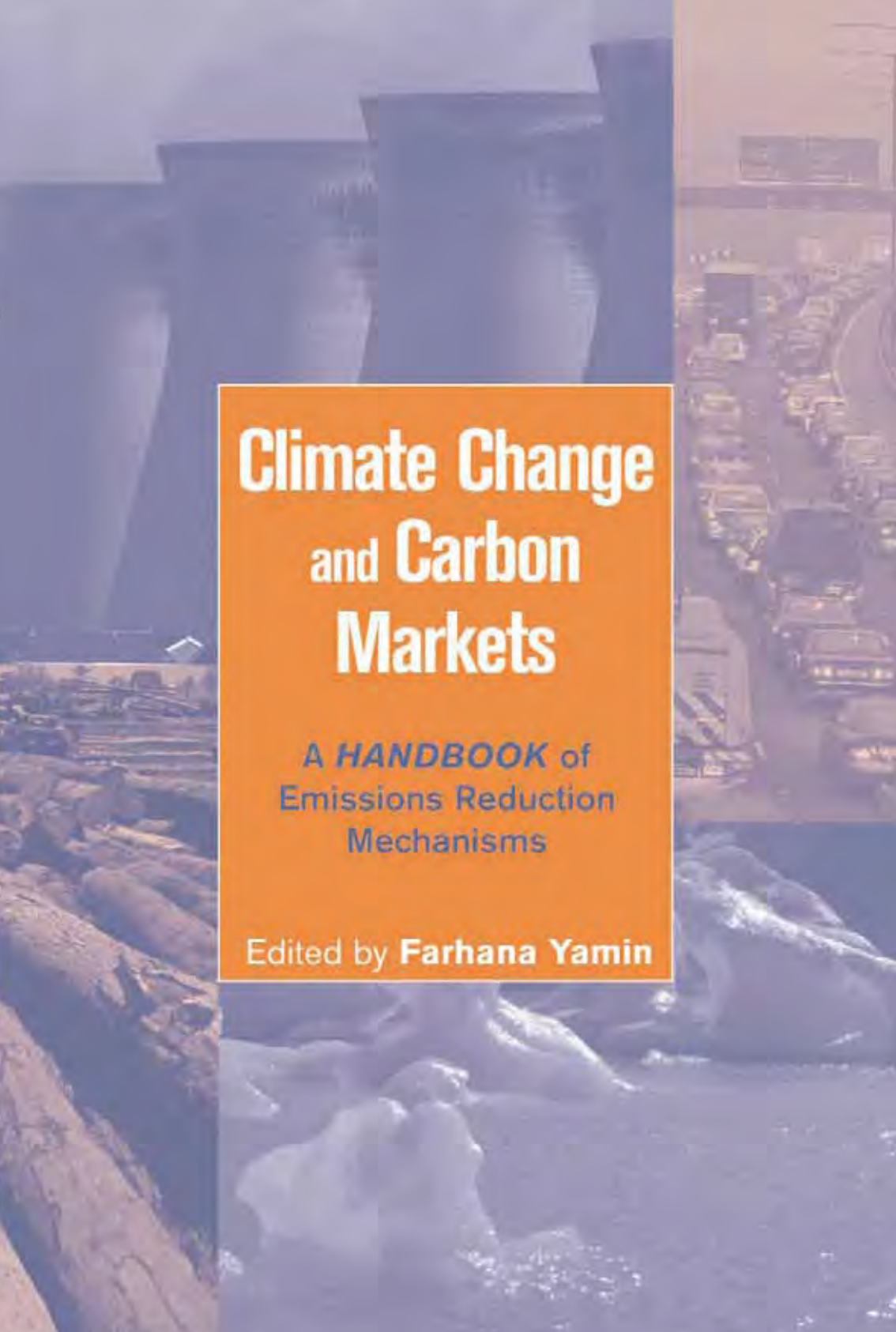

Climate Change and Carbon Markets

A *HANDBOOK* of Emissions Reduction Mechanisms

Edited by **Farhana Yamin**

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A Handbook of Emission Reduction Mechanisms

