenated ethers
- Non-energy uses of fossil fuels
  - – Reported under the Industrial Processes and Product Use (IPPU)

Additional Notes on IPPU Sources

➢ A wide variety of industries and products

✓Electronics industry
- semiconductor manufacturing, TFT flat panel display manufacturing, etc.

✓Product uses as ODS substitutes
- refrigeration and air conditioning, foam blowing agents, fire protection, etc.

✓Other product manufacture and use
- electrical equipment, medical applications, propellant for pressure and aerosol products, etc.

➢ New sources (new industries, new products) may emerge in the future.

2006 Guidelines

✓ Agriculture, Forestry and Other Land Use (AFOLU)

- Integration between agriculture and land use, land-use change and forestry
- Managed land as a proxy to anthropogenic emissions by sources and removals by sinks
- CO_2 emissions and removals associated with terrestrial carbon stocks in settlements
- Harvested wood products (HWP)
- Emissions from managed wetlands

AFOLU

➢Description of alternative methods to estimate and report C stock changes associated with harvested wood products

2006 Guidelines

✓ Waste

- Methodology for landfills improved. The previous method (potential emissions from waste deposited in that year) is replaced by a first order decay that estimates emission in that year.
- Carbon accumulation in landfills is estimated and can be used with the HWP estimations in the AFOLU sector.

2006 Guidelines

- ✓ Relevant to all sectors
  - CO_2 resulting from emission of other gases
  - Consistent treatment of nitrogen (N) deposition

Coverage

The same principles as IPCC 96 Guidelines, plus notably:

- Methods for all GHGs with available GWP values
- Methods for additional gases that could be used as substitutes for which GPGs not yet available
- Methods for possibly significant sources which were not contained in earlier GLs or GPGs,
- Clarified carbon dioxide capture and storage

However, basic approaches unchanged

- Basic approaches unchanged from 1996, GPGs (2000 1nd 2003) to 2006 GLs
- Methodological improvements due to improved scientific and technical knowledge
- New and improved default values

Guidelines have evolved

- Main sectors reduced from 6 to 4
- Good Practice Guidance has evolved and became central
- Land use and Agriculture sectors have been merged into AFOLU
- Methods for more gases and sources contained

Global Warming Potential - GWP

- **AR4 – Working Group I**
  - ✓ **GWP or other emission metrics provide a tool that can be used to implement comprehensive and cost-effective policies in a decentralised manner so that multi-gas emitters can compose mitigation measures, according to a specified emission constraint.**
- **Adequacy of GWP concept has been widely debated since its introduction**
- **Remains as the recommended metric to compare future climate impacts of emissions of long-lived climate gases**
- **Serious limitations to the use of global mean GWPs to assess the possible climate impacts of short lived species and compare those with the impacts of the long-lived climate gases**

ADDITIONAL SLIDES

AFOLU

- CO2 emissions and removals resulting from C stock changes in biomass, dead organic matter and mineral
- soils, for all managed lands;
- • CO2 and non-CO2 emissions from fire on all managed land;
- • N2O emissions from all managed soils;
- • CO2 emissions associated with liming and urea application to managed soils;
- • CH4 emissions from rice cultivation;
- • CO2 and N2O emissions from cultivated organic soils;
- • CO2 and N2O emissions from managed wetlands (with a basis for methodological development for CH4 emissions from flooded land in an Appendix 3);
- • CH4 emission from livestock (enteric fermentation);
- • CH4 and N2O emissions from manure management systems; and
- • C stock change associated with harvested wood products.

HWP

- Several different approaches for reporting the storage of carbon in wood products and its subsequent release as CO_2
- No preference to any approach and no attempt prejudge whether these, or any other approach, should be used to account for this storage and emission.
- Alternative approaches differ in how they allocate the *HWP Contribution* between wood producing and consuming countries, and what processes (atmospheric fluxes or stock changes) they focus on.

HWP

- Stock-Change approach
- Atmospheric Flow approach
- Production Approach.

HWP

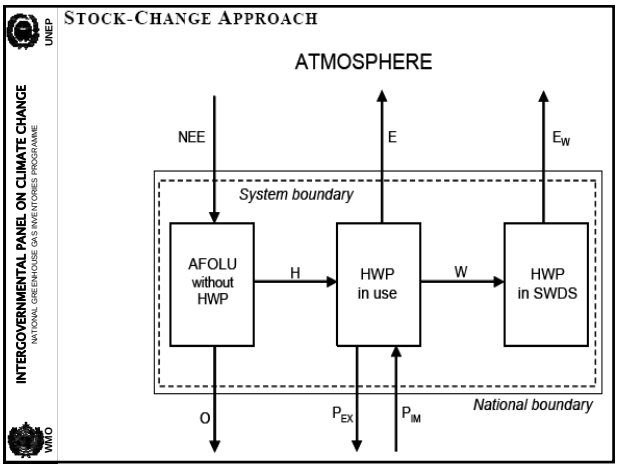
- The time carbon is held in products varies depending on the product and its uses.
  - ✓ fuelwood and mill residue may be burned in the year of harvest
  - ✓ many types of paper are likely to have a use life in uses less than 5 years which may include recycling of paper
  - ✓ sawnwood or panels used in buildings may be held for decades to over 100 years
  - ✓ discarded HWP can be deposited in solid waste disposal sites (SWDS) where they may persist for long periods of time.

HWP

- IPCC 1996 GLs default assumption was that inputs to the HWP reservoir equals outputs. Since the only significant output is oxidation, this means that the amount of oxidation equals the harvest, where the oxidation includes oxidation of some of the wood harvested in the current year and oxidation of some of the HWP placed in use in prior years.
- Given that inputs do not in general equal outputs and that carbon can remain stored in HWP for extended periods of time, this storage time needs to be taken into account when providing guidelines for estimating the contribution of HWP to AFOLU CO2 emissions/ removals.

HWP Variables

- Annual change in carbon stock in HWP in the reporting country, including HWP stocks from both domestic harvest and imports (Gg of carbon per year)
- 2. Annual change in carbon stock in HWP made from wood harvested in the reporting country including annual change in carbon stock in HWP exported to other countries (Gg of carbon per year)
- 3. Annual imports of all types of wood and paper material to the reporting country (Gg of carbon per year)
- 4. Annual exports of all types of wood and paper material from the reporting country (Gg of carbon per year)
- 5. Annual harvest for wood products in the reporting country (Gg of carbon per year).



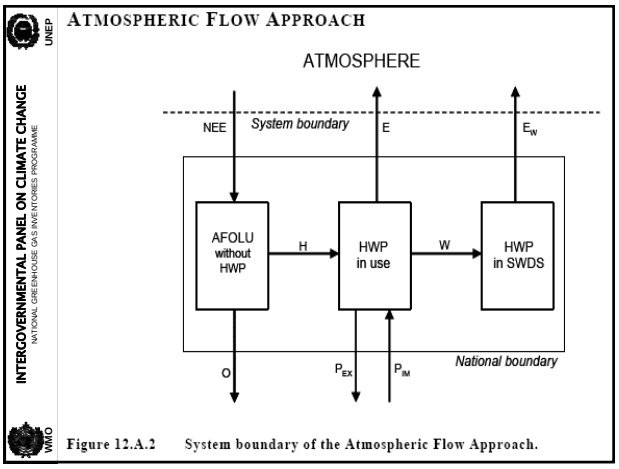


Figure 12.A.2 System boundary of the Atmospheric Flow Approach.

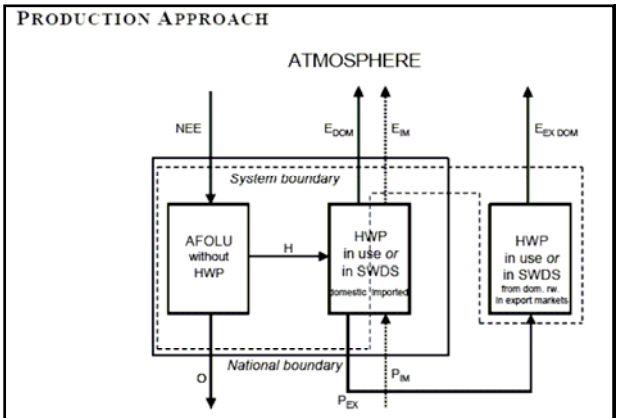


Figure 12.A.3 System boundary of the Production Approach.

Ad hoc Working Group on further Commitments for Annex I Parties under the Kyoto Protocol

Emissions from international aviation - Challenges

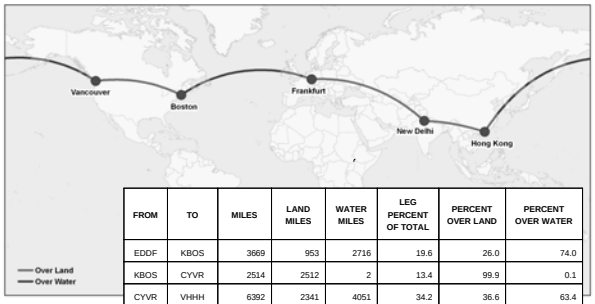
ICAO - International Civil Aviation Organization

Jane Hupe, Chief Environmental Unit

Challenges

- **Data:**
  - Sources
  - Access
  - Quality
  - Comparability
- **Methodological issues:**
  - Tiers: top-down X bottom-up approaches
  - International X domestic
  - Models
- **Legal issues:**
  - Coverage
  - Legal boundaries
  - Responsibilities: collection, reporting, monitoring/verification

Illustrative example



FROM	TO	MILES	LAND MILES	WATER MILES	LEG PERCENT OF TOTAL	PERCENT OVER LAND	PERCENT OVER WATER
EDDF	KBOS	3669	953	2716	19.6	26.0	74.0
KBOS	CYVR	2514	2512	2	13.4	99.9	0.1
CYVR	VHHH	6392	2341	4051	34.2	36.6	63.4
VHHH	VIDP	2331	2303	28	12.5	98.8	1.2
VIDP	EDDF	3811	3811	0	20.4	100.0	0.0
TOTAL		**18717**	**11921**	**6796**	**100.0**	**63.7**	**36.3**

Illustrative example

FUEL BURN

The fuel burn for flight segment for the nominal case is as follows:

Flight Segment	Total Fuel Burn (kg)
Frankfurt to Boston	43,350
Boston to Vancouver	28,756
Vancouver to Hong Kong	83,953
Hong Kong to New Delhi	27,263
New Delhi to Frankfurt	44,729

WIND SCENARIOS

Scenario	Total Fuel Burn (kg)
Strong Headwind	253,390
Nominal	228,051
Strong Tailwind	207,319

In-session workshop on means to reach emission reduction targets (Kyoto AWG)
Bangkok 1-3 April 2008

Topic 4: Greenhouse gases, sectors and source categories

Presentation by Norway

Outline:

- Methodology and gases
- LULUCF
- International aviation and maritime transport

Estimation, reporting and review guidelines

- The guidelines for estimating, reporting and verifying emissions under the KP should be the basis for 2nd commitment period, with relevant modifications
- Norway support the inclusion of new GHG gases not covered by the Montreal Protocol, as identified by IPCC AR4 and 2006 IPCC guidelines
- Norway also support updating the GWP values according to the new values included in the IPCC AR4, provided sound methodological solutions

Land-use, land-use change and forestry

- The rules for LULUCF are decided upon for the 1st commitment period, and need to be addressed
- Norway believes the future LULUCF regime should be more holistic with inclusion of all sources and sinks
- The linkage between agriculture and LULUCF should be considered
- Norway believes AWG should consider the implications of a possible inclusion of LULUCF activities in Annex A of the KP

International aviation and maritime transport

The challenge

- Deep cuts in emissions will be required to combat climate change
- Hence, all sectors must take part in the global effort to reduce emissions
- Aviation and shipping are one of the fastest growing sectors with regard to GHG emissions
- Aviation and shipping are not covered by commitments under the Kyoto Protocol

UNFCC, IMO and ICAO

- Article 2.2 of the Kyoto Protocol states that Annex I Parties should work through the ICAO and IMO
- The issue has been on the agenda of IMO and ICAO for 10 years, but they have not agreed any regulatory framework or mechanism to reduce GHG emissions
- There is a need for stronger commitments and leaderships by UNFCCC
- There is a need for better co-operation between UNFCCC, IMO and ICAO
- Norway believes that emissions from aviation and shipping should be included in a new climate regime

Progress in IMO

- IMO adopted an assembly resolution in 2003 on greenhouse gas emissions from shipping
- Meeting of the Marine Environment Protection Committee (MEPC) aims to identify and develop options in order to make recommendations to IMO Assembly in 2009
- The Committee will consider:
  - ✓ technical, operational and market-based methods for dealing with GHG emissions
- MEPC meets in London this week.

Progress in IMO (cont'd)

- Different options have been proposed and will be discussed at the MEPC meeting
- As one possible solution Norway has forwarded a proposal for a marked based mechanism, which include:
  - ✓ The establishment of a cap on CO_2-emissions from shipping,
  - ✓ A CO_2-charge on all bunkers sold
  - ✓ A fund which could be used for adaptation projects in developing countries, CO_2-credits and technological development within the sector
- Possible Ad-hoc meeting in Oslo in June

Options for a post-2012 regime

- Message from the on technical workshop in Oslo (2007):
  - ✓ The absence of global policies and measures is more due to other political barriers than to technical difficulties
- We see two main options for a global regime:
  - ✓ Country-based approach
  - ✓ Sectoral approach
- We recommend that IMO and/or ICAO are invited to develop mechanisms to secure fulfillment of the targets

Further discussion under AWG

- Norway believes a working group should be established
- The working group could consider, e.g.:
  - ✓ Emissions to be included (e.g. consider implications of excluding emissions from transport between LDCs)
  - ✓ Remaining methodological issues, including assessments of legal, administrative and institutional questions, data collection, verification, compliance and sanctions
  - ✓ Global emission targets for the sector
- The discussion in the working group could facilitate the further negotiations under both AWG and AWGLCA

Slovenian Presidency of the EU 2008

EU views on

greenhouse gases and global warming potentials

and

options for addressing GHG emissions from international aviation and maritime transport

Jakob Graichen
European Community

In-session workshop on means to reach emission reduction targets, AWG 5.1, Bangkok, 1.-3. 4. 2008

Gases and GWP: State of play

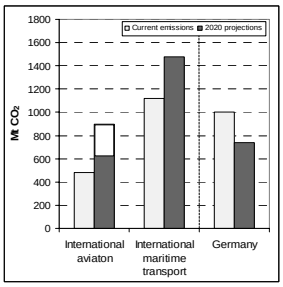
- The 2006 IPCC Guidelines provide estimation methods and/or emission factors for some new gases
  - For some F-gases no GWP has been estimated
- The IPCC Fourth Assessment Report (AR4) also identified additional GHGs and updated GWPs for a number of GHGs already reported
  - Some F-gases that are currently reported under the Kyoto Protocol are not included in the IPCC AR4

Gases and GWP: EU views

- To ensure environmental integrity a post 2012 regime should
  - cover a broad list of halogenated gases
  - use the latest scientific findings on GWPs
- To ensure transparency and accuracy of GHG emission estimates one needs to consider availability and uncertainty of
  - estimation methods
  - emission factors
- Other issues which need to be taken into account
  - relevance/ overall impact and resource requirements
  - time-series consistency
- Topics for AWG 5.2
  - additional methodological work needed under the IPCC on estimation methods and emission factors
  - research needs as regards certain new/emerging sources
  - sector specific questions (e.g. LULUCF) should be discussed under the respective workstreams

International transport –
a major source of GHG emissions

- Emissions are comparable to large Annex I countries
- International transport is one of the fastest growing sources of GHG emissions
- Growth in emissions in these sectors would significantly impair global reduction effort



IPCC 4th AR, WG3; IMO, BLG 12/6/1; EEA Report 5/2007

Progress in IMO

- Report on Ships GHG Emissions (2000) now being updated (due for completion in 2009 or 2010)
- No decisions yet on:
  - Level of reductions to be achieved
  - Scope i.e. which ships reductions may apply to
  - Whether application of 'measures' would be mandatory or voluntary
- Scheduled to decide on 'methods for dealing with emissions' in July 2009
- Progress with ship efficiency measure 'IMO CO_2 index' and 'CO_2 baseline'
- Key meetings are MEPC 57 (March) and MEPC 58 (October)

- EU takes the view that cooperation and discussion in the IMO should be accelerated in order to tackle international maritime emissions

Progress in ICAO

- ICAO discussions on market-based measures since 1991 and emissions trading since 1998
- 2004 ICAO Assembly:
  - Decided not to establish new global legal instrument under ICAO
  - endorsed the concept of open emissions trading for international aviation through voluntary emissions trading and the incorporation into State's existing emissions trading schemes
- 2007 ICAO Assembly: measures to address climate impact of aviation a key point of discussion but disagreement on how to apply
- ICAO Council requested to provide advice as soon as possible to the COP of the UNFCCC, encompassing technical solutions and market-based measures.
- Group on International Aviation and Climate Change to develop and recommend "aggressive programme of action on international aviation and climate change" including the identification of "possible global aspirational goals". Outcome expected prior to COP15.

UNFCCC leadership

- Art. 2.2 Kyoto Protocol: Annex I Parties shall pursue the limitation or reduction of GHG emissions from aviation and maritime bunker fuels through ICAO and IMO
- But ICAO and IMO have not yet been able to agree upon concrete measures or targets
- IMO and ICAO should report at COP 14 on their work programs and deliverables for 2008 and 2009 with a special focus on mandatory measures to be concluded within the organisations before COP 15
- UNFCCC must show stronger leadership
  - enhancing cooperation with ICAO to develop a more effective approach to addressing aviation emissions
  - facilitating more effective approaches and faster progress in IMO.
  - address the need for clear and meaningful targets for these sectors as part of a post-2012 agreement

7

Some general views of the EU

- International aviation and maritime transport emissions should be included in a post-2012 regime
- Inclusion of these sectors is mainly a political and not a methodological question
- Aviation and maritime should be included in a non-discriminatory manner

8

Two main options:

- Inclusion in national totals
  - Emissions from international aviation and maritime are allocated to Parties
  - Emissions part of national GHG inventories and the national quantified emission reduction or limitation target
  - Parties decide whether to address international aviation and maritime transport emissions or increase efforts in other sectors
- Sectoral approaches
  - Emissions from international aviation and maritime transport would not be included national quantified emission reduction or limitation targets
  - Targets would be set for the sector and operators would be required to reduce emissions
  - Parties would be responsible for setting up and enforcing scheme
  - Can allow for different policies and measures at a international, regional or national level
- Maritime transport and aviation might require different approaches

9

Possible approaches: Aviation

- Inclusion in national totals on the basis of route flown or sectoral approach possible.
- Operator emissions trading
  - feasible under national total or sectoral approach
  - scope based on route and not nationality of a carrier to avoid distortion of competition

10

Possible approaches: Maritime transport

Inclusion in national totals not feasible

- due to data problems, evasion possibilities, competitiveness issues, fairness and polluter pays principle

International sectoral approach preferred

Option 1 - Operator emissions trading

- scope based on route or ship but not on the nationality of a carrier to avoid distortions of competition

Option 2 - CO_2 charge

- Operators pay charge on CO_2 emissions
- Funds used to reduce and/or offset emissions from the sector and other climate change related purposes, such as adaptation in developing countries or research and development
- Proposal combines IMO and UNFCCC principles:
  - IMO principle of *no more favourable treatment*
    - charge applies to all shipping worldwide
  - UNFCCC principle of *common but differentiated responsibilities*
    - share of revenues used for Developing Countries

11

Criteria for assessing different approaches

- Contribution to addressing Climate Change
  - share of global emissions covered by the regime and effectiveness of reducing emissions
  - linkages to the overall regime and especially the international carbon market
  - possibilities for evasion and the environmental integrity of the scheme
- Practical implications
  - impacts on competition
  - administrative burden

12

Potential for Revenues

- Need to improve access to adequate, predictable and sustainable financial resources for adaptation, REDD and technology transfer
- Resources needed for adaptation in non-Annex I countries (up to tens of billion USD/yr)
- Potential to generate up to 40 billion USD/yr through international aviation and maritime transport (auctioning, CO_2 charge, ...)
- **International aviation and maritime transport have the potential to provide major share of financial resources necessary**

13

Issues to be discussed by AWG KP

- Means available for limiting climate impact of aviation and maritime
- Avoidance of distortions of competition and leakage
- Appropriateness of Annex I/non-Annex I distinction for these sectors
- Impacts on the global carbon market
- Contribution to sustainable development and technology transfer
- Possibilities to provide adequate, predictable and sustainable financial resources to assist developing Parties that are particularly vulnerable to the adverse impacts of climate change in meeting the costs of adaptation
- Enhanced cooperation between UNFCCC and IMO/ICAO and input prior to COP 15

14

Main messages

- International aviation and maritime transport need to be part of a post 2012 regime
- Need for stronger UNFCCC leadership and enhanced cooperation between UNFCCC and IMO/ICAO
- Need to respect different features of aviation and maritime transport
- Including aviation and maritime transport post 2012 could contribute to necessary financial resources
- The options put forward by the EU and other Parties should be further discussed here and in the following sessions of the AWG KP

15

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Ad hoc Working Group on Further Commitment for Annex I Parties under the Kyoto Protocol (AWG-KP)

First part of the Fifth session – 31 March to 4 April 2008
Bangkok, Thailand

Information on the work on greenhouse gas emissions from ships being carried out by the International Maritime Organization (IMO)

Main events in IMO's GHG work

1 Work on the prevention of air pollution from international shipping started within IMO as long ago as the late 1980s. Annex VI to the MARPOL Convention, dealing specifically with that issue, was adopted at a Diplomatic Conference in September 1997. It entered into force on 19 May 2005 and set limits on nitrogen oxide (NOx) and sulphur oxide (SOx) emissions from ship exhausts, as well as prohibiting installation and deliberate emissions of ozone depleting substances.

2 Since the adoption of the air pollution regulations, IMO has engaged in further discussion on ways to reduce emissions of climate change gases from international shipping, including CO_2. In May 2000, the Organization decided to prohibit the use of perfluorocarbons (PFCs) onboard ships. Although no mandatory instrument has yet been adopted by IMO to cover the emission of GHGs from ships, IMO has given full consideration to the matter at every session of the Marine Environment Protection Committee (MEPC) following the 1997 MARPOL Conference.

3 The 1997 MARPOL Conference convened by IMO adopted **Resolution 8 on "CO_2 emissions from ships",** inviting:

.1 the IMO co-operate with UNFCCC in the exchange of information on GHG issue;

.2 the IMO to undertake a study of GHG emissions from ships; and

.3 the MEPC to consider feasible GHG emissions reduction strategies.

4 As a follow-up to the above resolution, the **IMO Study on Greenhouse Gas Emissions from Ships** was completed and presented to MEPC 45 in June 2000 as document MEPC 45/8. This is the most comprehensive assessment to date of the contribution made by international shipping to climate change, the study established that ships contributed 1.8 % of the world's total CO_2 emissions (for 1996) and also states that there is no other mode of transport that has a better record according to the transport work carried out. Nevertheless, it also identified a number of areas in which there was considerable potential for the further reduction of CO_2 emissions from ships, such as optimisation of hull shape, hull maintenance, propeller design and maintenance, fuel choices, machinery monitoring, ship-routeing considerations including speed reduction, and optimising vessel trim, engine performance, propeller pitch and rudder angles. The study cautioned, however, that if none of the measures are applied, the projected annual growth in fleet

size could lead to an increase in fuel consumption of some 72 percent between the years 2000 and 2020.

5 Assembly adopted, in December 2003, **Resolution A.963(23) on "IMO Policies and Practices related to the Reduction of Greenhouse Gas Emissions from Ships"**, which urges MEPC to identify and develop the mechanism or mechanisms needed to achieve the limitation or reduction of GHG emissions from international shipping and to consider the methodological aspects related to reporting, and to develop a work plan with a timetable. It requests the IMO Secretariat to continue co-operating with the Secretariats of UNFCCC and the International Civil Aviation Organization.

6 There has been ongoing **co-operation between the Secretariats of IMO and UNFCCC** on the work of GHG emissions from ships concerning the use of bunker fuel oils, in recognition of the Kyoto Protocol requirements. A comprehensive report about IMO's work on GHG emissions from ships was brought to the attention of SBSTA 25 in 2006. Since then the issue of GHG emission has been considered by each session of the MEPC.

7 MEPC 53 (July 2005) approved **IMO's "Interim Guidelines for Voluntary Ship CO_2 Emission Indexing for Use in Trials" (MEPC/Circ.471).** The objective of the Interim Guidelines is to establish a common approach for trials on voluntary CO_2 emission indexing, which will enable shipowners to evaluate the performance of their fleet with regard to CO_2 emissions.

8 MEPC 54 (March 2006) received the **first results from CO_2 indexing trials** and MEPC 55 (October 2006) received further information on trials. The guidelines state that they should be updated at or after MEPC 58 (October 2008). MEPC has received results from hundreds of trials conducted over several years. A huge volume of CO_2 indexing data exists and MEPC 56 decided to establish a central database to make the data accessible for comparison and further studies by member States and the shipping industry. MEPC had observed that identical ships in seemingly similar trades produce different results; the difference may result from different weather conditions or from operational differences concerning the specific utilization of individual ships involved in the trials; issues such as the length of time spent waiting in port areas, the length of ballast voyages, whether the ship is fully laden or not, can all make a difference. The **central data base is now established as a GHG module in IMO's Global Integrated Ship Information System (GISIS)** and the IMO Secretariat is entering the data that has already been received. Member States will be able to enter new data from early 2008 and the module will be opened for public use in the first part of 2008.

9 During discussions on GHG within IMO at MEPC 55, in October 2006, further follow-up to resolution A.963(23) was considered. **MEPC 55 decided to update the IMO GHG Study** to give a better foundation for future decisions and to help in the follow-up to resolution A.963(23).

10 MEPC 55 (October 2006) noted that climate change caused by GHG emissions from burning fossil fuel was a steadily growing concern for most countries, and that scientists had found more and more proof that a connection exists. It **agreed that the threat from global warming was far too serious to be ignored** and the shipping industry, although an already environmentally friendly and fuel efficient mode of transport, must take action. IMO recognized in resolution A.963(23), that the projected adverse effects of climate change and acidification of the world's oceans called for measures to limit or reduce the emissions from international shipping.

11 **MEPC 55 adopted a work plan with timetable** for IMO's future work on reduction of GHG from ships and agreed that IMO should maintain its leading position, to avoid unilateral action either on a global, regional or national level. MEPC should continue to take the lead in developing GHG strategies and mechanisms for international shipping and co-operate closely with other relevant UN bodies.

Recent GHG Work

12 In July 2007, **MEPC 56 confirmed the need to update the 2000 IMO GHG Study**, and agreed a timeframe, scope and terms of reference for that purpose. The study will cover current global inventories of GHGs and relevant substances emitted from ships engaged in international transport, as well as any methodological aspects and future emission scenarios; identify progress made to date in reducing GHG emissions and other substances; identify possible future measures to reduce emissions of GHGs and undertake a cost benefit analysis, including environmental and public health impacts, of options for current and future reductions in GHG emissions and other relevant substances from international shipping. Finally, it will identify the impact of emissions from shipping on climate change.

13 The update is undertaken by an international consortium of research institutes with relevant experience and expertise within the scope of the update. A Steering Committee is established to assist the Secretariat and have input into the process. The Steering Committee will monitor and report progress of the study and confirm that the study meets the terms of reference before submission to the MEPC.

14 Meanwhile, the MEPC established an **Intersessional Correspondence Group on GHG** Related Issues to discuss and compile possible approaches on technical, operational and market based measures to address GHG emissions from ships and present a written report to MEPC 57.

15 In November 2007, **Secretary-General Efthimios E. Mitropoulos** told the 25th meeting of the IMO Assembly that he intended to present to MEPC 57 in March/April 2008 **a proposal to consider accelerating its work programme** on greenhouse gas (GHG) emissions from ships in order that its Marine Environment Protection Committee (MEPC) can expedite its decision-making process on measures to control and reduce such emissions.

16 In particular, it is expected that certain key elements of IMO's revised greenhouse gas study and other parts of the work programme would now be ready in sufficient time for the MEPC to make decisions on this topic at its 58th session, in the latter part of 2008.

17 The Secretary-General spoke of the increasing importance and urgency given by the international community to the control of greenhouse gas emissions worldwide and of the globally expressed wish to act, and act now. He said that IMO and the international maritime community needed to demonstrate their determination to be in the front line of the global campaign to tackle this threat to the global climate without delay.

18 The MEPC is currently working in accordance with its approved work plan and timetable. In addition to the update of the 2000 IMO Study on GHG Emissions from Ships, the work includes development of a CO_2 Emission Indexing Scheme, a CO_2 emission baseline and technical, operational and market-based methods to achieve reduction of greenhouse gas emissions, all of which are currently planned to be finalized by July 2009. Secretary-General Mitropoulos's call for an acceleration of the work plan has been endorsed by the MEPC Chairman, Mr. Andreas Chrysostomou of Cyprus.

CO_2 sequestration in sub-seabed geological formations under the London Protocol

19 Parties to the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Protocol) started their discussions on CO_2 sequestration in earnest in 2005, as they were very concerned about the implications for the marine environment of climate change and ocean acidification due to elevated concentrations of CO_2 in the atmosphere. In their view, CO_2 sequestration in sub-seabed geological formations is one of a portfolio of options to reduce levels of atmospheric CO_2 and represents an important interim solution, while every effort should be made to further develop low carbon forms of energy.

20 Since 2005, the following has been achieved in this regard:

.1 Parties adopted, on 2 November 2006, the **"Risk Assessment and Management Framework for CO_2 Sequestration in Sub-Seabed Geological Structures".** This Framework was developed to:

.1.1 ensure compatibility with Annex 2 to the London Protocol;

.1.2 identify relevant gaps in knowledge; and

.1.3 reach a view on the implications of this practice for the marine environment;

.2 Parties adopted, on 2 November 2006, **amendments to Annex 1 to the London Protocol to regulate CO_2 sequestration in sub-seabed geological formations**. These amendments entered into force on 10 February 2007. The rules state that carbon dioxide streams may only be considered for dumping, if:

.2.1 disposal is into a sub-seabed geological formation;

.2.2 they consist overwhelmingly of carbon dioxide (they may contain incidental associated substances derived from the source material and the capture and sequestration processes used); and

.2.3 no waste is added for the purpose of its disposal. *In other words, these rules do not permit CO_2 sequestration in the deep oceans themselves*;

.3 as sub-seabed geological sequestration of CO_2 will now be subject to licensing, Parties also adopted, on 9 November 2007, "**Specific Guidelines for Assessment of Carbon Dioxide Streams for Disposal into Sub-seabed Geological Formations".** These Guidelines advise Parties on how to capture and sequester CO_2 in a manner that meets all the requirements of the Protocol and is safe for the marine environment, over both the short and long terms.

21 Parties also made specific arrangements to prepare in 2008:

.1 additional guidance in case of using **transboundary** sub-seabed geological formations; and

.2 a specific **CO_2 sequestration reporting format**, as it would be necessary to archive documentation so that future generations would be informed of the existence of the CO_2 reservoir, its history and the assessment process leading to its use.

22 Protection of the oceans, being part of the 'global commons', requires internationally agreed standards. The use of geological formations on land for CO_2 sequestration, on the other hand, is generally subject to national law. In practical terms, there is significant potential for geological storage in formations beneath the oceans. Oil and gas reservoirs and saline aquifers are expected to have the largest potential to accommodate safe, long-term storage. The aim is to retain CO_2 permanently. Because of the various trapping mechanisms, storage may, in some cases, become more secure over time.

Ocean fertilization discussions in 2007 under the London Protocol

23 In June 2007 the Scientific Groups, established under the London Convention and Protocol, considered several submissions relating to large-scale iron fertilization of the oceans to sequester CO_2. This practice is aimed at drawing down an additional amount of surplus CO_2 in the oceans for sequestration purposes. The Scientific Groups developed a "Statement of Concern", **taking the view that knowledge about the effectiveness and potential environmental impacts of ocean iron fertilization currently was insufficient to justify large-scale operations and that this could have negative impacts on the marine environment and human health**. They requested Parties to consider the issue of large-scale ocean fertilization operations with a view to ensuring adequate regulation of such operations, addressing in particular:

.1 the purposes and circumstances of proposed large-scale ocean iron fertilization operations and whether these are compatible with the aims of the Convention and Protocol;

.2 the need, and potential mechanisms, for regulation of such operations; and

.3 the desirability of bringing proposals for such operations to the attention of other international instruments and institutions.

24 After intensive discussions in November 2007, Parties:

.1 **endorsed** the "Statement of Concern" on large-scale ocean fertilization of the Scientific Groups;

.2 **agreed** that the scope of work of the London Convention and Protocol included ocean fertilization, as well as iron fertilization, and that these agreements were competent to address this issue due to their general objective to protect and preserve the marine environment from all sources;

.3 **agreed** that they would further study the issue from the scientific and legal perspectives **with a view to its regulation**; and

.4 recognizing that it was within the purview of each State to consider proposals on a case-by-case basis in accordance with the London Convention and Protocol,

urged States to use the utmost caution when considering proposals for large-scale ocean fertilization operations.

25 Having given this direction towards caution, Parties established a Legal Intersessional Correspondence Group to develop a checklist of legal issues that need to be addressed relevant to whether, and how, the legal framework of the London Convention and Protocol applies to key scenarios on ocean fertilizations. Their advice would inform the debate on technical and scientific issues when the Scientific Groups meet again in May 2008 and, subsequently, the discussion on regulation of this practice when Parties meet again in October 2008.

26 **As at 29 February 2008, there are 33 Parties to the London Protocol and 82 Parties to the London Convention.** For further information, visit www.londonconvention.org.

Maritime transport and sustainable development

27 There is no doubt that shipping **is a clean, green, environmentally-friendly and very energy-efficient mode of transport**. Overall, it is only a small contributor to the total volume of atmospheric emissions. Nevertheless, significant reductions in harmful emissions from ships and increases in fuel efficiency have been achieved over the past decades through enhancements in the efficiency of engine and propulsion systems and improved hull design. Larger ships and a more rational utilization of individual vessels have also contributed significantly to reducing the amount of energy needed to transport a given unit of cargo.

28 What is often overlooked in any discussion about overall levels of GHG emissions from shipping is that the total amount of **shipping activity is not governed by shipping itself, but by global demand for shipborne trade**. And not only is this high, but it continues to grow. The international shipping industry is responsible for the carriage of more than 90 percent of world trade and is the life blood of the global economy. Without shipping, it would simply not be possible to conduct intercontinental trade, the bulk transport of raw materials or the import and export of affordable food and manufactured goods.

29 The forthcoming session of the Marine Environment Protection Committee (MEPC 57) to be held in London from 31 March to 4 April 2008 is expected to make significant progress on matters related to control of greenhouse gases from international shipping with 24 documents to consider on the issue.

30 IMO will continue to work on reducing harmful emissions from shipping, **a transport industry that is vital to world trade and sustainable development**, and will continue to keep UNFCCC and its subsidiary bodies updated on the progress made.

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附件四

Earth Negotiation Bulletin: 2008 Bangkok Climate Change Talks

A Reporting Service for Environment and Development Negotiations, Published by the International Institute for Sustainable Development（IISD）

Earth Negotiations Bulletin
AWGs #1
A Reporting Service for Environment and Development Negotiations
Online at http://www.iisd.ca/climate/ccwg1/
Vol. 12 No. 357 Published by the International Institute for Sustainable Development (IISD) Monday, 31 March 2008

FIRST SESSION OF THE *AD HOC* WORKING GROUP ON LONG-TERM COOPERATIVE ACTION AND FIFTH SESSION OF THE *AD HOC* WORKING GROUP ON FURTHER COMMITMENTS FOR ANNEX I PARTIES UNDER THE KYOTO PROTOCOL: 31 MARCH – 4 APRIL 2008

The first session of the *Ad Hoc* Working Group on Long-term Cooperative Action under the Convention (AWGLCA 1) and the fifth session of the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol to the United Nations Framework Convention on Climate Change (AWG 5) are taking place from 31 March to 4 April 2008 in Bangkok, Thailand.

The AWGLCA was established by the 13th Conference of the Parties (COP 13), held in Bali, Indonesia, in December 2007, as a follow up process to the "Dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention." This new subsidiary body has been mandated to launch a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012. The AWGLCA must complete its work by COP 15 in 2009. At its first meeting, the AWGLCA is expected to focus on developing its work programme covering, among other things, mitigation, adaptation, technology and finance.

The AWG was set up by the first Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (COP/MOP 1) in Montreal, Canada, in late 2005 to consider Annex I parties' commitments beyond the Protocol's first commitment period ending in 2012. At its fifth meeting, the AWG is expected to convene an in-session thematic workshop and initiate work on analyzing the means for Annex I parties to reach their emission reduction targets and identification of ways to enhance their effectiveness and contribution to sustainable development.

A BRIEF HISTORY OF THE UNFCCC AND THE KYOTO PROTOCOL

Climate change is considered one of the most serious threats to sustainable development, with adverse impacts expected on the environment, human health, food security, economic activity, natural resources and physical infrastructure. Scientists agree that rising concentrations of anthropogenically-produced greenhouse gases in the Earth's atmosphere are leading to changes in the climate. The Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC), completed in November 2007, finds with more than 90% probability that human action has contributed to recent climate change and emphasizes the already observed and projected impacts of climate change. It also analyzes various options for mitigating climate change.

The international political response to climate change began with the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. The UNFCCC sets out a framework for action aimed at stabilizing atmospheric concentrations of greenhouse gases to avoid "dangerous anthropogenic interference" with the climate system. The UNFCCC entered into force on 21 March 1994, and now has 192 parties.

KYOTO PROTOCOL: In December 1997, delegates at COP 3 in Kyoto, Japan, agreed to a Protocol to the UNFCCC that commits developed countries and countries in transition to a market economy to achieve emission reduction targets. These countries, known under the UNFCCC as Annex I parties, agreed to reduce their overall emissions of six greenhouse gases by an average of 5.2% below 1990 levels between 2008-2012 (the first commitment period), with specific targets varying from country to country.

Following COP 3, parties began negotiating many of the rules and operational details governing how countries will reduce emissions and measure their emission reductions. The process was finalized in November 2001 at COP 7 in Marrakesh, Morocco, when delegates reached agreement on the Marrakesh Accords. These Accords consisted of a package of draft decisions for adoption at COP/MOP 1 and laid down detailed rules: on the Protocol's three flexible mechanisms; reporting and methodologies; land use, land-use change and forestry; and compliance. The Accords also addressed issues such as support for developing countries, including capacity building, technology transfer, responding to the adverse effects of climate change, and the establishment of three funds: the Least Developed Countries (LDC) Fund, the Special Climate Change Fund (SCCF), and the Adaptation Fund.

COP 10: At COP 10, held from 6 to 17 December 2004 in Buenos Aires, Argentina, parties began informal negotiations on the complex and sensitive issue of the post-2012 period. As a result of these discussions, a seminar was held in Bonn in May 2005 to address some of the broader issues facing the climate change process.

COP 11 AND COP/MOP 1: COP 11 and COP/MOP 1 took place in Montreal, Canada, from 28 November to 10 December 2005. COP/MOP 1 took decisions on the outstanding operational details of the Kyoto Protocol, including formally adopting the Marrakesh Accords. The meetings also engaged in negotiations on long-term international cooperation on climate change.

This issue of the *Earth Negotiations Bulletin* © <enb@iisd.org> is written and edited by Suzanne Carter, Kati Kulovesi, Kelly Levin, Leila Mead and Yulia Yamineva. The Digital Editor is Markus Staas. The Editor is Pamela S. Chasek, Ph.D. <pam@iisd.org> and the Director of IISD Reporting Services is Langston James "Kimo" Goree VI <kimo@iisd.org>. The Sustaining Donors of the *Bulletin* are the United Kingdom (through the Department for International Development – DFID), the Government of the United States of America (through the Department of State Bureau of Oceans and International Environmental and Scientific Affairs), the Government of Canada (through CIDA), the Danish Ministry of Foreign Affairs, the Government of Germany (through the German Federal Ministry of Environment - BMU and the German Federal Ministry of Development Cooperation - BMZ), the Netherlands Ministry of Foreign Affairs, the European Commission (DG-ENV), the Italian Ministry for the Environment, Land and Sea, and the Swiss Federal Office for the Environment (FOEN). General Support for the *Bulletin* during 2008 is provided by the Norwegian Ministry of Foreign Affairs, the Government of Australia, the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management, the Ministry of Environment of Sweden, the New Zealand Ministry of Foreign Affairs and Trade, SWAN International, the Japanese Ministry of Environment (through the Institute for Global Environmental Strategies - IGES) and the Japanese Ministry of Economy, Trade and Industry (through the Global Industrial and Social Progress Research Institute - GISPRI). Funding for translation of the *Earth Negotiations Bulletin* into French has been provided by the International Organization of the Francophonie (IOF) and the French Ministry of Foreign Affairs. Funding for the translation of the *Earth Negotiations Bulletin* into Spanish has been provided by the Ministry of Environment of Spain. The opinions expressed in the *Earth Negotiations Bulletin* are those of the authors and do not necessarily reflect the views of IISD or other donors. Excerpts from the *Earth Negotiations Bulletin* may be used in non-commercial publications with appropriate academic citation. For information on the *Bulletin*, including requests to provide reporting services, contact the Director of IISD Reporting Services at <kimo@iisd.org>, +1-646-536-7556 or 300 East 56th St., 11A, New York, NY 10022, USA. The ENB team at the First Session of the *Ad Hoc* Working Group on Long-Term Cooperative Action under the UNFCCC and Fifth Session of the *Ad Hoc* Working Group under the Kyoto Protocol can be contacted by e-mail at <kati@iisd.org>.