Edited by F. Yamin

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Contents

List of abbreviations

4AR	Fourth Assessment Report (IPCC – forthcoming 2007)
A6SC	Article 6 Supervisory Committee (for JI)
AAU	Assigned Amount Unit (under emissions trading)
ACEA	European Automobile Manufacturers Association
ADB	Asia Development Bank
AE	Applicant Entities
AGBM	Ad Hoc Group on the Berlin Mandate
AIJ	Activities Implemented Jointly
AIPs	Annex I Parties
ALGAS	Asia Least-Cost Greenhouse Gas Abatement Project (ADB)
AOSIS	Alliance of Small Island States
ASEAN	Association of South-East Asian Nations
ASPEN	Analyse des Systèmes de Permits d'Emissions Négociables
BAT	'best available techniques'
BAU	'business as usual'
BM	Bonn-Marrakesh Accords
BREF	BAT reference document
BTU	British thermal unit
CACAM	Central Asia, Caucasus, Albania and Moldova (negotiating coalition)
CAN	Climate Action Network
CBO	Congressional Budget Office (USA)
CCA	Climate Change Agreement
CCX	Chicago Climate Exchange
CDCF	Community Development Carbon Fund
CDET	Canadian Domestic Emissions Trading
CDM	Clean Development Mechanism
CDM-AP	CDM Accreditation Panel
CDM-AT	CDM Assessment Team
CEE	Central and Eastern Europe (UN regional group)
CEMD	Conservation and Environmental Management Division (MOSTE, Malaysia)
CER	Certified Emission Reduction
CERUPT	Certified Emission Reduction Unit Procurement Tender (The Netherlands)
CFC	chlorofluorocarbon (controlled under the Montreal Protocol)

CG	Central Group
CG-11	Central Group 11
CH_4	methane
CHP	combined heat and power
CO	carbon monoxide
CO_2	carbon dioxide
COP	Conference of the Parties (also under other MEAs, e.g. CBD)
COP/MOP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CPR	Commitment Period Reserve
DAC	Development Assistance Committee (OECD)
DC	developing country
DEFRA	UK Department for the Environment and Rural Affairs
DNA	Designated National Authority
DOE	Designated Operational Entity
EBCDM	Executive Board of the CDM
EBRD	European Bank for Reconstruction and Development
ECCP	European Climate Change Programme
EEA	European Economic Area/European Environment Agency
EEE	Eastern European Economies
EIA	Environmental Impact Assessment
EIG	Environmental Integrity Group
EIT	Economy in Transition (former Soviet Union and Eastern Europe)
ELV	emission limit value
ENB	Earth Negotiations Bulletin
ENGO	environmental non-governmental organization
EPER	European Pollutant Emission Register
EPS	Environmental Portfolio Standard (Arizona, USA)
ERPA	Emission Reduction Purchase Agreement
ERT	Expert Review Team
ERU	Emission Reduction Unit (under Article 6 projects – JI)
ERUPT	ERU Procurement Tender (The Netherlands)
ET	emissions trading
EU ETS	EU Emission Allowance Trading Scheme
EUA	EU allowances
FAO	Food and Agriculture Organization of the United Nations
FAR	First Assessment Report (IPCC – 1990)
FIELD	Foundation for International Environmental Law and Development
FSU	Former Soviet Union
G-77	Group of 77 (UN-wide negotiating coalition of developing countries)

GATT	General Agreement on Tariffs and Trade
GCOS	Global Climate Observing System (WMO programme)
GDP	Gross domestic product
GEF	Global Environment Facility
GERT	Greenhouse Gas Emission Reduction Trading Project (Canada)
GHG	greenhouse gas
GIS	Green Investment Scheme
GRULAC	Group of Latin America and the Caribbean (UN regional group)
GWP	Global Warming Potential
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
IACC	Inter-Agency Committee on Climate Change (Philippines)
ICAO	International Civil Aviation Organization
IDR	In-Depth Review (of an Annex I Party national communication)
IE	Independent Entity (under JI)
IEA	International Energy Agency
IET	International Emissions Trading (among Parties under Article 17)
IETA	International Emissions Trading Association
IGO	Intergovernmental organization
IMO	International Maritime Organization
INC	Intergovernmental Negotiating Committee for the UNFCCC (1990–1994)
IPCC	Intergovernmental Panel on Climate Change
IPPC	Integrated Pollution Prevention and Control
JAMA	Japanese Automobile Manufacturers Association
JDET	Japanese Domestic Emissions Trading
JI	Joint Implementation
JUSCANNZ	Japan, US, Canada, Australia, Norway, New Zealand
KAMA	Korean Automobile Manufacturers Association
KP	Kyoto Protocol
lCER	long-term CER
LDC	least developed country
LFE	large final emitter
LULUCF	land-use, land-use change and forestry
M&P	modalities and procedures
MEA	Multilateral Environmental Agreement
MoE	Ministry of Environment (Japan)
MOST	Ministry of Science and Technology (China)
MOSTE	Ministry of Science, Technology and Environment (Malaysia)