COP/MOP 1 addressed possible processes to discuss post-2012 commitments and decided to establish a new subsidiary body, the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG). COP 11 also agreed to consider long-term cooperation also under the UNFCCC "without prejudice to any future negotiations, commitments, process, framework or mandate under the Convention" through a series of four workshops constituting a "Dialogue" on the matter through to COP 13.

AWG 1 AND CONVENTION DIALOGUE 1: The AWG and Convention Dialogue each convened for the first time in Bonn, Germany, in May 2006, alongside the 24th meeting of the Subsidiary Bodies (SB 24). The AWG adopted conclusions on "Planning of future work." It identified the need to assemble and analyze information on a number of scientific, technical and socioeconomic topics to enhance common understanding of the level of ambition of further commitments for Annex I parties and of the potential for achieving these commitments.

During the first Convention Dialogue workshop, participants exchanged initial views, experiences and strategic approaches on the four thematic areas to be addressed during the Dialogue.

AWG 2 AND CONVENTION DIALOGUE 2: The second sessions of the AWG and the Convention Dialogue took place in November 2006, in Nairobi, Kenya, alongside COP 12 and COP/MOP 2. The AWG held an in-session workshop and agreed on a work programme focusing on the following three areas: mitigation potentials and ranges of emission reductions; possible means to achieve mitigation objectives; and consideration of further commitments by Annex I parties.

The second Convention Dialogue workshop engaged in discussions on "advancing development goals in a sustainable way" and "realizing the full potential of market-based opportunities," including the Stern Review on the Economics of Climate Change.

In parallel, COP/MOP 2 carried out the first review of the Protocol under Article 9, and held discussions on a proposal by the Russian Federation on procedures to approve voluntary commitments for developing countries.

AWG 3 AND CONVENTION DIALOGUE 3: In May 2007, alongside SB 26, AWG 3 and the third Convention Dialogue workshop convened in Bonn, Germany. The AWG held a roundtable discussion on the mitigation potentials of policies, measures and technologies. It also adopted conclusions on the analysis of mitigation potential and agreed to develop a timetable to complete its work so as to avoid a gap between the first and subsequent commitment periods.

The third Convention Dialogue workshop involved sessions on adaptation and realizing the full potential of technology. It also began addressing the issue of what should happen procedurally after the Convention Dialogue workshops report to COP 13.

AWG 4 AND CONVENTION DIALOGUE 4: The first part of AWG 4 and the fourth and final Convention Dialogue workshop took place from 27-31 August 2007 in Vienna, Austria.

The AWG focused on mitigation potentials and possible ranges of emission reductions for Annex I parties. It adopted conclusions referring to some of the key findings of the IPCC Working Group III, including that global greenhouse gas emissions need to peak in the next 10-15 years and then be reduced to well below half of 2000 levels by the middle of the 21st century in order to stabilize atmospheric concentrations to the lowest level assessed by the IPCC. The AWG's conclusions recognized that to achieve this level, Annex I parties as a group would be required to reduce emissions by a range of 25-40% below 1990 levels by 2020.

The final Convention Dialogue workshop focused on bringing together ideas from the previous workshops and addressing overarching and cross-cutting issues, including financing. It also addressed next steps after COP 13.

COP 13, COP/MOP 3 AND AWG 4: COP 13 and COP/MOP 3 took place from 3-15 December 2007 in Bali, Indonesia, alongside the resumed fourth session of the AWG. The main focus of the Bali conference was on long-term cooperation, and negotiators spent much of their time seeking to agree on a two-year process, or "Bali roadmap," to finalize a post-2012 regime by COP 15 in December 2009.

Under the Convention, negotiations on the follow up to the Convention Dialogue resulted in the establishment of the AWGLCA with a view to launching a comprehensive process on long-term cooperative action to be completed in 2009. COP 13 identified four areas for enhanced action to be addressed by the AWGLCA, namely mitigation, adaptation, finance and technology. Its decision also contains a non-exhaustive list of issues to be considered under each of these areas and calls for addressing a shared vision for long-term cooperative action.

At its resumed fourth session, the AWG focused on reviewing its work programme and developed a detailed outline for its activities and meetings for 2008-2009.

COP/MOP 3 considered preparations for the second review of the Protocol under Article 9 by COP/MOP 4 at the end of 2008. Delegates identified a number of issues to be addressed during the review, such as the Clean Development Mechanism, IPCC AR4, adaptation, effectiveness, implementation and compliance. They also requested the Secretariat to organize a preparatory workshop.

INTERSESSIONAL HIGHLIGHTS

MAJOR ECONOMIES MEETING: A second "Major Economies Meeting on Energy Security and Climate Change" was hosted by the US Government in Honolulu, Hawaii, from 30-31 January 2008. Representatives from 16 countries, the European Union and the United Nations (UN) focused on how to develop a detailed contribution in taking forward the roadmap agreed in December 2007 during the UN Climate Change Conference in Bali.

UNGA CLIMATE CHANGE DEBATE: The need for a global agreement on climate change for the post-2012 period, the importance of collaborative partnerships, and the role of the United Nations system were the focus of discussions during a three-day "thematic debate" in the UN General Assembly (UNGA) from 11-13 February 2008. Member states commented, *inter alia,* on technology transfer, capacity building, reducing emissions from deforestation in developing countries, the vulnerability of small island developing states, the role of public-private sector partnerships, "climate proofing" development assistance, the importance of energy efficiency, market mechanisms, clean technologies, financing for adaptation and mitigation in developing countries, and the need to follow up on the Bali conference by designing and agreeing on an inclusive and effective post-2012 framework for global action.

UNFCCC WORKSHOPS: The UNFCCC Expert Group Meeting on Methods and Tools and on Data and Observations under the Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change (NWP) was held from 4-7 March 2008 in Mexico City, Mexico. The meeting identified specific practical actions and recommendations on methods and tools, and data and observations for addressing impacts, vulnerability and adaptation to climate change.

The UNFCCC Expert Group Meeting on Socioeconomic Information under the NWP was held from 10-12 March 2008, in Port of Spain, Trinidad and Tobago. The meeting identified specific gaps and needs in integrating socioeconomic information into impact and vulnerability assessments and adaptation planning.

Earth Negotiations Bulletin

AWGs #2

A Reporting Service for Environment and Development Negotiations

Online at http://www.iisd.ca/climate/ccwg1/

Vol. 12 No. 358 *Published by the International Institute for Sustainable Development (IISD)* *Tuesday, 1 April 2008*

AWGLCA 1 AND AWG 5 HIGHLIGHTS: MONDAY, 31 MARCH 2008

The first session of the *Ad Hoc* Working Group on Long-term Cooperative Action under the Convention (AWGLCA 1) and the fifth session of the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG 5) opened in Bangkok, Thailand, on Monday morning with a welcoming ceremony. This was followed by the opening session of the AWG. In the afternoon, delegates convened in the AWGLCA's opening plenary.

WELCOMING CEREMONY

Sahas Bunditkul, Deputy Prime Minister of Thailand, identified the need to negotiate "an attractive package" for COP 15, including comprehensive action on adaptation and mitigation.

Calling for global solidarity, Noeleen Heyzer, Executive Secretary of the Economic and Social Commission for Asia and Pacific, underscored the need for financial and technological support from developed countries to achieve both emission reductions and development goals in developing countries.

In a video address, UN Secretary-General Ban Ki-moon called for an environmentally sound, long-term solution based on common but differentiated responsibilities, and a "delicate balance" between globally inclusive action and poverty eradication.

COP 13 President Rachmat Witoelar, Indonesia, emphasized that the Bali roadmap must be paved with strong, concrete actions and rigorous implementation. He called for a global emission goal, possibly achieved through a mid-term goal, and urged stepping up of efforts to reach agreement by 2009.

Janusz Zaleski, Undersecretary of State, Ministry of Environment, Poland, said the Bangkok meeting should identify issues where work needs to be done and in what order, areas needing further clarification and how relevant actors such as financial institutions, business and civil society could contribute to the process.

Yvo de Boer, UNFCCC Executive Secretary, stressed the need to respond to the great expectations generated by the Bali outcome and called for progress in both AWGs. Highlighting limited time to conclude negotiations, he emphasized the importance of negotiating a clear work programme for the AWGLCA.

AWG

AWG Chair Harald Dovland (Norway) opened AWG 5, stressing the task in 2008 to analyze and reach conclusions on means to reach emission reduction targets, including flexible mechanisms, land use, land-use change and forestry (LULUCF), a basket of greenhouse gases and covered sectors. Parties adopted the agenda (FCCC/KP/AWG/2008/1). Switzerland, for the ENVIRONMENTAL INTEGRITY GROUP, highlighted linkages between the AWGs and the need for cooperation.

ANALYSIS OF MEANS TO REACH EMISSION REDUCTION TARGETS: AWG Chair Dovland introduced documents (FCCC/KP/AWG/2008/INF.1 and FCCC/KP/AWG/2008/MISC.1 and Adds. 1-3).

Stressing the AWG's legal mandate, Antigua and Barbuda, for the G-77/CHINA, expressed concern about suggestions to link the AWG with the new AWGLCA process. BRAZIL noted that the AWG's success depends on its ability to focus on Annex I commitments. CANADA highlighted links between the AWG and AWGLCA and, with ARGENTINA, called for coordinating the processes.

ARGENTINA stressed that the Kyoto Protocol should remain the foundation for future Annex I commitments, and be strengthened, and VENEZUELA indicated there is no need to renegotiate the existing legal framework.

Maldives, for the LEAST DEVELOPED COUNTRIES (LDCs), highlighted the need for Annex I emission reductions in the range of 25-40% below 1990 levels by 2020, and BANGLADESH called for deep cuts. NEW ZEALAND stated that rules must be improved and finalized before new commitments are made. CHINA stressed that if the rules are changed, the 25-40% indicative range of Annex I emission reductions must be increased. Samoa, for the ALLIANCE OF SMALL ISLAND STATES (AOSIS), said greenhouse gas concentrations must be stabilized well below 450 parts per million (ppm) and suggested the inclusion of new gases under the Protocol.

CLIMATE ACTION NETWORK stressed that emission reductions in industrial sectors should not be substituted with emission reductions in other sectors, such as LULUCF, and stressed the need to protect biodiversity and indigenous rights. The INTERNATIONAL TRADE UNION CONFEDERATION called on parties to consider social and economic dimensions of emission reduction targets.

JAPAN highlighted the potential of sectoral approaches in achieving global emission reductions, and NEW ZEALAND supported analyzing other types of commitments in addition to quantified targets. CHINA stated that sectoral approaches cannot replace targets but can be used as a means of achieving them.

Several parties, including JAPAN, TUVALU and Slovenia, for the EU, identified the need to address international aviation and maritime transport emissions. AUSTRALIA, NEW ZEALAND, ICELAND and others also urged reviewing of rules on LULUCF and flexible mechanisms. AUSTRALIA suggested

This issue of the *Earth Negotiations Bulletin* © <enb@iisd.org> is written and edited by Suzanne Carter, Kati Kulovesi, Kelly Levin, Leila Mead and Yulia Yamineva. The Digital Editor is Markus Staas. The Editor is Pamela S. Chasek, Ph.D. <pam@iisd.org> and the Director of IISD Reporting Services is Langston James "Kimo" Goree VI <kimo@iisd.org>. The Sustaining Donors of the *Bulletin* are the United Kingdom (through the Department for International Development – DFID), the Government of the United States of America (through the Department of State Bureau of Oceans and International Environmental and Scientific Affairs), the Government of Canada (through CIDA), the Danish Ministry of Foreign Affairs, the Government of Germany (through the German Federal Ministry of Environment - BMU and the German Federal Ministry of Development Cooperation - BMZ), the Netherlands Ministry of Foreign Affairs, the European Commission (DG-ENV), the Italian Ministry for the Environment, Land and Sea, and the Swiss Federal Office for the Environment (FOEN). General Support for the *Bulletin* during 2008 is provided by the Norwegian Ministry of Foreign Affairs, the Government of Australia, the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management, the Ministry of Environment of Sweden, the New Zealand Ministry of Foreign Affairs and Trade, SWAN International, the Japanese Ministry of Environment (through the Institute for Global Environmental Strategies - IGES) and the Japanese Ministry of Economy, Trade and Industry (through the Global Industrial and Social Progress Research Institute - GISPRI). Funding for translation of the *Earth Negotiations Bulletin* into French has been provided by the International Organization of the Francophonie (IOF). Funding for the translation of the *Earth Negotiations Bulletin* into Spanish has been provided by the Ministry of Environment of Spain. The opinions expressed in the *Earth Negotiations Bulletin* are those of the authors and do not necessarily reflect the views of IISD or other donors. Excerpts from the *Earth Negotiations Bulletin* may be used in non-commercial publications with appropriate academic citation. For information on the *Bulletin*, including requests to provide reporting services, contact the Director of IISD Reporting Services at <kimo@iisd.org>, +1-646-536-7556 or 300 East 56th St., 11A, New York, NY 10022, USA. The ENB team at the First Session of the *Ad Hoc* Working Group on Long-Term Cooperative Action under the UNFCCC and Fifth Session of the *Ad Hoc* Working Group under the Kyoto Protocol can be contacted by e-mail at <kati@iisd.org>.

broadening the scope of mechanisms, especially in relation to sinks, CCS and afforestation and reforestation. INDONESIA identified the need to review the rules for the Clean Development Mechanism (CDM) and MALAYSIA proposed addressing complex procedures and high transaction costs under the CDM. TUVALU suggested auctioning Assigned Amount Units.

AWGLCA

AWGLCA Chair Luiz Machado (Brazil) opened AWGLCA 1 and stated that it was necessary to advance step-by-step to build a solid basis for agreement. Parties adopted the agenda (FCCC/AWGLCA/2008/1) and AWGLCA Chair Machado introduced the relevant documents (FCCC/AWGLCA/2008/2 and FCCC/AWGLCA/2008/Misc.1 and Adds.1-3). He proposed, and delegates agreed, that AWGLCA 1 convene mostly in informal plenary settings, allowing for greater participation.

DEVELOPMENT OF A WORK PROGRAMME: The US called for an effective outcome that is economically sustainable and consistent with sustainable development. The G-77/CHINA and the AFRICAN GROUP stated that the AWGLCA should focus on enhancing implementation of existing commitments under the Convention and Protocol, and stressed the principle of common but differentiated responsibilities. SAUDI ARABIA indicated no agreement exists to supersede the Convention or replace its principles, including the balance of obligations. ARGENTINA said historical contributions and current circumstances must be considered and called for short-term measures while advancing long-term goals.

The G-77/CHINA, SWITZERLAND and others highlighted the equal importance of the building blocks. The G-77/CHINA and others also called for an iterative work programme. AUSTRALIA, supported by NORWAY, proposed addressing all elements this year. The EU proposed to begin work on technology and finance in the first half of 2008. Barbados, for AOSIS, and others supported addressing all four blocks at each session. TUVALU opposed the EU's proposal to hold parallel sessions on the building blocks. JAPAN supported parallel discussions on actions by developed and developing countries. CHINA stressed the need for equal attention to adaptation and mitigation. BRAZIL called for exchanging views on the full scope of issues, as they are interrelated, but warned against preconditioning results of discussions on each of the blocks.

JAPAN suggested establishing task forces on the building blocks with the participation of external experts. The US proposed three clusters on: long-term vision; mitigation, finance and technology; and adaptation and related financing and technology issues. MICRONESIA called for scientific input to clarify the impacts of long-term targets.

The EU, NEW ZEALAND, ICELAND, SWITZERLAND and others emphasized the importance of a shared vision, and NEW ZEALAND identified long-term goal, such as emissions targets or maximum temperature goals, as a key component of a shared vision. AOSIS said avoiding further climate change impacts on SIDS should be a benchmark and suggested an upper limit of no more than 350 ppm may be necessary given recent studies.

SAUDI ARABIA stated that the emphasis of the AWGLCA's work programme should be on technology and financial resources. NORWAY identified the need to consider different emission scenarios, LULUCF, bunker fuels and CCS. The RUSSIAN FEDERATION identified sinks and deforestation as key issues. SWITZERLAND called for discussions on sectoral and programmatic approaches, policy-based commitments and means for implementing, measuring, reporting and, when applicable, verifying actions in developed and developing countries. JAPAN called for legal clarification of the terms "developed country parties" and "developing country parties" in the Bali Action Plan. He proposed that each country should be classified to tiers according to objective standards and that the base year should be reviewed from the perspective of equity. TURKEY said a post-2012 regime should consider countries' different levels of development.

INDONESIA called for binding commitments and mid-term goals for developed countries and support for building low carbon economies in developing countries. CHILE said climate change cannot be solved by industrial countries alone and noted that some developing countries' emissions are reaching considerable levels. CHINA, with CHILE, emphasized that action from developing countries should be carried out within the framework of sustainable development and requires financial and technological support from developed countries. The REPUBLIC OF KOREA highlighted the role of incentives, stating that issuing carbon credits based on measurable, reportable and verifiable mitigation can encourage developing countries' participation. SINGAPORE suggested a bottom-up approach in which developing countries take on voluntary commitments in line with their national circumstances. NEW ZEALAND highlighted the need to develop basic tools for emission inventories in major economies.

INDIA called on developed countries who have not signed the Protocol to take on comparable commitments and stressed the per capita emissions paradigm.

AOSIS expressed concern over the lack of adequate financing for adaptation and proposed establishing an adaptation fund under the Convention. He also proposed an international insurance mechanism and TUVALU suggested organizing a workshop on risk management and insurance. CHINA called for mechanisms to enhance support for adaptation, especially in the areas of early warning and disaster management. MICRONESIA stressed the need to address unavoidable damage and to create innovative insurance tools. BANGLADESH called for an adaptation protocol.

CHINA highlighted the legal obligation for technology transfer and called for an international technology transfer fund. MALAYSIA identified the need to assess how much funding and investment is available for technology transfer. ICELAND called for analytical work on obstacles to technology transfer and options for their removal.

On financing, AOSIS called for reliance on market mechanisms and positive incentives. CHINA indicated that financial support flows should be separate and distinct from official development assistance.

The G-77/CHINA, supported by the US, stressed the need to keep the two AWGs as separate and parallel processes, while NEW ZEALAND and others highlighted their interlinkages.

IN THE CORRIDORS

On the opening day of the meeting, many were surprised to see crowded corridors with more than 1,000 participants, including over 100 accredited media, given that the meeting was expected to be an organizational one to determine the AWGLCA's work programme. In a changing climate - from the exceptionally hot streets of Bangkok to the chilly air-conditioned UN Conference Center - the delegates's mood was positive, and some commended delegates' willingness to work constructively and leave the political compromises reached in Bali untouched. Few, however, seemed to have clear ideas of what detailed outcomes to expect from the meeting and what would emerge as the key sticking points during the week, especially in the AWGLCA.

The AWG under the Protocol proved to be far more predictable. Its opening session, repeating many of the already familiar points, failed to surprise anyone, while new voices, especially Australia's, speaking for the first time as a party to the Protocol, were welcomed. Some feared, however, that pre-Kyoto ideas, especially those related to sources and sinks, could detract from meaningful progress.

Earth Negotiations Bulletin

AWGs #3

A Reporting Service for Environment and Development Negotiations

Online at http://www.iisd.ca/climate/ccwg1/

Vol. 12 No. 359 *Published by the International Institute for Sustainable Development (IISD)* *Wednesday, 2 April 2008*

AWGLCA 1 AND AWG 5 HIGHLIGHTS
TUESDAY, 1 APRIL 2008

On Tuesday, the *Ad Hoc* Working Group on Long-term Cooperative Action under the Convention (AWGLCA) continued opening statements from parties and observers. It then held discussions on the work programme in an informal plenary and drafting group. In the morning and afternoon, the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG) held an in-session workshop on means to reach emission reduction targets, focusing on the flexible mechanisms.

AWGLCA

DEVELOPMENT OF A WORK PROGRAMME: On Tuesday morning, the AWGLCA continued opening statements from parties and observers.

CANADA called for an iterative and comprehensive work programme for the AWGLCA, urged discussion of all building blocks at each session, possibly in sub-working groups, and stressed linkages with the AWG. He supported Japan's proposal to consider legal issues related to the post-2012 framework. VENEZUELA opposed negotiating a new multilateral regime, said the AWGLCA's mandate must be clearly defined before discussing modalities, and stressed Annex I parties' historical responsibility. THAILAND said the long-term goal must be considered together with historical responsibility and burden sharing, and proposed submissions on ways and means to support long-term action on mitigation and adaptation.

EGYPT opposed parallel meetings, and proposed an international mechanism on finance and technology transfer. BUSINESS AND INDUSTRY proposed including the business sector in the dialogue on technology cooperation and subsequent implementation. He highlighted benefits of sectoral approaches, and said governments must protect intellectual property rights and remove barriers on trade in environmental technologies and services. The INTERNATIONAL TRADE UNION CONFEDERATION proposed a workshop to address the social impacts of measures and identify policies under each building block.

MEXICO suggested sessions on mitigation and adaptation respectively, with technology and finance to be considered in each. He suggested considering intersessionally: technical implications for measuring, reporting and verifying mitigation activities; and ways of comparing national mitigation activities. GUYANA underlined the need for urgent action on Reducing Emissions from Deforestation and Degradation (REDD) and for simplifying access to technology transfer and to Global Environmental Facility funding.

The THIRD WORLD NETWORK proposed undertaking discussions in two stages: first, on finance, technology, and mitigation by developed countries; and second, on developing country mitigation actions and a long-term global goal. He expressed concern with funds outside the UNFCCC, such as those in the World Bank, citing governance issues and the undermining of funds available under the Convention, and proposed establishing a fund similar to that under the Montreal Protocol on Substances that Deplete the Ozone Layer. The INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) highlighted ICAO's work on addressing environmental impacts of aviation, including the establishment of a high-level intergovernmental group to develop an action programme on aviation and climate change. ENVIRONMENTAL NGOs urged immediate action on adaptation, and underlined linkages with the AWG.

Informal plenary: In Tuesday morning's informal plenary session, AWGLCA Chair Machado proposed focusing on a "shared vision." BRAZIL, the PHILIPPINES, CUBA, INDIA and others emphasized the importance of the Convention's principles and commitments in defining a shared vision. The EU, BRAZIL, JAPAN, CUBA and others identified the need for a long-term global goal. BRAZIL said a goal would help orient national action.

The EU proposed reducing Annex I emissions by 30% by 2020 and 60-80% by 2050. MICRONESIA supported limiting temperature increase to below 2°C and greenhouse gas concentrations to below 450 ppm. AOSIS highlighted the role of scientific information in defining a long-term goal, and MICRONESIA called for an iterative approach as science evolves.

BRAZIL highlighted burden sharing and historical responsibility. JAPAN suggested reviewing legal issues relevant to ensuring each country's participation. INDIA identified similar commitments by all developed countries, including non-Kyoto parties, as a precondition for developing country action. He called for equal distribution and convergence of emission rights.

BRAZIL stressed the need for preparatory discussions before the AWGLCA begins negotiations on a "shared vision," and the EU proposed a workshop, a roundtable and a high-level discussion on the issue.

Informal Drafting Group: During an informal session in the evening, AWGLCA Chair Machado distributed his proposed draft conclusion, which includes a work programme for the upcoming sessions of the AWGLCA through the end of 2008. Delegates agreed the paper was a good basis for further discussions on Wednesday evening.

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AWG

ANALYSIS OF MEANS TO REACH EMISSION REDUCTION TARGETS: In-session workshop: On Tuesday morning and afternoon, the AWG held an in-session workshop concentrating on the flexible mechanisms.

Andrew Howard, UNFCCC Secretariat, explained the legal basis for the flexible mechanisms in the Kyoto Protocol and the relevant COP/MOP decisions. He noted that six Annex I parties fulfill the eligibility criteria and most others will follow by the end of April.

Dennis Tirpak, IPCC Working Group III Coordinating Lead Author, reviewed the IPCC's assessment of market mechanisms, including the potential to establish a carbon price, reduce mitigation costs and spur technological investment.

Henry Derwent, International Emissions Trading Association, highlighted rapid growth in the carbon market in terms of both monetary flows and emission reductions. He also discussed the carbon markets' effectiveness in reducing emissions and bottlenecks in the CDM approval process.

Artur Runge-Metzger, European Commission, discussed lessons learned from the EU Emissions Trading Scheme and noted the proposal to auction emission allowances in the post-2012 period and to require member states to use 20% of revenues for mitigation and adaptation.

Mark Storey, New Zealand, outlined his country's draft for a cap and trade scheme, which would cover all sectors and gases by 2013, including forestry and agriculture.

CANADA supported broadening of the market mechanisms and clarifying the rules. NEW ZEALAND called for transparency and revisiting the commitment period reserve. TANZANIA highlighted the potential for other innovative market mechanisms. The CLIMATE ACTION NETWORK supported the use of Assigned Amount Units (AAUs) as a means to support developing country action.

Rajesh Sethi, CDM Executive Board Chair, identified the need to ensure environmental integrity, cost effectiveness, transparency, reasonable timelines, and incentives for accurate accounting as the key challenges for the CDM.

Georg Borsting, JI Supervisory Committee Chair, noted that most of the 129 JI projects are in the Russian Federation, Ukraine and Bulgaria and involve renewable energy, methane and energy efficiency. He said questions remain concerning the continuation of JI after 2012.

Martin Krause, UNDP, noted the need to align multiple funding sources with the CDM, including from private and domestic public funds, official development assistance and development banks.

Concerning the CDM in the post-2012 period, CHINA highlighted the need for efficiency, simplification, transparency, certainty, equitability and environmental integrity. He urged strengthening the CDM's role in technology transfer, and suggested removing the additionality test from certain project types and enhancing the host country's role.

JAPAN highlighted the need to fundamentally review the CDM for the post-2012 period, as it currently takes place between a party with an emission target and a party without a target. Responding to Australia, he said this would also affect the additionality criteria. He said geographical distribution, as well as nuclear, CCS and energy efficiency projects, should also be considered.

TANZANIA stressed the need to simplify the CDM and review its rules, including the criteria for sustainable development and requirement of financial additionality. He also stressed REDD's potential in Africa.

UKRAINE highlighted legislation facilitating implementation of JI projects in Ukraine and stressed that attracting foreign carbon investment is a priority for the Ukrainian government.

The EU stated that advanced developing countries must move beyond offsetting and proposed exploring a no-lose sectoral crediting mechanism. He said JI should also play a role in the post-2012 period.

TUVALU, supported by DEMOCRATIC REPUBLIC OF CONGO, expressed concerns over proposals to expand the CDM by relaxing additionality criteria, and highlighted environmental integrity and the need to accrue real, additional and verifiable emission reductions. TUVALU also proposed taking up sectoral approaches under the AWGLCA, creating revenues for low emitting countries by auctioning AAUs and reviewing accessibility and geographical allocation rules.

In the discussion, the REPUBLIC OF KOREA supported expanding the scope of the CDM to attract eco-friendly investment and technology. INDONESIA, BENIN and DEMOCRATIC REPUBLIC OF CONGO called for addressing the lack of sink projects under the CDM. SENEGAL highlighted the importance of an attractive carbon price, and BURKINA FASO stated that sink projects are attractive only if the carbon price is at the level of at least US$ 20. BENIN stressed the need to improve the geographical distribution of CDM projects, while NEW ZEALAND warned of difficulties in dictating geographical and sectoral distribution of projects.

The RUSSIAN FEDERATION stressed that the success of flexible mechanisms depends on national circumstances and that domestic trading programmes can be used to adapt to country conditions and can be linked. BRAZIL suggested maintaining the current eligibility criteria for LULUCF projects in the next commitment periods, opposed including CCS under the CDM, and noted that programmatic CDM opens a window of opportunity for substantial Certified Emission Reductions. CANADA supported exploring sectoral approaches, suggested establishing multi-project baselines for the CDM and simplifying rules for LULUCF, and noted that the Executive Board might become a full-time body in the future. ARGENTINA called for an independent assessment of the CDM, with a regional component, to explore issues such as: financing, technology transfer and registered projects.

SOUTH AFRICA highlighted the need to consider implications of new approaches on the carbon price. The EU stated that even if it decided to offset all European greenhouse gas emissions, this would not constitute the global emission reductions envisaged. BELARUS proposed the inclusion of marsh rehabilitation in the second commitment period.

IN THE CORRIDORS

With the AWGLCA Chair's draft proposal for a work programme circulated Tuesday evening, delegates had something a little more tangible to sink their teeth into before continuing informal discussions on Wednesday. At the same time, they were reminded of the amount of work that remains to be done in Bangkok: the distributed text contains little more than a general structure to be filled in during the coming days with details on issues for discussion at upcoming sessions of the AWGLCA and on requests for the Secretariat to organize workshops and possibly other activities.

Some expected no more than a scant, bare bones work programme, noting divisions remain too deep to be resolved this week. Others were pleased with some very candid and substantive interventions on the work programme during the AWGLCA sessions on Tuesday. One delegate hoped that the balance between the scoping of ideas (such as "shared vision"), without getting into details could be maintained. Some developing country delegates expressed concern that the proposed workshops and other activities outside of the formal AWGLCA meetings would proliferate and hinder full and effective participation of developing countries.

Earth Negotiations Bulletin
AWGs #4
A Reporting Service for Environment and Development Negotiations
Online at http://www.iisd.ca/climate/ccwg1/
Vol. 12 No. 360 Published by the International Institute for Sustainable Development (IISD) Thursday, 3 April 2008

AWGLCA 1 AND AWG 5 HIGHLIGHTS WEDNESDAY, 2 APRIL 2008

On Wednesday, the *Ad Hoc* Working Group on Long-term Cooperative Action under the Convention (AWGLCA) continued discussions on the work programme in an informal plenary and drafting group. In the morning and afternoon, the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG) held an in-session workshop on means to reach emission reduction targets, focusing on land use, land-use change and forestry (LULUCF), as well as sectoral approaches.

AWGLCA

DEVELOPMENT OF A WORK PROGRAMME: On Wednesday, the AWGLCA convened in an informal plenary session to discuss the shared vision, mitigation and adaptation.

Shared Vision: AUSTRALIA, supported by the REPUBLIC OF KOREA and others, said the shared vision should be a statement of aspiration rather than legally binding. COSTA RICA described the shared vision as the destination with the building blocks determining how to get there. CHINA said the shared vision should emphasize the principles of the Convention, and GHANA, the LDCs, VENEZUELA, PAKISTAN and ALGERIA highlighted the ultimate objective of the Convention and sound science. The EU said Convention Article 2 (objective) is not sufficient, and AOSIS stated that the task is to operationalize the Article in light of scientific advances.

BANGLADESH proposed deep cuts, an early peaking year for global emissions and, with GHANA and EGYPT, an adaptation protocol. South Africa, for the AFRICAN GROUP, emphasized equal treatment of adaptation and mitigation, and the special needs of Africa, SIDS and the LDCs.

The US emphasized differentiation among parties, depending on changing social and economic conditions, as well as current emissions and emission trends. He proposed early focus on stabilization scenarios, and an in-session workshop at AWGLCA 2, addressing technology options, availability and costs.

TURKEY identified the need for clear methodologies to define targets for countries with different development levels. GHANA highlighted the role of positive incentives. SAUDI ARABIA called for a bottom-up approach in defining a long-term goal.

VENEZUELA said the work programme should not go beyond elements existing under the Convention. The REPUBLIC OF KOREA and INDONESIA supported holding an in-session workshop on the shared vision. AUSTRALIA proposed an in-session IPCC presentation on relevant work from the AR4. NEW ZEALAND supported dealing with the global goal early on, and proposed submissions by parties on measuring, reporting and verification (MRV) to further explore the terms.

Mitigation: Several delegates emphasized that developed and developing countries should have distinct commitments. BRAZIL, supported by SOUTH AFRICA, explained that developed countries must reduce emissions, while developing countries take action to reduce emission growth, and clarified that the distinction also applied to MRV. CHINA and BRAZIL highlighted that in developing countries, MRV should take place nationally. BRAZIL and SOUTH AFRICA underscored the need for international incentives for developing country action and the recognition of existing actions. INDIA illustrated an equity or convergence emissions paradigm for mitigation.

JAPAN called for mid-term national targets using sectoral approaches, stressing they would not replace quantified targets and would differ for developed and developing countries. AOSIS stressed that sectoral approaches for developed countries must be considered in the context of national targets. The US, the EU and others supported exploring the idea of sectoral approaches. ARGENTINA, AUSTRALIA, the US, the EU and the RUSSIAN FEDERATION proposed to explore criteria for differentiation.

The G-77/CHINA identified the need to clarify "comparability of efforts" by developed countries. BRAZIL and others stated this was particularly relevant for Kyoto non-parties.

The EU supported parallel discussions on developed and developing country actions and, with INDONESIA, further exploring MRV.

CUBA, with SAUDI ARABIA, proposed a workshop on economic and social consequences of response measures. GHANA, with SAUDI ARABIA, urged considering expanding the list of greenhouse gases.

Adaptation: The G-77/CHINA, the EU and others supported parallel consideration of adaptation and mitigation. ZAMBIA urged bringing adaptation action to the same level as mitigation. CHINA said adaptation should be given more importance than mitigation. VENEZUELA called for a holistic approach.

Several delegates highlighted the need to focus on vulnerable countries and regions. The G-77/CHINA expressed concern over the lack of adaptation funding and the fragmentation of programmes and funds. SOUTH AFRICA, with others, stressed the need to avoid replicating work and to focus on implementation. She proposed streamlining financing mechanisms and reconsidering the institutional framework. NEW ZEALAND proposed that the Secretariat conduct a stocktaking assessment of adaptation activities.

ZAMBIA called for a country-driven approach. JAPAN said adaptation planning should be mainstreamed into development planning and called for cooperation among donors. TOGO and

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CHINA stressed financial and technology needs. INDIA and others proposed extending the adaptation levy to all mechanisms and creating other financial instruments. AUSTRALIA supported further analytical work to assess adaptation funding. AOSIS proposed an economic report on climate impacts on SIDS and, with the LDCs, an adaptation fund under the Convention. SAMOA suggested developing an insurance pool scheme made up of contributions from developed countries.

The EU, CHINA, BELIZE, PANAMA and others proposed various workshops, while OMAN noted time constraints and said workshops should not replace negotiations.

The US supported differentiation among countries on the basis of projected impacts and adaptive capacity. PALAU urged for transfer of locally appropriate technologies and best practices, and disseminating information to local communities.

COSTA RICA urged looking at other relevant processes such as the International Strategy for Disaster Reduction. SAUDI ARABIA supported a workshop addressing resilience to both climate change and response measures.

Informal Drafting Group: During an informal session in the evening, delegates were presented with a draft matrix of a work programme for 2008, with the focus and specific activities for each upcoming session to be elaborated. Discussions centered on a possible workshop on the shared vision, including the timing and whether it should be party-driven. Delegates also considered holding a ministerial discussion on the issue at COP 14. The group also noted the need to discuss interlinkages between building blocks, and the timing for elaborating a work programme for 2009.

AWG

ANALYSIS OF MEANS TO REACH EMISSION REDUCTION TARGETS: In-session workshop: On Wednesday morning and afternoon, the AWG held an in-session workshop concentrating on LULUCF and sectoral approaches.

Maria José Sanz, UNFCCC Secretariat, provided an overview of the provisions and decisions related to LULUCF under the Protocol. Peter Holmgren, FAO, stressed the need for monitoring in accounting, and synergies between forest monitoring in addressing climate change and other environmental problems. Jim Penman, IPCC, noted scientific advances addressing many of the pre-Kyoto fears regarding forest management. He suggested: considering LULUCF in the context of REDD; simplifying rules for CDM sink projects; dealing with harvested wood products (HWP); and, regarding permanence risks, implementing longer averaging periods or taking on conservative assessments to account for possible losses.

JAPAN presented on national experiences, highlighting enhanced sink policies and measures, which are broadening participation and utilization of products and biomass. The EU suggested reviewing and simplifying accounting rules, without creating perverse incentives, and enhancing removals from sustainable biomass for energy and HWP. NEW ZEALAND discussed experiences in incorporating LULUCF in its emissions trading scheme and identified LULUCF rules under the Protocol that should be reviewed. CANADA proposed three key enhancements: improving incentive structures for sustainable land management; assessing the life cycle of carbon stocks; and greater focus on distinguishing anthropogenic emissions and removals. He proposed a LULUCF sub-group take up this issue.

AUSTRALIA noted that parties should not foreclose new options for mitigation under LULUCF and favored the review of current rules to ensure simplicity without perverse incentives. He said effective monitoring systems are now available to allow for more accurate accounting. TUVALU urged parties not to rewrite the existing rules and principles, noting it may be necessary to reconsider IPCC guidelines on managed and unmanaged land. He stated that CDM activities should remain restricted to afforestation and reforestation projects. Supporting TUVALU, BRAZIL said that if activities under Article 3.4 (additional human induced activities) were expanded, the IPCC should be invited to assess the issue of "factoring out" to enhance understanding of anthropogenic versus natural carbon stock changes.

CHINA opposed major modifications for the second commitment period and stressed that provisions on LULUCF should apply only to Annex B countries. The RUSSIAN FEDERATION supported simpler, more efficient inventory procedures. TUVALU called for a political link between LULUCF rules and commitment levels. MALAYSIA called for streamlining and strengthening of rules.

On LULUCF under the CDM, UGANDA supported amending the rules, citing socioeconomic development and mitigation benefits of forests. BRAZIL and SAMOA warned against sacrificing environmental integrity of the CDM, while AUSTRALIA and SWITZERLAND asserted that rules can be simplified while maintaining stringency in environmental outcomes. BENIN and SENEGAL highlighted linkages between Africa's participation in the carbon market and the role of forestry.

Richard Baron, International Energy Agency, outlined three sectoral approaches: mitigation potentials on a sectoral level; sectoral international cooperative action; and sector-specific action in developing countries.

Jake Schmidt, Center for Clean Air Policy, outlined methods to encourage developing country mitigation while deploying low carbon technology. He also illustrated how sectoral approaches can help in defining Annex I targets.

Jane Hupe, International Civil Aviation Organization, called for cooperation between the UNFCCC and the Group on International Aviation and Climate Change processes.

Brian Flannery, International Chamber of Commerce, recommended continuation of voluntary initiatives, prioritizing cost effectiveness, maintaining flexibility and avoiding competitiveness among sectors and countries, and assessing economic and trade implications of sectoral approaches.

The EU, NEW ZEALAND, CHINA and CANADA stressed that sectoral approaches should support, not replace, national targets. SWITZERLAND, AUSTRALIA, TUVALU, NEW ZEALAND and others supported addressing sectoral approaches in the AWGLCA. NEW ZEALAND suggested a workshop on sectoral approaches to report to both AWGs, and JAPAN noted that sectoral approaches were useful in bridging the AWGs.

IN THE CORRIDORS

On Wednesday evening, delegates felt somewhat tired after a full day of parallel meetings in the two AWGs. Reflecting on the AWGLCA talks, many felt they had heard a lot of familiar ideas but few new ones. However, some commented on the "interesting ideas" that popped up during the day's discussions, such as "overshoot strategies." Others feared that proposals for an adaptation protocol would serve as a distraction from the far more urgent issue of early action on adaptation.

"Numbing" was how some described the evening's informal discussion on the work programme as delegates got into the nitty gritty of putting ideas on the table for upcoming sessions, preparatory work and workshops in 2008. Some delegates realized that they didn't have a shared vision on a workshop on the shared vision.

In the AWG discussions, LULUCF was a contentious issue, with one delegate commenting that he was "reliving the nightmare of the Marrakech Accords," as views diverged on whether, and to what extent, they will need to be amended.

Some participants noted a number of US congressional staffers were milling about the meeting, possibly to keep tabs on what is happening in preparation for the next US administration.

Earth Negotiations Bulletin
AWGs #5
A Reporting Service for Environment and Development Negotiations
Online at http://www.iisd.ca/climate/ccwg1/
Vol. 12 No. 361 Published by the International Institute for Sustainable Development (IISD) Friday, 4 April 2008

AWGLCA 1 AND AWG 5 HIGHLIGHTS THURSDAY, 3 APRIL 2008

On Thursday, the *Ad Hoc* Working Group on Long-term Cooperative Action under the Convention (AWGLCA) continued discussions on the work programme in an informal plenary and drafting group. In the morning, the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG) held an in-session workshop on means to reach emission reduction targets, focusing on greenhouse gases (GHGs), sectors and sources. In the afternoon, the AWG met in a contact group to exchange views on the in-session workshop.

AWGLCA

DEVELOPMENT OF A WORK PROGRAMME: On Thursday, the AWGLCA convened in an informal plenary session to discuss finance and technology.

Technology: The G-77/CHINA emphasized technologies for both mitigation and adaptation, financing and international cooperation. GHANA highlighted the importance of innovative mechanisms, incentives, and, with BRAZIL and others, North-South and South-South cooperation. UGANDA said policies and political will were required, and, supported by ARGENTINA, urged promoting South-South cooperation in transferring adaptation technologies. CHINA stressed innovative funding mechanisms, and the purchase of climate-friendly technologies by developed countries for preferential transfer to developing countries. PAKISTAN called for a fast-track procedure for technology transfer, and SOUTH AFRICA highlighted the role of incremental costs and market mechanisms.