MoU	Memorandum of Understanding
MRET	Mandatory Renewable Energy Target (Australia)
N_2O	nitrous oxide
NAIPs	Non-Annex I Parties
NAP	National Allocation Plan
NCCC	National Committee on Climate Change (Indonesia)
NDRC	National Development and Reform Commission (China)
NEDO	New Energy Development Organization (Japan)
NGA	Negotiated Greenhouse Agreement (New Zealand)
NGGIP	National Greenhouse Gas Inventories Programme (IPCC)
NGO	non-governmental organization
NMVOCs	non-methane volatile organic compounds
NO_x	nitrogen oxides
NSS	National Strategy Studies (World Bank)
OAIC	Argentine Office of Joint Implementation (defunct)
OAMDL	Oficina Argentina del Mecanismo para un Desarollo Limpio
ODA	Official Development Assistance
ODS	ozone-depleting substances
OE	Operational Entity (Japan)
OECD	Organization for Economic Cooperation and Development
OPEC	Organization of Petroleum Exporting Countries
OPG	Ontario Power Generation (Canada)
PAMs	policies and measures
PCF	Prototype Carbon Fund (World Bank)
PDD	Project Design Document (CDM)
PERT	Pilot Emissions Reductions Trading Project (Canada)
PFC	perfluorocarbon
PIN	project idea note
POLES	Prospective Outlook on Long-term Energy Systems
PP	project participants
PPM	production processes or methods
QELROs	Quantified Emission Limitation and Reduction Objectives
REC	Renewable Energy Certificate (Australia)
REEA	Renewable Energy (Electricity) Act 2002 (Australia)
RES	Renewable Energy Source (Australia)
RGGI	Regional Greenhouse Gas Initiative (USA)
RMU	Removal Unit (under LULUCF)
SAR	Second Assessment Report (IPCC – 1996)
SB	subsidiary body
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice

SCAQMD	South Coast Air Quality Management District
SCC	small-scale projects (CDM)
SDPC	State Development Planning Commission (China)
SEPA	State Environmental Protection Administration (China)
SO_x	sulphur oxides
TAR	Third Assessment Report (IPCC – 2001)
tCER	temporary CER (under the CDM)
TEAP	Technology and Economic Assessment Panel (under Montreal Protocol)
TEC	Total Emissions Control (China)
TERI	The Energy Research Institute (India)
TFI	Task Force on Inventories (IPCC)
UN	United Nations
UNCED	UN Conference on Environment and Development
UNCTAD	UN Conference on Trade and Development
UNDP	UN Development Programme
UNEP	UN Environment Programme
UNFCCC	UN Framework Convention on Climate Change
UNIDO	UN Industrial Development Organization
UNITAR	UN Institute for Training and Research
URF	Uniform Reporting Format (under AIJ Pilot phase)
VER	Verified Emission Reduction
WEOG	Western Europe and Others Group (UN regional group)
WHO	World Health Organization
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization
XA	Exchange Allowance (CCX)
XO	Exchange Offset (CCX)

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Foreword

Jos Delbeke

This book comes at a timely moment. Carbon markets are developing rapidly across the globe as a result of national and international climate policy initiatives. It is less than six months before the start of the European Union's Emission Allowance Trading Scheme and it is already clear that it will, in many respects, become a landmark in EU and international climate change policy.

The EU Emission Allowance Trading Scheme (EU ETS) demonstrates the EU's political commitment to the Kyoto Protocol and its innovative mechanisms. One should remember that the European Union for a long time was not very fond of market-based environment policy instruments. Even today, the major part of EU environmental legislation is based on 'command and control' through setting technical standards for individual companies, factories and consumers. The implementation of the EU ETS could become the first step to a deeper change of the EU's environment policy approach. In a world characterized by global economic integration and enhanced competition, using market-based mechanisms would drive environmental policy towards more cost-effectiveness while ensuring at the same time the achievement of its environmental objectives.

The EU ETS will be introduced three years in advance of the first Kyoto commitment period. For those that were involved in the legislative process, the Emissions Trading Framework Directive will certainly be remembered as one of the most ambitious pieces of EU legislation as regards its timetable and its scope.