BRAZIL urged considering existing technologies and undertaking technological research in developing countries, and, with CANADA, called for analyzing experiences in other international fora. The EU identified the need for an enhanced international framework based on countries' needs. JAPAN stressed the effectiveness of sectoral approaches.

CUBA, INDIA, TANZANIA, INDONESIA and others urged addressing intellectual property rights (IPRs). SAUDI ARABIA noted compulsory licensing under the WTO Agreement on Trade-Related Aspects of Intellectual Property as an option to access climate-friendly technologies, and suggested such technologies should not necessarily be patented. The US emphasized IPRs were not a barrier, but a catalyst for technology transfer, and said IPR critics were those very countries who have taken advantage of the IPR regime. CHINA stressed IPRs should not be a fundamental obstacle for fulfilling developed countries' commitments on technology transfer.

BANGLADESH, SIERRA LEONE, TIMOR-LESTE, the MALDIVES, TANZANIA and others stressed capacity building. SIERRA LEONE, UGANDA and TIMOR-LESTE highlighted country-specific circumstances. SWITZERLAND identified clear policy and self-assessment as preconditions for technology transfer. BELARUS said technology transfer was a concern also for Annex I countries.

AUSTRALIA called for considering technology transfer outside the Convention, and better integrating the business and research communities and the Expert Group on Technology Transfer into the process. SOUTH AFRICA highlighted the need to avoid duplicating work. The US stressed eliminating tariff and non-tariff barriers to trade in environmental goods and services. EGYPT urged considering how to encourage private sector involvement on a voluntary basis.

INDONESIA called for developing performance indicators and innovative funding. MEXICO, INDONESIA and INDIA suggested creating a multilateral fund under the Convention with foreseeable and scalable contributions by developed countries and a transparent and inclusive governance structure. ARGENTINA highlighted positive experiences with the fund under the Montreal Protocol on Substances that Deplete the Ozone Layer. ANTIGUA AND BARBUDA called for increasing official development assistance, which offers a predictable funding source for technology. TURKEY supported the creation of a technology transfer fund.

The EU highlighted linkages between finance and technology and suggested a toolbox on financing, and said carbon markets and enabling environments are essential. SWITZERLAND stressed the importance of existing instruments, specifically the CDM. The REPUBLIC OF KOREA emphasized the role of market mechanisms, private sector initiatives and a predictable investment environment. EGYPT urged new funding mechanisms and improving existing ones, such as the CDM. He also supported an adaptation protocol, which would facilitate technology transfer.

Several delegates also proposed technical papers, workshops and studies relevant to technology transfer.

Finance: The G-77/CHINA and others called for adequacy and accessibility of financing and developing a mechanism to mobilize resources, expressed concerns over parallel financial initiatives, and proposed creating an umbrella multilateral fund under the Convention.

AOSIS noted high costs of some adaptation options, particularly in coastal areas, and proposed creating an adaptation fund under the Convention on the basis of the "polluter pays" principle.

The LDCs emphasized the inadequacy of existing financing and highlighted their urgent adaptation needs, particularly in preparing, updating and implementing NAPAs.

JAPAN called for enhancing both adaptation financing for developing countries and short- and mid-term global emission reductions, and supported streamlining roles and objectives

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of coexisting financial mechanisms. The US indicated that the private sector would generate the majority of financing and noted US bilateral initiatives on financing adaptation. SOUTH AFRICA supported consolidating funding sources into one instrument that can be easily accessed, and said public financing, not the private sector, must provide the main sources of financing.

SWITZERLAND supported avoiding fragmentation of funding sources, and strengthening existing institutions, including the GEF. BANGLADESH called for adequate, predictable and sustainable funding, as well as new and additional resources, and said the 2% levy on the CDM was inadequate.

CHINA said developed countries must fulfill their legal obligations under the Convention to provide funding to developing countries.

Several delegates, including NORWAY, the PHILIPPINES, the US and others, proposed workshops on issues related to finance.

Informal Drafting Group: On Thursday afternoon, AWGLCA Chair Machado convened an informal group to distribute and explain his draft conclusions on the AWGLCA's work programme for 2008. The informal group reconvened in the evening to discuss the contents, beginning with a matrix elaborating on each session's activities. The issues discussed included: the timing, format and contents of workshops; equal treatment of all aspects of the Bali Action Plan at each session; whether or not to have intersessional activities; and the need for stocktaking at COP 14. A group of developing countries also proposed holding a workshop addressing comparable efforts of developed countries during AWGLCA 2. Informal discussions continued late into the evening.

AWG

ANALYSIS OF MEANS TO REACH EMISSION REDUCTION TARGETS: In-session workshop: On Thursday morning and afternoon, the AWG held an in-session workshop concentrating on GHGs, sectors and sources.

Katia Simeonova, UNFCCC Secretariat, discussed sectors and source categories, and related decisions, as well as reporting and review processes, under the Protocol.

Thelma Krug, IPCC, highlighted the IPCC's "evolutionary approach," responding to new scientific information and noted the limitations of global warming potentials (GWPs) to compare short-lived GHGs with long-lived GHGs.

Jane Hupe, ICAO, presented on challenges faced by the aviation sector, including: sources, access, quality and comparability of data; and methodological issues. She highlighted legal considerations and difficulty in attributing emissions from transboundary and multinational flights and flights crossing areas outside national jurisdiction.

NORWAY suggested that the Protocol's reporting guidelines should form the basis for the second commitment period with relevant modifications. He also called for the inclusion of aviation and maritime transport (bunker fuels) emissions, and proposed market-based mechanisms, including a cap on carbon dioxide (CO_2) emissions from shipping, a CO_2 charge for all bunker fuels sold, and channeling revenues for adaptation. He proposed a workshop to consider methodological issues and targets.

JAPAN said bunker fuel emissions must be controlled, and that reduction measures and methodologies should be treated simultaneously. AUSTRALIA, JAPAN, CANADA, SINGAPORE and CHINA argued that work on bunker fuels should be taken up in relevant international organizations, such as the ICAO and the International Maritime Organization. BRAZIL, PANAMA, INDIA and the EU identified the UNFCCC as the right forum for bunker fuel discussions.

EGYPT and BRAZIL stated that bunker fuel coverage must apply the principle of common but differentiated responsibilities. The RUSSIAN FEDERATION, with SOUTH AFRICA and THAILAND, stated that issues of competitiveness must be addressed. The RUSSIAN FEDERATION called for more information on bunker fuel emissions growth, while the EU highlighted that sufficient information exists to justify the consideration of bunker fuels.

TUVALU and ARGENTINA supported further work on maritime and aviation transport emissions but urged considering implications of their coverage, such as to tourism. ARGENTINA and NEW ZEALAND suggested that national circumstances, such as geographical remoteness, required consideration. NEW ZEALAND highlighted the possible perverse outcomes associated with altering GWPs.

Contact Group: On Thursday afternoon, a contact group convened to exchange views on the in-session workshop and the AWG's draft conclusions. AWG Chair Dovland identified wide support for continuing the market mechanisms. He emphasized that some LULUCF modalities, rules and guidelines were only in place for the first commitment period and noted views that sectoral approaches should not replace but can complement national targets. He highlighted comprehensive coverage of sectors and gases, noting differences on which gases to include. He also identified a lack of agreement on changes concerning bunker fuels for the second commitment period.

SOUTH AFRICA proposed including language on maintaining the environmental integrity of the Protocol and its contribution to sustainable development. He noted sectoral targets should be a means to meet Annex I targets domestically. AUSTRALIA said sectoral approaches should be taken up in the AWGLCA and questioned to what extent the AWG needed to "traverse the same ground."

INDIA said the carbon price should not be fixed and defining CDM projects' contribution to sustainable development should remain the host country's prerogative, while UGANDA responded that sustainable development objectives of the CDM should be assessed.

TUVALU advocated considering implications of changing the Marrakesh Accords. JAPAN, supported by SWITZERLAND, discussed the need to evaluate co-benefits. NEW ZEALAND supported considering national circumstances in the draft conclusions, and the RUSSIAN FEDERATION suggested this was particularly important for market mechanisms. CANADA highlighted the need to avoid duplicating efforts with the review of the Protocol under Article 9.

IN THE CORRIDORS

On Thursday evening, the corridors remained busy as the AWGLCA continued to discuss the work programme in a drafting group and AWG delegates consulted amongst themselves in an attempt to clear controversies over the AWG Chair's draft conclusions. Some looked worried as rumors circulated that some developed countries were unwilling to accept the AWG conclusions, especially those related to the CDM, unless their proposals in the AWGLCA process were supported. By late evening, some progress had reportedly been made and a new, potentially less contentious, and what some called "more positively phrased," AWG text was ready for parties to ponder.

As discussions continued late into Thursday evening, progress in the AWGLCA drafting group remained slow. "It's bound to take time. It will take them at least a few hours just to calculate the number of workshops, technical papers and submissions that have been proposed," joked one observer. However, delegates drew some comfort from those saying that the AWGLCA Chair was confident differences on the work programme would be reconciled and agreement would be reached by Friday.

ENB SUMMARY AND ANALYSIS: The *Earth Negotiations Bulletin* summary and analysis of AWGLCA 1 and AWG 5 will be available on Monday, 7 April 2008, online at: http://www.iisd.ca/climate/ccwg1/

Earth Negotiations Bulletin

AWGs FINAL

A Reporting Service for Environment and Development Negotiations

Online at http://www.iisd.ca/climate/ccwg1/

Vol. 12 No. 362 *Published by the International Institute for Sustainable Development (IISD)* *Monday, 7 April 2008*

SUMMARY OF THE FIRST SESSION OF THE *AD HOC* WORKING GROUP ON LONG-TERM COOPERATIVE ACTION AND THE FIFTH SESSION OF THE *AD HOC* WORKING GROUP ON FURTHER COMMITMENTS FOR ANNEX I PARTIES UNDER THE KYOTO PROTOCOL: 31 MARCH - 4 APRIL 2008

The first session of the *Ad Hoc* Working Group on Long-term Cooperative Action (AWGLCA 1) and the fifth session of the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol to the United Nations Framework Convention on Climate Change (AWG 5) took place from 31 March to 4 April 2008 in Bangkok, Thailand. Approximately 1000 participants attended the meeting, representing governments, intergovernmental and non-governmental organizations, academia and the private sector. Over 100 media representatives also attended.

The AWGLCA was established by the 13th Conference of the Parties (COP 13), held in Bali, Indonesia, in December 2007, as a follow-up process to the "Dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention." This new subsidiary body is mandated to launch a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action up to and beyond 2012. The AWGLCA must complete its work by COP 15 in Copenhagen in 2009.

In Bangkok, AWGLCA 1 exchanged views on key elements in the Bali Action Plan (decision 1/CP.13), including "a shared vision for long-term cooperative action," mitigation, adaptation, technology and finance. The main focus of AWGLCA 1 was on developing its work programme for 2008, which was adopted just after midnight on Saturday morning. The work programme aims to further discussions on all elements of the Bali Action Plan at every session of the AWGLCA in a coherent, integrated and transparent manner. It establishes a timetable and elements to be addressed, as well as eight in-session workshops to be held during 2008.

The AWG was set up by the first Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (COP/MOP 1) in Montreal, Canada, in late 2005, to consider Annex I parties' commitments beyond the Protocol's first commitment period ending in 2012. At its fifth meeting, the AWG convened an in-session workshop on analyzing the means for Annex I parties to reach their emission reduction targets. In its conclusions, AWG 5 indicated that emissions trading and the project-based mechanisms under the Protocol should continue in the post-2012 period, and be supplemental to domestic actions in Annex I countries.

Although the AWGLCA work programme for 2008 was not adopted until early Saturday morning, many were pleased that they fulfilled their mandate and have provided the framework for discussions on all elements of the Bali Action Plan, including a timetable for in-session workshops. The AWG also achieved its objectives, and moved discussions forward on how to address key issues in the second commitment period, including land use, land-use change and forestry (LULUCF), mechanisms, sectoral approaches and bunker fuels. Now the stage has been set for the next round of discussions in Bonn, beginning on 2 June 2008.

IN THIS ISSUE

This issue of the *Earth Negotiations Bulletin* © <enb@iisd.org> is written and edited by Suzanne Carter, Kati Kulovesi, Kelly Levin, Leila Mead and Yulia Yamineva. The Digital Editor is Markus Staas. The Editor is Pamela S. Chasek, Ph.D. <pam@iisd.org> and the Director of IISD Reporting Services is Langston James "Kimo" Goree VI <kimo@iisd.org>. The Sustaining Donors of the *Bulletin* are the United Kingdom (through the Department for International Development – DFID), the Government of the United States of America (through the Department of State Bureau of Oceans and International Environmental and Scientific Affairs), the Government of Canada (through CIDA), the Danish Ministry of Foreign Affairs, the Government of Germany (through the German Federal Ministry of Environment - BMU and the German Federal Ministry of Development Cooperation - BMZ), the Netherlands Ministry of Foreign Affairs, the European Commission (DG-ENV), the Italian Ministry for the Environment, Land and Sea, and the Swiss Federal Office for the Environment (FOEN). General Support for the *Bulletin* during 2008 is provided by the Norwegian Ministry of Foreign Affairs, the Government of Australia, the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management, the Ministry of Environment of Sweden, the New Zealand Ministry of Foreign Affairs and Trade, SWAN International, the Japanese Ministry of Environment (through the Institute for Global Environmental Strategies - IGES) and the Japanese Ministry of Economy, Trade and Industry (through the Global Industrial and Social Progress Research Institute - GISPRI). Funding for translation of the *Earth Negotiations Bulletin* into French has been provided by the International Organization of the Francophonie (IOF). Funding for the translation of the *Earth Negotiations Bulletin* into Spanish has been provided by the Ministry of Environment of Spain. The opinions expressed in the *Earth Negotiations Bulletin* are those of the authors and do not necessarily reflect the views of IISD or other donors. Excerpts from the *Earth Negotiations Bulletin* may be used in non-commercial publications with appropriate academic citation. For information on the *Bulletin*, including requests to provide reporting services, contact the Director of IISD Reporting Services at <kimo@iisd.org>, +1-646-536-7556 or 300 East 56th St., 11A, New York, NY 10022, USA.

A BRIEF HISTORY OF THE UNFCCC AND THE KYOTO PROTOCOL

Climate change is considered one of the most serious threats to sustainable development, with adverse impacts expected on the environment, human health, food security, economic activity, natural resources and physical infrastructure. Scientists agree that rising concentrations of anthropogenically-produced greenhouse gases in the Earth's atmosphere are leading to changes in the climate. The Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC), completed in November 2007, finds with more than 90% probability that human action has contributed to recent climate change and emphasizes the already observed and projected impacts of climate change. It also analyzes various options for mitigating climate change.

The international political response to climate change began with the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. The UNFCCC sets out a framework for action aimed at stabilizing atmospheric concentrations of greenhouse gases to avoid "dangerous anthropogenic interference" with the climate system. The UNFCCC entered into force on 21 March 1994, and now has 192 parties.

KYOTO PROTOCOL: In December 1997, delegates at COP 3 in Kyoto, Japan, agreed to a Protocol to the UNFCCC that commits developed countries and countries in transition to a market economy to achieve emission reduction targets. These countries, known under the UNFCCC as Annex I parties, agreed to reduce their overall emissions of six greenhouse gases by an average of 5.2% below 1990 levels between 2008-2012 (the first commitment period), with specific targets varying from country to country.

Following COP 3, parties began negotiating many of the rules and operational details governing how countries will reduce emissions and measure their emission reductions. The process was finalized in November 2001 at COP 7 in Marrakesh, Morocco, when delegates reached agreement on the Marrakesh Accords. These Accords consisted of a package of draft decisions for adoption at COP/MOP 1 and laid down detailed rules on the Protocol's three flexible mechanisms, reporting and methodologies, LULUCF, and compliance.

COP 10: At COP 10 held from 6-17 December 2004 in Buenos Aires, Argentina, parties began informal negotiations on the complex and sensitive issue of the post-2012 period. As a result of these discussions, a seminar was held in Bonn in May 2005 to address some of the broader issues facing the climate change process.

COP 11 AND COP/MOP 1: COP 11 and COP/MOP 1 took place in Montreal, Canada, from 28 November to 10 December 2005. COP/MOP 1 took decisions on the outstanding operational details of the Kyoto Protocol, including formally adopting the Marrakesh Accords. The meetings also engaged in negotiations on long-term international cooperation on climate change. COP/MOP 1 addressed possible processes to discuss post-2012 commitments and decided to establish a new subsidiary body, the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG). COP 11 agreed to consider long-term cooperation also under the UNFCCC "without prejudice to any future negotiations, commitments, process, framework or mandate under the Convention" through a series of four workshops constituting a "Dialogue" on the matter through to COP 13.

AWG 1 AND CONVENTION DIALOGUE 1: The AWG and the Convention Dialogue each convened for the first time in Bonn, Germany, in May 2006, alongside the 24th meeting of the Subsidiary Bodies (SB 24). The AWG adopted conclusions on "Planning of future work." It identified the need to assemble and analyze information on a number of scientific, technical and socioeconomic topics to enhance common understanding of the level of ambition of further commitments for Annex I parties and of the potential for achieving these commitments.

During the first Convention Dialogue workshop, participants exchanged initial views, experiences and strategic approaches on the four thematic areas to be addressed during the Dialogue.

AWG 2 AND CONVENTION DIALOGUE 2: The second sessions of the AWG and the Convention Dialogue took place in November 2006, in Nairobi, Kenya, alongside COP 12 and COP/MOP 2. The AWG held an in-session workshop and agreed on a work programme focusing on the following three areas: mitigation potentials and ranges of emission reductions; possible means to achieve mitigation objectives; and consideration of further commitments by Annex I parties.

The second Convention Dialogue workshop engaged in discussions on "advancing development goals in a sustainable way" and "realizing the full potential of market-based opportunities," including the Stern Review on the Economics of Climate Change.

In parallel, COP/MOP 2 carried out the first review of the Protocol under Article 9, and held discussions on a proposal by the Russian Federation on procedures to approve voluntary commitments for developing countries.

AWG 3 AND CONVENTION DIALOGUE 3: In May 2007, alongside SB 26, AWG 3 and the third Convention Dialogue workshop convened in Bonn, Germany. The AWG held a roundtable discussion on the mitigation potentials of policies, measures and technologies. It also adopted conclusions on the analysis of mitigation potential and agreed to develop a timetable to complete its work so as to avoid a gap between the first and subsequent commitment periods.

The third Convention Dialogue workshop involved sessions on adaptation and realizing the full potential of technology. It also began addressing the issue of what should happen procedurally after the Convention Dialogue workshops report to COP 13.

AWG 4 AND CONVENTION DIALOGUE 4: The first part of AWG 4 and the fourth and final Convention Dialogue workshop took place from 27-31 August 2007 in Vienna, Austria.

The AWG focused on mitigation potentials and possible ranges of emission reductions for Annex I parties. It adopted conclusions referring to some of the key findings of the IPCC Working Group III, including that global greenhouse gas emissions need to peak in the next 10-15 years and then be

reduced to well below half of 2000 levels by the middle of the 21st century in order to stabilize atmospheric concentrations to the lowest level assessed by the IPCC. The AWG's conclusions recognized that to achieve this level, Annex I parties as a group would be required to reduce emissions by a range of 25-40% below 1990 levels by 2020.

The final Convention Dialogue workshop focused on bringing together ideas from the previous workshops and addressing overarching and cross-cutting issues, including financing. It also addressed next steps after COP 13.

COP 13, COP/MOP 3 AND AWG 4: COP 13 and COP/MOP 3 took place from 3-15 December 2007 in Bali, Indonesia, alongside the resumed fourth session of the AWG. The main focus of the Bali conference was on long-term cooperation, and negotiators spent much of their time seeking to agree on a two-year process, or "Bali roadmap," to finalize a post-2012 regime by COP 15 in December 2009.

Under the Convention, negotiations on the follow up to the Convention Dialogue resulted in the establishment of the AWGLCA with a view to launching a comprehensive process on long-term cooperative action to be completed in 2009. COP 13 identified four areas for enhanced action to be addressed by the AWGLCA, namely mitigation, adaptation, finance and technology. Its decision also contains a non-exhaustive list of issues to be considered under each of these areas and calls for addressing a shared vision for long-term cooperative action.

At its resumed fourth session, the AWG focused on reviewing its work programme and developed a detailed outline for its activities and meetings for 2008-2009.

COP/MOP 3 considered preparations for the second review of the Protocol under Article 9 by COP/MOP 4 at the end of 2008. Delegates identified a number of issues to be addressed during the review, such as the Clean Development Mechanism (CDM), IPCC AR4, adaptation, effectiveness, implementation and compliance. They also requested that the Secretariat organize a preparatory workshop.