Between reaching the final political agreement in July 2003 and the actual start on 1 January 2005, Member States and the Commission have only 18 months to transpose the Directive into national legislation, to implement all related secondary legislation such as the monitoring and reporting guidelines as well as the Registries Regulation, and to set up the electronic registry system and the EU's transaction log. This would not have been possible without the determination of many individuals in the Commission, the Member States, the European Parliament, the UNFCCC Secretariat and private sector as well as non-governmental organizations.

The fact that, during the first phase, only carbon dioxide and six sectors will be covered might give the false impression that the scheme is rather

restrictive. The opposite is true: 12,000 to 14,000 industrial installations in 25 EU Member States will participate. More than 40 per cent of all CO_2 emissions in the Union will be covered. This will make it the largest emissions trading scheme worldwide.

One important reason for establishing the EU ETS is to engage private sector companies and the financial sector actively in the fight against climate change. No doubt, it will be the ingenuity and creativity of engineers, economists and financial specialists in these companies that will generate the new ideas and technologies that are necessary to reduce greenhouse gas emissions. Since Kyoto in 1997, those actively involved have grown from a handful of experts that negotiated the Kyoto Protocol and academics that fed them with ideas to hundreds of 'carbon professionals' that recently attended the first International Carbon Fair in Cologne. Many foreign companies that have operations in Europe are also becoming familiar with the idea of emissions trading.

Another key characteristic of the EU scheme is its openness to other schemes and to emission reduction projects abroad. This should reassure those that feared that the EU ETS is about 'Fortress Europe'. Instead, the EU is open to cooperate with others in the most constructive manner acknowledging that no country or political block in this world will be able to combat climate change on its own.

Norway, Switzerland, Canada and New Zealand have already expressed their keen interest to link up with the European scheme. Colleagues in Japan, Russia, Australia and the US are studying it with great interest. The aspiration for the EU ETS is to become the reference for a much larger international emissions trading scheme at the company level.

Something that many around the world have yet to realize is that the EU ETS already puts a value on CDM credits as of 1 January 2005. In the National Allocation Plans that have been scrutinized to date Member States pronounce already that they will buy more than 200 MT CO_2 over the first commitment period. This provides a clear signal to project developers around the world and will hopefully spur the transfer of technologies. It should inject a new dynamic into the debate of future technology development and transfer.

The EU ETS is also a good example of transatlantic cooperation. The Commission has learned a lot from the sulphur and NO_x trading schemes that are in place in the United States and excellent professional relationships have been built. After completing the legislative process in Europe and coming close to full implementation, an increased interest in many states in the US in emissions trading to combat climate change can be recognized.

On a final note, there is no doubt that, for the months and years to come, the EU will still be on the steep end of the learning curve as regards emissions trading. Nobody could realistically expect that the EU will get it 100 per cent right the first time. At the present moment we see sometimes fierce debates in the capitals of the

Member States on the allocation of emissions rights which will overnight create assets worth billions of euros. There is also anxiety in parts of business that, in future, emissions of carbon and other greenhouse gases would be priced and this is only the beginning of moving into a carbon constrained world. For others, the number of allowances that is allocated to industry is far too high. Time will tell. 'Learning by doing' is an important in-built feature of the Emissions Trading Directive.

For all these reasons, Farhana Yamin's handbook explaining emerging emissions reduction mechanisms in Europe and elsewhere comes at an opportune moment. She has been able to gather a very competent, highly professional group of authors. All of them have been deeply involved in the process over the last years, whether in the international and multilateral negotiations or in the debate in the European Union. Their contributions provide an excellent overview of emissions reduction mechanisms such as emissions trading and the detailed technical issues associated with their implementation across the globe. It will hopefully reach out and widen the audience to bring those on board that had not been involved in the matter in the past. I am confident, therefore, that this handbook will contribute to widening the understanding of emissions trading internationally over the coming years and how we came to where we are today.