REPORT OF THE MEETING

The first session of the *Ad Hoc* Working Group on Long-term Cooperative Action (AWGLCA 1) and the fifth session of the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol to the United Nations Framework Convention on Climate Change (AWG 5) opened on Monday, 31 March 2008.

Sahas Bunditkul, Deputy Prime Minister of Thailand, identified the need to negotiate "an attractive package" for COP 15, including comprehensive action on adaptation and mitigation.

Calling for global solidarity, Noeleen Heyzer, Executive Secretary of the Economic and Social Commission for Asia and Pacific, underscored the need for financial and technological support from developed countries to achieve both emission reductions and development goals in developing countries.

In a video address, UN Secretary-General Ban Ki-moon called for an environmentally sound, long-term solution based on common but differentiated responsibilities, and a "delicate balance" between globally inclusive action and poverty eradication.

COP 13 President Rachmat Witoelar, Indonesia, emphasized that the Bali roadmap must be paved with strong, concrete actions and rigorous implementation. He called for a global emissions goal, possibly achieved through a mid-term goal, and urged stepping up efforts to reach agreement by 2009.

Janusz Zaleski, Undersecretary of State, Ministry of Environment, Poland, said the Bangkok meeting should identify issues where work needs to be done and in what order, areas needing further clarification and how relevant actors such as financial institutions, business and civil society could contribute to the process.

UNFCCC Executive Secretary Yvo de Boer stressed the need to respond to the great expectations generated by the Bali outcome and called for progress in both AWGs. Highlighting limited time to conclude negotiations, he emphasized the importance of negotiating a clear work programme for the AWGLCA.

The AWGLCA and the AWG held their opening plenaries on Monday. From Tuesday morning to Thursday afternoon, the AWGLCA met in an informal plenary to exchange views on the key elements of the Bali Action Plan. From Tuesday to Friday, it also convened in an informal drafting group to consider the AWGLCA's work programme for 2008, which was adopted by the closing plenary just after midnight on Friday. From Tuesday to Thursday, the AWG held an in-session workshop on analysis of means to reach emission reduction targets. On Thursday afternoon, the AWG convened a contact group to exchange views on its conclusions, which were finalized during informal consultations and adopted on Friday. This report summarizes the discussions and conclusions from AWGLCA 1 and AWG 5, including the AWG's in-session workshop on analysis of means to reach emissions reduction targets.

AD HOC WORKING GROUP ON LONG-TERM COOPERATIVE ACTION

The first session of the AWGLCA opened on Monday afternoon, 31 March 2008 with Luiz Machado (Brazil) as the Chair and Michael Zammit Cutajar (Malta) as the Vice-Chair. Machado stated that it was necessary to advance step-by-step to build a solid basis for agreement. Parties adopted the agenda and organization of work (FCCC/AWGLCA/2008/1). They agreed to convene mostly in informal plenary settings, to allow for greater participation. They also agreed that opening statements would only be made under the agenda item on the development of a work programme.

Switzerland, for the Environmental Integrity Group, highlighted linkages between the AWGs and the need for cooperation.

DEVELOPMENT OF A WORK PROGRAMME: The agenda item on development of the AWGLCA's work programme was first taken up in plenary on Monday afternoon. Chair Machado introduced the relevant documents (FCCC/AWGLCA/2008/2 and FCCC/AWGLCA/2008/Misc.1 and Adds.1-3).

The US called for an effective outcome that is economically sustainable and consistent with sustainable development. Antigua and Barbuda, for the G-77/China, and Algeria, for the African Group, stated that the AWGLCA should focus on enhancing implementation of existing commitments under the Convention and Protocol, and stressed the principle of common but differentiated responsibilities. Saudi Arabia indicated no agreement exists to supersede the Convention or replace its principles, including the balance of obligations. Argentina said historical contributions and current circumstances must be considered and called for short-term measures, while advancing long-term goals.

The G-77/China, Switzerland and others highlighted the equal importance of the building blocks. The G-77/China and others also called for an iterative work programme. Australia, Slovenia, for the European Union (EU), Norway, Samoa, for the Alliance of Small Island States (AOSIS), and others supported addressing all elements this year and called for considering all four building blocks at each session.

Key elements of the Bali Action Plan were then discussed in five informal plenary sessions from Tuesday morning to Thursday afternoon. An informal group chaired by Chair Machado convened from Tuesday evening until late Friday evening to draft conclusions on the work programme. The AWGLCA closing plenary convened after midnight on Saturday morning to adopt the conclusions.

This report will first summarize the discussions on the key elements of the Bali Action Plan in the informal plenary, followed by a summary of the negotiations leading to the adoption of the AWGLCA's work programme for 2008.

Shared Vision: On Tuesday and Wednesday mornings, the AWGLCA informal plenary exchanged views on the meaning of "a shared vision for long-term cooperative action, including a long-term global goal for emission reductions" in the Bali Action Plan. The key issues discussed included: the nature of a shared vision, a global goal, mitigation commitments, adaptation and necessary activities to include in the AWGLCA's work programme.

On the nature of a shared vision, Australia, supported by the Republic of Korea and others, said the shared vision should be a statement of aspiration rather than legally binding. Brazil, the Philippines, Cuba, India, China, Maldives, for the Least Developed Countries (LDCs), and others emphasized the importance of the Convention's principles and commitments in defining a shared vision. The EU said Convention Article 2 (objective) is not sufficient, and AOSIS stated that the task is to operationalize Article 2 in light of scientific advances.

On the global goal, the EU, Brazil, Japan, Cuba and others identified the need for a long-term global goal. The EU proposed reducing Annex I emissions by 30% by 2020 and 60-80% by 2050. Brazil highlighted burden sharing and historical responsibility. India identified similar commitments by all developed countries, including non-Kyoto parties, as a precondition for developing country action. He called for equal distribution and convergence of emission rights. Saudi Arabia called for a bottom-up approach in defining a long-term goal. The US emphasized the need for differentiation among parties, depending on changing social and economic conditions, as well as current emissions and emission trends.

The African Group emphasized equal treatment of adaptation and mitigation, and the special needs of Africa, small island developing states (SIDS) and the LDCs. Bangladesh, Ghana, Egypt and others supported developing an adaptation protocol.

Mitigation: On Wednesday, the AWGLCA informal plenary discussed issues related to mitigation. Several delegates emphasized that developed and developing countries should have distinct responsibilities. Brazil, supported by South Africa, explained that developed countries must reduce emissions, while developing countries should take action to reduce emission growth, and clarified that the distinction also applied to measuring, reporting and verifying (MRV). China and Brazil highlighted that in developing countries, MRV should take place nationally. Brazil and South Africa underscored the need for international incentives for developing country action and the recognition of existing actions. India elaborated on an equity, or convergence, emissions paradigm for mitigation.

Japan called for mid-term national targets using sectoral approaches, stressing they would not replace quantified targets and would differ for developed and developing countries. AOSIS stressed that sectoral approaches for developed countries must be considered in the context of national targets. The US, the EU and others supported further exploring the idea of sectoral approaches. Argentina, Australia, the US, the EU and the Russian Federation proposed looking at possible criteria for differentiation. The EU supported parallel discussions on developed and developing country comparability of efforts and further exploring MRV.

The G-77/China identified the need to clarify "comparability of efforts" among developed countries. Brazil and others stated this was particularly relevant for Kyoto non-parties. Saudi Arabia stressed the need to consider economic and social consequences of response measures and, with Ghana, urged considering expanding the list of greenhouse gases.

Adaptation: Discussions on issues related to adaptation took place during the informal plenary on Wednesday. Zambia urged bringing adaptation action to the same level as mitigation. China said adaptation should be given more importance than mitigation. Venezuela called for addressing the issues holistically.

Several delegates highlighted the need to focus on vulnerable countries and regions. The G-77/China expressed concern over the lack of adaptation funding and the fragmentation of programmes and funds, particularly outside the Convention. South Africa, with others, stressed the need to avoid replicating work and to focus on implementation. She proposed streamlining financing mechanisms and reconsidering the institutional framework. New Zealand proposed that the Secretariat conduct a stocktaking assessment of adaptation activities.

Zambia called for a country-driven approach. Japan said adaptation planning should be mainstreamed into development planning and called for cooperation among donors. Togo and China stressed financial and technological needs. India and others proposed extending the adaptation levy to all Kyoto

mechanisms and creating other financial instruments. Australia supported further analytical work to assess adaptation funding. AOSIS proposed an economic report on climate impacts on SIDS and, with the LDCs, an adaptation fund under the Convention. Samoa suggested developing an insurance pool scheme made up of contributions from developed countries.

The US supported differentiation among countries on the basis of projected impacts and adaptive capacity. Palau advocated the transfer of locally-appropriate technologies and best practices, and disseminating information to local communities.

Costa Rica urged looking at other relevant processes such as the International Strategy for Disaster Reduction. Saudi Arabia supported a workshop addressing resilience to both climate change and response measures.

Technology: Issues related to technology were addressed by the informal plenary on Thursday morning. The G-77/China emphasized technologies for both mitigation and adaptation, financing and international cooperation. Ghana highlighted the importance of innovative mechanisms, incentives and, with Brazil and others, North-South and South-South cooperation. Uganda said policies and political will were required, and, supported by Argentina, urged promoting South-South cooperation in transferring adaptation technologies. China stressed innovative funding mechanisms and the purchase of climate-friendly technologies by developed countries for preferential transfer to developing countries. Pakistan called for a fast-track procedure for technology transfer, and South Africa highlighted the role of incremental costs and market mechanisms.

Brazil urged considering existing technologies and undertaking technological research in developing countries and, with Canada, called for analyzing experiences in other international fora. The EU identified the need for an enhanced international framework based on countries' needs. Japan stressed the effectiveness of sectoral approaches.

Cuba, India, Tanzania, Indonesia and others urged addressing intellectual property rights (IPRs). Saudi Arabia noted compulsory licensing under the World Trade Organization Agreement on Trade-Related Aspects of Intellectual Property as an option to access climate-friendly technologies, and suggested such technologies should not necessarily be patented. The US emphasized IPRs were not a barrier but a catalyst for technology transfer, and said IPR critics were those very countries who have taken advantage of the IPR regime. China stressed IPRs should not be a fundamental obstacle for fulfilling developed countries' commitments on technology transfer.

Bangladesh, Sierra Leone, Timor-Leste, the Maldives, Tanzania and others stressed capacity building. Sierra Leone, Uganda and Timor-Leste highlighted country-specific circumstances. Switzerland identified clear policy and self-assessment as preconditions for technology transfer. Belarus said technology transfer was also a concern for Annex I countries.

Australia called for considering technology transfer outside the Convention, and better integrating the business and research communities and the Expert Group on Technology Transfer into the process. South Africa highlighted the need to avoid duplicating work. The US stressed eliminating tariff and non-tariff barriers to trade in environmental goods and services. Egypt urged considering how to encourage private sector involvement on a voluntary basis.

Indonesia called for developing performance indicators and innovative funding. Mexico, Indonesia and India suggested creating a multilateral fund under the Convention with foreseeable and scalable contributions by developed countries and a transparent and inclusive governance structure. Argentina highlighted positive experiences with the Multilateral Fund for the Implementation of the Montreal Protocol on Substances That Deplete the Ozone Layer. Antigua and Barbuda called for increasing official development assistance, which offers a predictable funding source for technology. Turkey supported the creation of a technology transfer fund.

The EU highlighted linkages between finance and technology and suggested a toolbox on financing, and said carbon markets and enabling environments are essential. Switzerland stressed the importance of existing instruments, specifically the CDM. The Republic of Korea emphasized the role of market mechanisms, private sector initiatives and a predictable investment environment. Egypt urged new funding mechanisms and improving existing ones, such as the CDM. He also supported an adaptation protocol, which would facilitate technology transfer.

Finance: Discussions on issues related to finance took place in the informal plenary on Thursday afternoon. Delegates discussed issues of: sources of financing, mechanisms, financial needs for adaptation, parallel financial initiatives and necessary activities to be included in the work programme.

The G-77/China and others called for adequacy and accessibility of financing and developing a mechanism to mobilize resources, with the G-77/China proposing to create an umbrella multilateral fund under the Convention.

On funding sources, the US indicated that the private sector would generate the majority of financing and noted US bilateral initiatives on financing adaptation. South Africa supported consolidating funding sources into one instrument that can be easily accessed, and said public financing, not the private sector, must provide the main sources of financing. China said developed countries must fulfill their legal obligations under the Convention to provide funding to developing countries.

The G-77/China expressed concerns over parallel financial initiatives, while the US and Japan highlighted their national initiatives. Japan and Switzerland supported streamlining roles and objectives of coexisting financial mechanisms.

AOSIS noted the high costs of some adaptation options, particularly in coastal areas, and proposed creating an adaptation fund under the Convention on the basis of the "polluter pays" principle. The LDCs emphasized the inadequacy of existing financing and highlighted their urgent adaptation needs, particularly in preparing, updating and implementing National Adaptation Programmes of Action (NAPAs). Bangladesh called for adequate, predictable and sustainable funding, as well as new and additional resources, and said the 2% levy on the CDM was inadequate.

AWGLCA's Work Programme: The contents of the AWGLCA's work programme for 2008 were first addressed in parties' opening statements on Monday afternoon and Tuesday morning. Negotiations on the details took place in a closed informal drafting group chaired by Chair Machado from Tuesday evening until late Friday night, as well as in small group consultations. The AWGLCA closing plenary adopted conclusions on the work programme for 2008 just after midnight on Saturday morning.

In their opening statements on Monday and Tuesday, delegates elaborated on what they saw as key elements for the work programme. Many emphasized that the building blocks were equally important and urged discussing all of them at each session. They also highlighted that the work programme should be iterative. The G-77/China and the US stressed the need to keep the two AWGs as separate and parallel processes, while others, including Switzerland, Canada and Australia, highlighted interlinkages.

Delegates also made several proposals for issues to be addressed at upcoming sessions, including: shared vision; mid- and long-term goals; legal issues related to the post-2012 regime; LULUCF; sectoral approaches; MRV; carbon capture and storage (CCS); technology-related issues, and risk management and insurance.

During the exchange of views in the informal plenary, several delegates proposed workshops on the key elements of the Bali Action Plan. Many identified the need for a workshop on shared vision. The EU proposed holding a workshop, roundtable and high-level discussion at COP 14 on this issue. The EU, China, Belize, Panama, Saudi Arabia, AOSIS and others proposed several specific workshops related to adaptation. Japan and others supported a workshop on sectoral approaches. The US proposed a workshop addressing technology options, availability and costs. Several developing countries called for a workshop on comparability of mitigation efforts by developed countries. Saudi Arabia proposed a workshop on economic and social consequences of response measures. Several delegates also proposed workshops relevant to technology transfer and issues related to finance.

During the informal discussions from Tuesday through Friday evening, delegates discussed Chair Machado's proposed draft conclusions and the work programme for 2008, contained in an annex with a timetable, proposed agenda items and specific activities for each session. Delegates agreed to discuss all four building blocks and a shared vision at every session, and the need for stocktaking at COP 14. Discussions focused on the timing, format and contents of proposed workshops.

One of the most contentious issues the group addressed was a proposed workshop on sectoral approaches and its timing in the work programme. Japan supported a workshop on sectoral approaches during AWGLCA 2, while several developing countries opposed holding such a workshop in 2008, and proposed postponing the discussions until 2009. After extensive consultations, delegates agreed to hold a workshop on cooperative sectoral approaches and sector-specific actions during AWGLCA 3.

Another contentious issue was whether to hold a workshop on comparability of efforts and MRV. Countries' positions were divided on whether to consider issues related to the paragraph 1b(i) (MRV and comparability of efforts for developed country commitments or actions) and paragraph 1b(ii) (MRV for developing country actions) of the Bali Action Plan separately or in one workshop. Several developing countries opposed addressing the two issues in one workshop, while some developed countries insisted on linking the two. After lengthy consultations on Friday evening, delegates agreed to postpone holding special activities on MRV and comparability of efforts until 2009, with the assurance that all elements of the Bali Action Plan will be addressed at each of the upcoming sessions in 2008.

Delegates also debated timing of a workshop on shared vision for long-term cooperative action, with the EU initially proposing to hold this workshop at AWGLCA 2, and a ministerial level roundtable on the issue at COP 14 in Poznan. Developing countries opposed holding this workshop so early in the process and felt that clarity is needed on other issues first. Delegates agreed that a workshop on a shared vision will take place in Poznan during AWGLCA 4.

Delegates also agreed to hold workshops on, *inter alia*: finance, technology, Reducing Emissions from Deforestation and Degradation (REDD), research and development, and risk management and risk reduction strategies.

Just after midnight on Saturday morning, Chair Machado presented the draft conclusions to the closing plenary. Following consultations in the plenary hall, he proposed, and delegates agreed, to clarify text on inviting other relevant intergovernmental processes, the business and research communities and civil society to take note of the AWGLCA's work programme.

China stressed the need to clarify that all elements of the Bali Action Plan, including MRV, would be on the agenda at all sessions in the meeting's report, and Chair Machado indicated the explanation would be made for the record and also included in his summary report.

AWGLCA Conclusions: In its conclusions (FCCC/AWGLCA/2008/L.2), the AWGLCA, among other things:

- agrees to undertake its work, seeking progress on all elements assigned to it by the Bali Action Plan, in a coherent, integrated and transparent manner, and agrees to include work on all elements at each session;
- recognizes sufficient time should be allowed for negotiations in order to enable COP 15 to reach agreement;
- agrees to complete its work programme for 2009 no later than at its fourth session in 2008;
- recognizes that its work should be facilitated by workshops and other activities to deepen understanding and clarify elements included in the Bali Action Plan;
- requests the Secretariat to compile and make available an information note on ongoing work under the Convention related to issues identified in the Bali Action Plan; and
- invites other relevant intergovernmental processes, the business and research communities and civil society to take

note of its work programme so that the process is informed of their outputs and insights.

The conclusions also contain an annex setting out a timetable for activities for the next three AWGLCA sessions, and stating that all five elements of the Bali Action Plan will be on the agenda and considered at each session.

The annex contains a list of the following workshops:

- AWGLCA 2: advancing adaptation through finance and technology, including NAPAs, investment and financial flows, and issues related to technology development, deployment, diffusion and transfer;
- AWGLCA 3: policy approaches and positive incentives using REDD and LULUCF; and cooperative sectoral approaches and sector-specific actions; and
- AWGLCA 4: risk management and risk reduction strategies, including risk sharing and transfer mechanisms; cooperation on research and development of current, new and innovative technology; and shared vision for long-term cooperative action.

CLOSING PLENARY: At 12:30 am on Saturday morning, the AWGLCA closing plenary convened. Under other matters, Switzerland thanked the UNFCCC Executive Secretary for his consultations with UN agencies, stressing that this cooperation was consistent with the Bali Action Plan. Parties adopted the report of the session (FCCC/KP/AWGLCA/2008/L.1) without amendment. They also adopted the conclusions (FCCC/KP/AWGLCA/2008/L.2).

Chair Machado stated he was very pleased with the AWGLCA's work in Bangkok and that agreement on the work programme would help shape future discussions on the Bali Action Plan. He closed the meeting at 1:00 am.

AD HOC WORKING GROUP ON FURTHER COMMITMENTS FOR ANNEX I PARTIES

The first part of the fifth session of the AWG opened on Monday morning, 31 March 2008, with Harald Dovland (Norway) as the new AWG Chair and Mama Konate (Mali) as the AWG Vice-Chair. Dovland stressed that the task in 2008 is to analyze and reach conclusions on means to reach emission reduction targets, including flexible mechanisms, LULUCF, a basket of greenhouse gases and covered sectors. Parties adopted the agenda (FCCC/KP/AWG/2008/1). Switzerland, for the Environmental Integrity Group, highlighted linkages between the AWGs and the need for cooperation.

During the Monday morning plenary, country groups delivered opening statements. Stressing the AWG's legal mandate, Antigua and Barbuda, for the G-77/China, expressed concern about suggestions to link the AWG with the new AWGLCA process. Canada highlighted links between the AWG and AWGLCA and called for coordinating the processes. Brazil noted that the AWG's success depends on its ability to focus on Annex I commitments.

Argentina stressed that the Kyoto Protocol should remain the foundation for future Annex I commitments and be strengthened. Venezuela indicated there is no need to renegotiate the existing legal framework. Maldives, for the LDCs, highlighted the need for Annex I emission reductions in the range of 25-40% below 1990 levels by 2020, and Bangladesh called for deep cuts. Samoa, for AOSIS, said greenhouse gas (GHG) concentrations must be stabilized well below 450 parts per million (ppm) and suggested the inclusion of new gases under the Protocol.

New Zealand stated that rules must be improved and finalized before new commitments are made. China stressed that if the rules are changed, the 25-40% indicative range of Annex I emission reductions must be increased. Japan highlighted the potential of sectoral approaches in achieving global emission reductions, and New Zealand supported analyzing other types of commitments in addition to quantified targets. China stated that sectoral approaches cannot replace targets but can be used as a means of achieving them.

Several parties, including Japan, Tuvalu and Slovenia, for the EU, identified the need to address international aviation and maritime transport emissions. Australia, New Zealand, Iceland and others urged reviewing the rules on LULUCF and flexible mechanisms. Australia suggested broadening the scope of mechanisms, especially in relation to sinks, CCS and afforestation and reforestation. Indonesia identified the need to review the rules for the CDM, and Malaysia proposed addressing complex procedures and high transaction costs under the CDM. Tuvalu suggested auctioning Assigned Amount Units (AAUs).

The Climate Action Network stressed that emission reductions in industrial sectors should not be substituted with emission reductions in other sectors, such as LULUCF, and stressed the need to protect biodiversity and indigenous rights. The International Trade Union Confederation called on parties to consider social and economic dimensions of emission reduction targets.

ANALYSIS OF MEANS TO REACH EMISSION REDUCTION TARGETS: During the first part of AWG 5, delegates focused on the agenda item on analysis of means to reach emission reduction targets and the identification of ways to enhance their effectiveness and contribution to sustainable development. The issue was first taken up in plenary on Monday. AWG Chair Dovland introduced documents outlining provisions relating to means to reach emission reduction targets by Annex I parties under the Protocol (FCCC/KP/AWG/2008/INF.1) and views and information submitted by parties (FCCC/KP/AWG/2008/MISC.1 and Adds. 1-3). From Tuesday morning to Thursday morning, the AWG convened an in-session workshop on means to reach emission reduction targets. The workshop included sessions on: flexible mechanisms; LULUCF; GHGs, sectors and sources; and sectoral approaches.

On Thursday afternoon, a contact group convened to exchange views on the workshop and the AWG's conclusions on means to reach emission reduction targets. Chair Dovland then undertook informal consultations to finalize the AWG's conclusions from the session.

This report will first summarize the discussions on means to reach emission reduction targets during the in-session workshop, followed by a summary of the negotiations leading to the adoption of the AWG's conclusions from the first part of its fifth session.

In-Session Workshop: ***Flexible mechanisms:*** On Tuesday, the in-session workshop focused on issues related to emission trading and the project-based mechanisms.

The first set of presentations provided an overview of the Kyoto mechanisms. Andrew Howard, UNFCCC Secretariat, explained the legal basis for the flexible mechanisms in the Kyoto Protocol and the relevant COP/MOP decisions. He noted that six Annex I parties fulfill the eligibility criteria and most others will follow by the end of April.

Dennis Tirpak, IPCC Working Group III Coordinating Lead Author, reviewed the IPCC's assessment of market mechanisms, including the potential to establish a carbon price, reduce mitigation costs and spur technological investment.

Henry Derwent, International Emissions Trading Association, highlighted rapid growth in the carbon market in terms of both monetary flows and emission reductions. He also discussed the carbon market's effectiveness in reducing emissions and removing bottlenecks in the CDM approval process.

The second set of presentations focused on emissions trading. Artur Runge-Metzger, European Commission, discussed lessons learned from the EU Emissions Trading Scheme and noted the proposal to auction emission allowances in the post-2012 period and to require member states to use 20% of revenues for mitigation and adaptation.

Mark Storey, New Zealand, outlined his country's draft for a cap and trade scheme, which would cover all sectors and gases by 2013, including forestry and agriculture.

In the ensuing discussion, Canada supported broadening the market mechanisms and clarifying the rules. New Zealand called for transparency and revisiting the commitment period reserve. Tanzania highlighted the potential for other innovative market mechanisms.

The third set of presentations focused on the flexible mechanisms of CDM and Joint Implementation. Rajesh Sethi, CDM Executive Board Chair, identified the need to ensure environmental integrity, cost effectiveness, transparency, reasonable timelines, and incentives for accurate accounting as the key challenges for the CDM.

Georg Borsting, Joint Implementation (JI) Supervisory Committee Chair, noted that most of the 129 JI projects are in the Russian Federation, Ukraine and Bulgaria and involve renewable energy, methane and energy efficiency. He said questions remain concerning the continuation of JI after 2012.

Martin Krause, UN Development Programme, noted the need to align multiple funding sources with the CDM, including from private and domestic public funds, official development assistance and development banks.

Concerning the CDM in the post-2012 period, China highlighted the need for efficiency, simplification, transparency, certainty and environmental integrity. He urged strengthening the CDM's role in technology transfer, and suggested removing the additionality test from certain project types and enhancing the host country's role.

Japan highlighted the need to fundamentally review the CDM for the post-2012 period, as it currently takes place between a party with an emission target and a party without a target. Responding to Australia, he said this would also affect the additionality criteria. He said geographical distribution, as well as nuclear, CCS and energy efficiency projects, should also be considered.

Tanzania stressed the need to simplify the CDM and review its rules, including the criteria for sustainable development and the requirement of financial additionality. He also stressed REDD's potential in Africa. Ukraine highlighted legislation facilitating implementation of JI projects in Ukraine and stressed that attracting foreign carbon investment is a priority for the Ukrainian government. The EU stated that advanced developing countries must move beyond offsetting and proposed exploring a no-lose sectoral crediting mechanism. He said JI should also play a role in the post-2012 period.

Tuvalu and others expressed concerns over proposals to expand the CDM by relaxing additionality criteria, and highlighted maintaining environmental integrity. Tuvalu expressed the need to accrue real, additional and verifiable emission reductions. He suggested creating revenues for low emitting countries by auctioning AAUs and reviewing accessibility and geographical allocation rules.

The Republic of Korea supported expanding the scope of the CDM to attract eco-friendly investment and technology. Indonesia, Benin and the Democratic Republic of Congo called for addressing the lack of sink projects under the CDM. Senegal highlighted the importance of an attractive carbon price, and Burkina Faso stated that sink projects are attractive only if the carbon price is at the level of at least US$20. Benin stressed the need to improve the geographical distribution of CDM projects, while New Zealand warned of difficulties in dictating geographical and sectoral distribution of projects.

The Russian Federation stressed that the success of flexible mechanisms depends on national circumstances. Brazil suggested maintaining the current eligibility criteria for LULUCF projects in the next commitment period, opposed including CCS under the CDM, and noted that programmatic CDM opens a "window of opportunity" for substantial Certified Emission Reductions.

Canada supported exploring sectoral approaches, suggested establishing multi-project baselines for the CDM and simplifying rules for LULUCF, and noted that the Executive Board might become a full-time body in the future. Argentina called for an independent assessment of the CDM, with a regional component, to explore issues such as: financing, technology transfer and registered projects.

South Africa highlighted the need to consider implications of new approaches on the carbon price. The EU stated that even if it decided to offset all European GHG emissions, this would not constitute the global emission reductions envisaged. Belarus proposed the inclusion of marsh rehabilitation in the second commitment period.

Chair Dovland identified key elements, including: all parties supported continuing the use of the flexible mechanisms in the second commitment period; some wanted to expand approaches to the carbon market and establish a common carbon price; flexible mechanisms should be complemented by technology transfer, financing and capacity building; and a strong market

signal in the form of stringent emission reduction targets is needed to drive the carbon price. He also noted suggestions that emission trading could support adaptation finance through the auction of AAUs.

Regarding project-based mechanisms, he identified calls to maintain environmental integrity and the additionality requirement and contribute to sustainable development. Some parties suggested simplification of CDM rules, focus on including more LULUCF activities and addressing geographical imbalances by enhanced capacity building and enabling environments. The link to the Protocol's Article 9 review was also noted. Some of the new issues raised by parties, he noted, included, sectoral programmes and no-lose sectoral crediting and extending present market mechanisms.

Land Use, Land-use Change and Forestry: Issues related to LULUCF were discussed at the in-session workshop on Wednesday. Maria José Sanz, UNFCCC Secretariat, provided an overview of the provisions and decisions related to LULUCF under the Protocol.

Peter Holmgren, United Nations Food and Agriculture Organization, stressed the need for monitoring in accounting, and synergies between forest monitoring in addressing climate change and other environmental problems.

Jim Penman, IPCC, noted scientific advances addressing many of the pre-Kyoto fears regarding forest management. He suggested: considering LULUCF in the context of REDD; simplifying rules for CDM sink projects; dealing with harvested wood products (HWP); and, regarding permanence risks, implementing longer averaging periods or taking on conservative assessments to account for possible losses.

Japan presented on national experiences, highlighting enhanced sink policies and measures, which are broadening participation and utilization of products and biomass.

The EU suggested reviewing and simplifying accounting rules, without creating perverse incentives, and enhancing removals from sustainable biomass for energy and HWP.

New Zealand discussed experiences in incorporating LULUCF in its emissions trading scheme and identified LULUCF rules under the Protocol that should be reviewed, especially those related to land use change, which has had significant effects on the dynamic land use in New Zealand, and the practicality of forest management rules.

Canada proposed three key enhancements: improving incentive structures for sustainable land management; assessing the life cycle of carbon stocks; and greater focus on distinguishing anthropogenic emissions and removals. He proposed a LULUCF sub-group take up this issue.

Australia noted that parties should not foreclose new options for mitigation under LULUCF and favored the review of current rules to ensure simplicity without perverse incentives. He said effective monitoring systems are now available to allow for more accurate accounting.

Tuvalu urged parties not to rewrite the existing rules and principles, noting it may be necessary to reconsider IPCC guidelines on managed and unmanaged land. He stated that CDM activities should remain restricted to afforestation and reforestation projects.

Supporting Tuvalu, Brazil said that if activities under Article 3.4 (additional human induced activities) were expanded, the IPCC should be invited to re-assess the issue of "factoring out" to enhance understanding of anthropogenic versus natural carbon stock changes.

In the discussion on LULUCF, as outlined in Protocol Articles 3.3, 3.4 and 3.5 pertaining to Annex I counties, China opposed major modifications for the second commitment period and stressed that provisions on LULUCF should apply only to Annex B countries. Tuvalu called for a political link between LULUCF rules and commitment levels. Malaysia called for streamlining and strengthening of rules, such as forest management. He also proposed standardizing rules to be consistent for removals from peatlands and noted potential linkages with REDD. The Russian Federation supported simpler, more efficient inventory procedures.

On LULUCF under the CDM, Uganda supported amending the rules, citing socioeconomic development and mitigation benefits of forests. Brazil and Samoa warned against sacrificing the environmental integrity of the CDM, while Australia and Switzerland asserted that rules can be simplified while maintaining stringency in environmental outcomes. Benin and Senegal highlighted linkages between Africa's participation in the carbon market and the role of forestry.

The Global Environmental Centre and Wetlands International called for a process to evaluate the contribution of peatland management to the LULUCF sector. Climate Action Network International called for the protection of biodiversity and indigenous rights in the LULUCF sector.

In summing up the key elements, Chair Dovland identified LULUCF as one of the most complex issues and recognized consensus on continuing the use of the principle from decision 16/CMP.1 (LULUCF) and ensure environmental integrity. Regarding the second commitment period rules, he suggested there were divergent views with some encouraging holistic approaches to LULUCF and agriculture and others wanting very few modifications to the rules agreed for the first commitment period. However, he noted that there was a general desire to avoid discontinuity between commitment periods or adopting dramatically different systems. Contentious issues related to new pools, such as HWP. He also noted the potential for LULUCF to contribute to sustainable forest management and biodiversity protection.

Sectoral Approaches: On Wednesday afternoon, parties discussed sectoral issues for the first time in the AWG. In the overview presentations, Richard Baron, International Energy Agency, outlined three sectoral approaches: mitigation potentials on a sectoral level; sectoral international cooperative action; and sector-specific action in developing countries.

Jake Schmidt, Center for Clean Air Policy, outlined sectoral methods to encourage developing country mitigation while deploying low carbon technology. He also illustrated how sectoral approaches can help in defining Annex I targets.

Jane Hupe, International Civil Aviation Organization (ICAO), described the organization's activities on the sectoral approach to aviation, including: mitigation, emissions quantification, technology, standards, and operational measures. She called for cooperation between the UNFCCC and the Group on International Aviation and Climate Change processes.

Brian Flannery, International Chamber of Commerce, recommended continuation of voluntary initiatives, prioritizing cost effectiveness, maintaining flexibility and avoiding competitiveness among sectors and countries, and assessing the economic and trade implications of sectoral approaches.

In the discussion, the EU, New Zealand, China and Canada stressed that sectoral approaches should support, not replace, national targets. Switzerland, Australia, Tuvalu, New Zealand and others supported addressing sectoral approaches in the AWGLCA. New Zealand suggested a workshop on sectoral approaches to report to both AWGs, and Japan noted that sectoral approaches were useful in bridging the AWGs. India expressed concerns with issues of competitiveness being raised in the discussion.

Chair Dovland cited general agreement that sectoral approaches should not replace targets but could be a complementary tool to achieve them. He noted that several voluntary agreements and initiatives had been presented, but there was no consensus as to which process, the AWG or AWGLCA, should take this forward.

Greenhouse Gases, Sectors and Sources: On Thursday, the AWG held an in-session workshop concentrating on GHGs, sectors and sources. Katia Simeonova, UNFCCC Secretariat, discussed sectors and source categories, and related decisions, as well as reporting and review processes, under the Protocol.

Thelma Krug, IPCC, highlighted the IPCC's "evolutionary approach," responding to new scientific information and noted the limitations of global warming potentials (GWPs) to compare short-lived GHGs with long-lived GHGs.

Jane Hupe, ICAO, presented on challenges faced by the aviation sector, including: sources, access, quality and comparability of data; and methodological issues. She highlighted legal considerations and difficulty in attributing emissions from transboundary and multinational flights and flights crossing areas outside national jurisdiction.

Norway suggested that the Protocol's reporting guidelines should form the basis for the second commitment period with relevant modifications. He also called for the inclusion of aviation and maritime transport (bunker fuels) emissions, and proposed market-based mechanisms, including a cap on carbon dioxide (CO2) emissions from shipping, a CO2 charge for all bunker fuels sold, and channeling revenues for adaptation. He proposed a workshop to consider methodological issues and targets.

The EU stressed the importance of environmental integrity, and suggested using the latest IPCC findings on GWP. Regarding bunker fuels, he: stressed that these emissions must be covered in the second commitment period; welcomed ICAO's endorsement of emissions trading in the aviation sector; called for cooperation between ICAO, the International Maritime Organization and the UNFCCC; outlined promising schemes, noting that different approaches are necessary for maritime and aviation emissions; and emphasized the potential for revenues to be spent on adaptation action in developing countries.

Japan said bunker fuel emissions must be controlled, and that reduction measures and methodologies should be treated simultaneously. Australia, Japan, Canada, Singapore and China argued that work on bunker fuels should be taken up in relevant international organizations, such as the ICAO and the IMO. Brazil, Panama, India and the EU identified the UNFCCC as the right forum for bunker fuel discussions.

Egypt and Brazil stated that bunker fuel coverage must apply the principle of common but differentiated responsibilities. The Russian Federation, with South Africa and Thailand, stated that issues of competitiveness must be addressed. The Russian Federation called for more information on bunker fuel emissions growth, while the EU highlighted that sufficient information exists to justify the consideration of bunker fuels.

Tuvalu and Argentina supported further work on maritime and aviation transport emissions but urged considering implications of their coverage, such as to tourism. Argentina and New Zealand suggested that national circumstances, such as geographical remoteness, required consideration. New Zealand highlighted the possible perverse outcomes associated with altering GWPs.

Vice-Chair Konate highlighted parties' support for the continuity of the current coverage of gases, sectors and sources. On the inclusion of new gases, he noted that there were very different views, with some suggesting that the IPCC 2006 Guidelines for National GHG Inventories should form the basis of the second commitment period rules with a few minor modifications. Regarding bunker fuels, Konate stated that many parties had said they were an important and growing source of emissions, but there was no consensus for their inclusion in the second commitment period or the role ICAO and IMO should play in regulating emissions. He highlighted an idea for the UNFCCC to set a global emissions goal and for countries to take on a sectoral approach to meet these targets; potential mechanisms to generate revenue for adaptation funding; possible strengthened cooperation among ICAO, IMO and the UNFCCC; and that due consideration should be given to national circumstances and the needs of countries with heavy reliance on international transport.

Negotiations on AWG Conclusions: Negotiations on the AWG's conclusions took place from Thursday to Friday in one contact group meeting, chaired by Chair Dovland and in closed informal and small group consultations. On Friday evening, the AWG closing plenary convened to adopt the conclusions.

At the contact group meeting on Thursday evening, Chair Dovland highlighted time constraints and proposed keeping the conclusions general. Discussions focused on the flexible mechanisms, LULUCF, bunker fuels and sectoral approaches.

On continuing the market mechanisms after the first commitment period, the G-77/China proposed including language on maintaining the environmental integrity of the Protocol and its contribution to sustainable development.

India stressed that determining CDM projects' contribution to sustainable development should remain the host country's prerogative, while Uganda proposed examining sustainability requirements and considering international criteria.

The G-77/China stressed that the text should include reference to mechanisms being supplemental to domestic actions in Annex I parties. Switzerland opposed. The final text indicates that "the use of mechanisms should be supplemental to the implementation of domestic actions." At the AWG's closing plenary, Switzerland requested that his concerns be noted in the meeting's report.

With regard to LULUCF modalities, rules and guidelines, Chair Dovland said he did not want to resolve contentious issues at AWG 5 and favored an uncomplicated text. Parties agreed that measures related to LULUCF activities should continue to be available to Annex I parties as a means to reach their emission reduction targets. They also noted it was necessary to further address these issues, given that the LULUCF modalities, rules and guidelines are only in place for the first commitment period. Some developing countries stressed environmental integrity and the need to retain the principles on the treatment of LULUCF set out in decision 16/CMP.1 (LULUCF). Australia, New Zealand and Canada, however, sought greater flexibility for LULUCF in the second commitment period. Parties agreed that further discussions on this issue should "take into account" the principles on the treatment of LULUCF in decision 16/CMP.1.

Regarding bunker fuel emissions, Chair Dovland noted lack of agreement during the in-session workshop discussions on whether to address bunker fuels in the second commitment period. The agenda item related to bunker fuels has been held in abeyance for several years under the Subsidiary Body for Scientific and Technological Advice and some delegates were pleased to discuss the substantive issues at AWG 5. Brazil, Panama, India, the EU, Norway and others identified the UNFCCC as the appropriate forum for bunker fuel decision-making. Others, including Australia, Japan and China, preferred addressing this issue through ICAO and IMO. In the conclusions, parties agreed to continue considering whether approaches to limit or reduce bunker fuel emissions could be used by Annex I parties, "taking into account" Protocol Article 2.2, which states that limitations or reductions should be pursued "working through" ICAO and IMO.

On sectoral approaches, the G-77/China noted sectoral targets should be a means to meet Annex I targets domestically but should not replace national targets. Australia and Japan supported taking up sectoral approaches in the AWGLCA. Text on limiting sectoral approaches as "complementary to, but not replacing, national emission reduction targets of Annex I Parties" was removed and, in the conclusions, the parties simply agree to further discuss the issue at the resumed AWG 5.

New Zealand supported reference to national circumstances considerations for which means would be appropriate. The initial wording of the draft conclusions acknowledged that means to reach emission reduction targets "depends on national circumstances." Some opposed, indicating that this could foster a "pick-and-choose" attitude towards emissions reductions. The final conclusions contain additional language acknowledging that the choice and effective use of means for Annex I emission reduction targets must be in accordance with agreed rules and relevant decisions under the Protocol where they apply.

AWG Conclusions: In its conclusions (FCCC/KP/AWG/2008/L.2), the AWG, among other things:

- agrees that the flexible mechanisms under the Protocol should continue to be available to Annex I parties as means to meet their emission reduction targets and could be appropriately improved;
- notes that, in considering possible improvements to the mechanisms, due attention should be paid to promoting, *inter alia,* the environmental integrity of the Protocol and the contribution to sustainable development;
- notes that the use of the flexible mechanisms should be supplemental to the implementation of domestic actions at the disposal of Annex I parties;
- agrees that measures related to LULUCF activities should continue to be available to Annex I parties;
- notes that some of the definitions, modalities, rules and guidelines relating to LULUCF activities, contained in the annex to decision 16/CMP.1, apply only to the first commitment period;
- acknowledges that further discussions on this issue should take into account the principles that govern the treatment of LULUCF, as set out in decision 16/CMP.1;
- acknowledges that the choice and effective use, in accordance with agreed rules and relevant decisions under the Protocol where they apply, of means that may be available to Annex I parties to reach their emission reduction targets depend on national circumstances and the international context;
- notes that the AWG will continue work on the analysis of means that may be available to Annex I parties to reach their emission reduction targets; and
- notes that the AWG will require the participation of experts and should take into account relevant results achieved and work underway in other bodies and processes under the Convention and Protocol.

The AWG also agrees to consider, at the resumed AWG 5 and the first part of AWG 6, with due attention to improving the environmental integrity of the Protocol, issues related to:

- the flexible mechanisms, including possible improvements;
- the treatment of LULUCF in the second commitment period;
- sectoral approaches;
- possible broadening of the coverage of GHGs, sectors and source categories and its implications, based on sound science; and
- how approaches to limit or reduce bunker fuel emissions could be used by Annex I parties as a means to reach their emission reduction targets, taking into account Article 2, paragraph 2, of the Kyoto Protocol.

It agrees to consider implications for the carbon market resulting from changes to the means that may be available to Annex I parties to reach their emission reduction targets.

The AWG conclusions also include an annex containing a summary report of the AWG Chair and Vice-Chair on the workshop discussions.

CLOSING PLENARY: After informal negotiations, the AWG plenary convened at 7:00 pm on Friday evening. Parties adopted the draft report of the session (FCCC/KP/AWG/2008/L.1) and the conclusions (FCCC/KP/AWG/2008/L.2) without amendment.

The G-77/China stressed that flexible mechanisms were important elements for the second commitment period. The EU noted success in sending a strong signal to the private sector concerning the flexible mechanisms. Japan highlighted possible improvements to emissions trading and project-based mechanisms, as well as sectoral approaches. Argentina noted the upcoming workshop on the second review of Article 9 and emphasized the importance of considering the value of GWPs.

AWG Chair Dovland thanked participants for their positive attitude and good spirit of compromise and adjourned the meeting at 7:45 pm.

A BRIEF ANALYSIS OF THE MEETINGS

Delegates gathering in Bangkok had a clear objective upon arrival: to agree on a detailed work programme to advance the Bali roadmap and secure a successful outcome at COP 15 in Copenhagen. After all the excitement and publicity surrounding the historic Bali conference in December, some may have regarded this as a rather mundane task. However, most delegates in Bangkok were well aware of the value of a clear and comprehensive work programme for a process tasked with nothing less than accomplishing what the UNFCCC Executive Secretary has said may well end up being "one of the most complex international agreements that history has ever seen."

Given that the meeting was intended to focus on procedural and organizational matters, some were surprised to see over 1000 delegates and over 100 accredited media in Bangkok. Many others, however, accepted that the process, from Bali to Copenhagen, will continue to attract a high level of international attention. They alluded to the historic nature of the agreement reached in Bali, the increased attention given to the issue of climate change more generally, and the urgency to reach an agreement on a post-2012 regime by the end of 2009.

This brief analysis examines: the main issues and sticking points in developing the AWGLCA's work programme, including procedural matters; linkages between the two AWGs; the main substantive issues discussed in Bangkok; and prospects for the future up to Copenhagen, where the final agreement is expected to be adopted.

TO LINK OR NOT TO LINK: THAT IS THE QUESTION

Since beginning in Montreal in 2005, negotiations on long-term cooperation on climate change have been procedurally complex, consisting of several "tracks." Rather than simplifying matters, the Bali roadmap retained much of this complexity. The roadmap includes the Bali Action Plan, which formally launched comprehensive negotiations on mitigation, adaptation, technology and finance under the UNFCCC, while the parallel track to define further commitments for industrialized countries under the Kyoto Protocol continues.

To ensure adequate progress under the Convention, the AWGLCA's work programme was the most important issue to be discussed in Bangkok. While there were some proposals to prioritize the five elements in the Bali Action Plan, it did not take long for everyone to agree that the four building blocks (mitigation, adaptation, finance and technology) and a shared vision for long-term cooperative action would be addressed at every session "in bite-sized chunks," allowing for effective negotiations.

Most delegations had chosen the strategy of proposing workshops on issues they wanted to see covered in the future agreement but knew to be contentious. Given widely diverging views on mitigation action by developing countries, including on the concept of "measuring, reporting and verifying" (MRV) in the Bali Action Plan, it was hardly surprising that the workshops advocated by countries on related issues, such as sectoral approaches and MRV, proved to be the most contentious ones.

Those delegations urging the US to take on emission reduction targets also hoped to see in the work programme the issue of "ensuring the comparability of efforts," which is mentioned in the Bali Action Plan in the context of mitigation by developed countries.

Given the debates in the informal plenary and the deep divisions on issues that seemed to persist, some wondered how much detail the work programme would include. However, at the end of the meeting, a number of workshop proposals had been agreed to, which are intended to facilitate the AWGLCA process and to deepen understanding and clarify elements of the Bali Action Plan. A multitude of workshops were proposed throughout the week, and, although not everyone got their proposed workshop included in the 2008 work programme, AWGLCA Chair Machado reassured those delegates whose proposals were not included that all elements of the Bali Action Plan would still be addressed at every session. In the end, many said it was an acceptable "starting point" because it provides a timetable for the 2008 sessions, identifies issues needing further clarification, and, while not all contentious issues will be addressed in workshops, it ensures that all the elements of the Bali Action Plan will be discussed. As one delegate put it on the final day after hours of negotiating the timing and content of workshops, "We have to hope the end justifies the frustrations."

Another important procedural question concerned links and cooperation between the two negotiating tracks. The G-77/China and the US, which have not taken on emission commitments under the Protocol, were opposed to any links between the two processes. However, most developed countries are looking for much broader participation in mitigation efforts in the post-2012 period and have rather different ideas regarding linkages. While no formal link was made or extensively discussed in Bangkok, clearly the two processes are already linked in the minds of many. One delegate predicted that everyone in Annex B would at least wait to see what happens in the AWGLCA before accepting further commitments under the Protocol. Some expressed concern that some might even "jump ship" to the new regime

under the Convention if it proves to be more attractive to their interests. With the chance of the US joining the Kyoto Protocol next to nil – unless the whole Kyoto framework is completely revamped – many are focusing attention on negotiations in the AWGLCA and how much the developed and developing countries are willing to take on in that process.

SUBSTANTIVE ISSUES DISCUSSED: OLD VERSUS NEW

While the focus of the AWGLCA was on developing a work programme, many countries reiterated their positions on substantive issues, indicating some of the tensions that will surely permeate future negotiations. Given the comprehensive scope of the Bali Action Plan and the fact that some decisions in the Marrakesh Accords only apply for the first commitment period, a space has been created for introducing new issues and proposals and for revisiting some of the old ones. Many agree that this is welcome and necessary given the need to come up with creative and effective solutions to address the challenge of climate change. Some of the substantive issues discussed during the Bangkok meeting included sectoral approaches, differentiation among countries taking into account their development levels, and financing.

The Japanese proposal for a "sectoral approach," whereby national targets would consist of sector-by-sector targets across national boundaries proved to be one of the most contentious issues of the meeting and raised suspicions of developing countries. Many feared this would undermine legally-binding commitments by developed countries, such as Japan who already has a high level of energy efficiency in many industries, and have implications for future commitments of developing countries, such as China, who would have to drastically increase the energy efficiency to be competitive in certain sectors, like steel. This tension played out in discussions on whether and when to hold a workshop on the issue of sectoral approaches, and also was behind an attempt by Japan to defer agreement on the AWG's draft conclusions, especially with regard to the Clean Development Mechanism, until sectoral approaches gained consideration in the AWGLCA process.

Another issue of concern for developing countries was the proliferation of funds outside the Convention, which, they argued, would be donor-driven, have conditions attached and compete for funds under the Convention. On the sidelines of the meeting, the World Bank promoted proposals for a Clean Technology Fund, and a proposed "pilot programme for climate resilience," which some claim would undermine the Adaptation Fund under the Protocol. Developing countries made strong cases for channeling funds through the Convention. Other parties, such as the US, felt that the private sector will be responsible for the bulk of funding in the future and said that the larger developing countries will have to generate some of the funding for actions. Clearly, the issue will be revisited. during upcoming sessions.

In the AWG process, those frustrated by the "perpetual abeyance" of the SBSTA agenda item on bunker fuels were happy to finally have a substantive discussion on the issue. Be that as it may, the EU, Norway and others supported considering the issue under the UNFCCC and will be given an opportunity to present their ideas and continue discussions in Bonn in June.

Many of the issues, such as LULUCF and the mechanisms, were only settled for the first commitment period and, therefore, modifications would require consideration. While no one talked about scrapping any of these key components, and instead focused on reviewing and improving the rules, divides among the parties on the details clearly persisted. Yet many acknowledged that, in an effort to reach consensus and produce a clean, simple document, these should not be addressed in Bangkok.

Overall, many characterized the mood in the AWG as very cooperative and constructive. As one seasoned negotiator pointed out, many in the AWG have worked together for many years on these issues, and the level of trust is high, displayed by the open and frank discussions and laying out of positions during the negotiations. Even if the AWG's conclusions were not as ambitious as some had hoped they signaled to the world that progress was being made and particularly to the private sector, which has been waiting for indications that the market-based mechanisms and the carbon market would continue in the second commitment period. This was clearly reflected in the conclusions that referenced continuing and improving the market mechanisms.

PROSPECTS FOR THE FUTURE

"The train to Copenhagen has left the station," commented UNFCCC Executive Secretary Yvo de Boer during the closing press conference. One delegate noted that "we are in a difficult phase" because it is a new process, and people will be "finding their footing" for the first year, and that negotiations wouldn't really begin in earnest until 2009, after a "common understanding on key issues" is reached. "Bonn will be busy, and Poznan will be insanely busy," and "the road to Copenhagen will be a bumpy one," another said. In fact, the entire process will only get busier and more intense in 2009, with up to eight weeks (as opposed to six in 2008) scheduled for formal AWGLCA meetings, let alone other meetings and workshops that will feed into the process. So those deeply involved in climate change negotiations will spend much of the year on the road, with one delegate joking that he would try to negotiate a more "family-friendly" agreement.

Looking forward to Copenhagen, what is achievable by the end of 2009? Very little time remains to reach agreement on a post-2012 regime, with just over a year and half left until COP 15 in Copenhagen, and many stops along the way. While this is only the beginning of the journey, during which an incredible amount of work must be done in very little time, the work programme agreed to in Bangkok has successfully laid the groundwork for substantive discussions to come. The level of ambition versus realism will certainly come into play. Some call for ambitious targets, while others acknowledge political realities and do not see any point in agreeing to something they will not be able to achieve. But it is far too early to tell what form an actual agreement might take, and how the two tracks might converge in Copenhagen. For now, delegates will have their work cut out for them in 2008.

UPCOMING MEETINGS

WORLD HEALTH DAY 2008: PROTECTING HEALTH FROM CLIMATE CHANGE: World Health Day will be held on 7 April 2008. The aims of World Health Day are to: raise awareness; advocate for partnerships on health and climate change; demonstrate the role of the health community in climate change; and spark commitment and action. For more information, contact: WHO Secretariat; tel: +41-22-791-5526; fax: +41-22-791-4127; e-mail: whd2008@who.int; internet: http://www.who.int/world-health-day/en

UNFCCC INFORMAL MEETING OF REPRESENTATIVES FROM PARTIES ON THE OUTCOMES OF COMPLETED ACTIVITIES UNDER THE NAIROBI WORK PROGRAMME: This meeting will convene from 7-9 April 2008, in Bangkok, Thailand. It will bring together representatives of parties alongside experts and representatives of relevant organizations to consider the outcomes of the activities of the NWP completed prior to the meeting. For more information, contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; internet: http://unfccc.int/adaptation/sbsta_agenda_item_adaptation/items/4290.php

28TH SESSION OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC 28): This meeting will convene from 9-10 April 2008 in Budapest, Hungary. For more information, contact: IPCC Secretariat; tel: +41-22-730-8208; fax: +41-22-7 30-8025/13; e-mail: IPCC-Sec@wmo.int; internet: http://www.ipcc.ch/

THE INTERNATIONAL RENEWABLE ENERGY CONFERENCE IN AFRICA: This conference will be held from 16-18 April 2008 in Dakar, Senegal. The focus of the meeting is "Making renewable energy markets work for Africa: Policies, Industries and Finance for Scaling-Up." The conference is jointly organized by the African Union, the Government of Senegal, the German Ministry of Economic Cooperation and Development and UNIDO. For more information, contact: Alois Mhlanga, UNIDO; tel: +431-260-265-169; fax: +431-260-266-855; e-mail: a.mhlanga@unido.org; internet: http://www.unido.org/en/doc/76539

FOREST DAY: SHAPING THE DEBATE ON FORESTS AND CLIMATE CHANGE IN CENTRAL AFRICA: Forest Day will be held on 24 April 2008 in Yaoundé, Cameroon. Forest Day aims to provide a regional perspective on the issue of forests and climate change. A broad range of forest stakeholders are expected to analyze the social, economic, scientific, technological and political issues, to provide a stepping stone for informed climate policies in the region. For more information, contact: Janneke Romijn; tel: +237-2222-7449/7451; fax: +237-2222-7450; e-mail: ForestDay-Cameroon@cgiar.org; internet: http://www.cifor.cgiar.org/Events/CIFOR/forest_day_cameroon.htm

INTERNATIONAL GEF WORKSHOP ON EVALUATING CLIMATE CHANGE AND DEVELOPMENT: RESULTS, METHODS AND CAPACITIES: This meeting will convene from 10-13 May 2008, in Alexandria, Egypt. The GEF Evaluation Office is organizing this workshop, which will permit sharing of experiences in evaluating projects and programmes aimed at the nexus between climate change and development. For more information, contact the Secretariat of the International Workshop: tel: +1-202-458-8537; fax: +1-202-522-1691; e-mail: IntWorkshop@TheGEF.org; internet: http://www.esdevaluation.org

G8 ENVIRONMENT MINISTERS' MEETING: The meeting will take place from 24-26 May 2008 in Kobe, Japan. This meeting will convene in preparation for the 2008 G8 Summit, to be held 7-9 July 2008 in Hokkaido, Japan. For more information, contact: Preparatory Task Force for the G8 Environment Ministers' Meeting, Ministry of the Environment: tel: +81(0)3-5521-8347; fax: +81(0)3-5521-8276; e-mail: G8_KOBE@env.go.jp; internet: http://www.env.go.jp/earth/g8/en/index.html

28TH SESSIONS OF THE UNFCCC SUBSIDIARY BODIES: The 28th sessions of the Subsidiary Bodies of the UNFCCC are scheduled to take place from 2-13 June 2008, in Bonn, Germany. In addition, the second meeting of the *Ad Hoc* Working Group on Long-Term Cooperative Action and the resumed fifth session of the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol are also scheduled to be held. For more information, contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; internet: http://unfccc.int/meetings/sb28/items/4328.php

HIGH-LEVEL CONFERENCE ON WORLD FOOD SECURITY AND THE CHALLENGES OF CLIMATE CHANGE AND BIOENERGY: This conference will meet from 3-5 June 2008 in Rome, Italy. The UN Food and Agriculture Organization (FAO) is organizing this conference, which will address food security and poverty reduction in the face of climate change and energy security. For more information, contact: Office of the Assistant Director-General, Natural Resources Management and Environment Department; tel: +39 06 57051; fax: +39 06 570 53064; e-mail: cccb-secretariat@fao.org; internet: http://www.fao.org/foodclimate/home.html?no_cache=1&L=7

A NEW GLOBAL DEAL? ACHIEVING REAL COLLABORATION FOR A LOW CARBON FUTURE: This conference will take place from 16-17 June 2008 in London, UK. It will take stock of current climate change action and adopt a real-world approach to international collaboration on key issues. For more information, contact: Conference Unit, Chatham House; tel: +44 (0)20 7957 5753; fax: +44 (0)20 7321 2045; e-mail: conferences@chathamhouse.org.uk; internet: http://www.chathamhouse.org.uk/events/conferences/view/-/id/118/

ICAO WORKSHOP: AVIATION AND CARBON MARKETS: This workshop will meet from 18-19 June 2008 in Montreal, Canada. It will bring together top financial, industry and environment experts to explore possible ways of including international civil aviation in a global carbon market. For more information, contact: Environmental Unit; Air Transport Bureau, International Civil Aviation Organization; tel: +1-514-954-8219,

ext. 6321; fax: +1 514-954-6077; e-mail: envworkshop@icao.int; internet: www.icao.int/2008wacm/

G8 SUMMIT: The Summit will meet from 7-9 July 2008 in Hokkaido, Japan. For more information, contact: Japanese Ministry of Foreign Affairs, tel: +81- (0) 3-3580-3311; internet: http://www.mofa.go.jp/policy/economy/summit/2008/index.html

28TH MEETING OF THE OPEN-ENDED WORKING GROUP OF THE PARTIES TO THE MONTREAL PROTOCOL ON SUBSTANCES THAT DEPLETE THE OZONE LAYER: This meeting is scheduled to take place from 7-11 July 2008 in Bangkok, Thailand. For more information contact: Ozone Secretariat; tel: +254-20-762-3850/1; fax: +254-20-762-4691; e-mail: ozoneinfo@unep.org; internet: http://ozone.unep.org/

THIRD SESSION OF THE *AD HOC* WORKING GROUP ON LONG-TERM COOPERATIVE ACTION UNDER THE UNFCCC AND SIXTH SESSION OF THE AWG UNDER THE KYOTO PROTOCOL: The third meeting of the *Ad Hoc* Working Group on Long-Term Cooperative Action is expected to take place in August/September 2008, with the location and date to be determined. The sixth session of the AWG on Further Commitments for Annex I Parties under the Protocol will also take place at the same time. For more information, contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; internet: http://unfccc.int

INTERNATIONAL CONFERENCE ON "FINANCING FOR CLIMATE CHANGE - CHALLENGES AND WAY FORWARD": This conference will convene from 15-17 August 2008 in Dhaka, Bangladesh. This conference, arranged by a Bangladesh-based think tank, Unnayan Onneshan, will focus on financial mechanisms for supporting mitigation activities to combat climate change. For more information, contact: Nazmul Huq, Unnayan Onneshan, Dhaka, Bangladesh; tel: +880-2-815-8274; fax: +880-2-815-9135; e-mail: nazmul.huq@unnayan.org; internet: http://www.unnayan.org

INTERNATIONAL CONFERENCE: ADAPTATION OF FORESTS AND FOREST MANAGEMENT TO CHANGING CLIMATE WITH EMPHASIS ON FOREST HEALTH: A REVIEW OF SCIENCE, POLICIES, AND PRACTICES: This meeting will convene from 25-28 August 2008, in Umeå, Sweden. The meeting will be co-hosted by the FAO, the International Union of Forest Research Organizations (IUFRO) and the Swedish University of Agricultural Sciences and will focus on the current state of knowledge of ongoing changes in climatic conditions in different regions of the world, and the implications of these changes for forest health, forest management and conservation. For more information, contact: Björn Hånell, IUFRO; tel: +46907868297; e-mail: bjorn.hanell@ssko.slu.se; internet: http://www.forestadaptation2008.net/home/en/

29TH SESSION OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC 29): IPCC 29 is tentatively scheduled to take place in Geneva, Switzerland, from 1-4 September 2008, during which the IPCC's 20th anniversary will be celebrated. For more information, contact: IPCC Secretariat; tel: +41-22-730-8208; fax: +41-22-7 30-8025/13; e-mail: IPCC-Sec@wmo.int; internet: http://www.ipcc.ch/

TWENTIETH MEETING OF THE PARTIES TO THE MONTREAL PROTOCOL (MOP-20): This meeting is tentatively scheduled to take place from 16-20 November 2008, in Doha, Qatar, in conjunction with the eighth Conference of the Parties to the Vienna Convention. For more information, contact: Ozone Secretariat; tel: +254-20-762-3850/1; fax: +254-20-762-4691; e-mail: ozoneinfo@unep.org; internet: http://ozone.unep.org/

FOURTEENTH CONFERENCE OF THE PARTIES TO THE UNFCCC AND FOURTH MEETING OF THE PARTIES TO THE KYOTO PROTOCOL: UNFCCC COP 14 and Kyoto Protocol COP/MOP 4 are scheduled to take place from 1-12 December 2008 in Poznan, Poland. These meetings will coincide with the 29th meetings of the UNFCCC's subsidiary bodies and the fourth meeting of the *Ad Hoc* Working Group on Long-Term Cooperative Action and the resumed sixth session of the AWG on Further Commitments for Annex I Parties under the Protocol. For more information, contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; internet: http://unfccc.int

GLOSSARY

AAU	Assigned Amount Unit
AOSIS	Alliance of Small Island States
AWG	*Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol
AWGLCA	*Ad Hoc* Working Group on Long-term Cooperative Action under the Convention
CCS	Carbon capture and storage
CDM	Clean Development Mechanism
COP	Conference of the Parties
COP/MOP	Conference of the Parties serving as the Meeting of the Parties
GHG	Greenhouse gas
HWP	Harvested wood products
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
IPRs	Intellectual property rights
JI	Joint Implementation
LDC	Least developed countries
LULUCF	Land use, land-use change and forestry
MRV	Measuring, reporting and verification
REDD	Reducing emissions from deforestation and degradation
UNFCCC	United Nations Framework Convention on Climate Change