Jos Delbeke
Director
DG Environment
European Commission
Brussels

Preface and acknowledgements

This book has taken more than a decade to write. Literally. My interest in the Kyoto mechanisms started on a plane journey coming back from the Earth Summit held in Rio de Janeiro in 1992. With a long flight ahead I began to browse through the countless documents I had collected but managed to finish only one: *Combating Global Warming: A Study on a Global System of Tradeable Carbon Emission Entitlements* published by the United Nations Conference on Trade and Development (UNCTAD, 1992). As a young lawyer dedicated to the progressive development of international law, and one searching for ways to advance the cause of vulnerable members of the Alliance of Small Island States (AOSIS) I had begun advising, utilizing permits and markets to protect the global climate seemed a progressive and intriguing idea – if a little far fetched and risky. Writing in our journal a year later, and with the benefit of discussions with other FIELD lawyers working on climate change, Philippe Sands, James Cameron and Jake Werksman, I expressed concerns about whether forms of global trading schemes could be agreed internationally, citing by way of example the difficulties the 12 members of the European Community were then having agreeing a limited scheme covering sulphur and nitrogen oxides among themselves. I would certainly not have believed that a decade later the international community would put over two hundred pages of rules operationalizing an array of global trading mechanisms on the international statute book, nor that the European Union would be on the verge of commencing the largest greenhouse gas emissions trading scheme in the world. This book is the end point of the amazing intellectual and professional journey that I have been on since that flight from Rio. A journey I have had the good fortune of sharing with many of the contributors to this book who have been working on the mechanisms issues, in many cases on joint projects and papers.

The chief purpose of this book is to describe the rules, institutions and procedures agreed internationally and at the European Union level to implement the three trading-based mechanisms included in the 1997 Kyoto Protocol: joint implementation, the Clean Development Mechanism and international emission trading, and to map out how current implementation and future evolution of these and related mechanisms is unfolding in jurisdictions outside the EU. Devising mechanisms rules has involved a huge amount of shared learning by the international community with many heated arguments along the way. In many ways I feel privileged that my differing professional roles have enabled me to see these debates from many perspectives: as

AOSIS advisor in the climate negotiations who along with other developing country negotiators remains a little cautious about the mechanisms, as consultant to the EU Commission advising the EU on the legal/policy framework to implement the mechanisms domestically and finally as an academic submitting myself to the cross-examination of students who always seem to split 50:50 into mechanisms enthusiasts and critics.

Involvement in these differing capacities also convinced me there was a need for a book that brought together mechanisms rules developed in different legal spheres. It was becoming increasingly difficult to keep track of the primary materials and sources of further reading. Somewhat ironically, the rejection of the Kyoto Protocol by the Bush Administration provided further impetus because it brought home the fact that linking the mechanisms under the Kyoto Protocol with current and future developments in non-Parties to the Protocol would require a better understanding of how domestic trading schemes could be designed to be Kyoto-independent as well as Kyoto-consistent.

The collection of contributions in this book is designed to support the implementation and evolution of the climate change regime by providing an accessible account of the rules, procedures and institutions governing access and use of the Kyoto flexibility mechanisms, and of catalysing discussions about the contribution these mechanisms might play in the design of the future climate regime.

My biggest thanks go to my fellow authors: Jason Anderson, Rob Bradley, Michel Colombier, Richard Baron, Odile Blanchard, Erik Haites, Mark Kenber, Jürgen Lefevere, Axel Michaelowa, Fiona Mullins and Martijn Wilder. All of them are busy mechanisms specialists advising a wide range of governments and intergovernmental and non-governmental organizations and all responded to my call to put pen to paper to explain the mechanisms rules they are working on right now to others less familiar. An extra special thanks goes to Jürgen Lefevere not only for his contribution in this book but also for being a wonderful colleague during the 1998–2002 period when the intensity of mechanisms discussions, internationally and within the EU, left us with little time to think about anything else.

My deep appreciation also goes to the main funder of this book, the EU Commission, DG Environment, for providing the financial incentives needed to write it, and also for stewarding the European Emission Allowance Trading Scheme through the EU legislative labyrinth in record time so that we would have something exciting near home to write about! Well deserved thanks are due to the past and present members of the Climate Change Unit with deep respect and appreciation of the role played by Jos Delbeke, Peter Vis, Damien Meadows, Matthieu Wemaere, Peter Zapfel, Yvonne Slingenberger, Artur Runge-Metzger and Matti Vianii, to name but a few, and also to other climate change experts who have over the years provided good advice and always

found time to answer difficult questions, namely Michael Grubb, Fanny Misfeldt, Jan Corfee-Morlot, Kevin Baumert, Nancy Kete, Murray Ward, Christina Zumkeller, Bill Hare, Jennifer Morgan and Malte Meinshausen. I must also express my thanks to the many developing country delegates I have had the privilege of working with over the years, including Christiana Figueres, Xuedu Lu, Gao Feng, Raul Estrada, V. J. Sharma, Chow Kok Kee, John Kilani, Patricia Itturegui, Jose Miguez, Everton Vargas, Glyvan Miera Filho and, of course, the AOSIS leadership, Neroni Slade, John Ashe, Espen Ronnenberg and Philip Weech, who have helped me appreciate the complexities of turning policy into practice.

Former and present FIELD staff also deserve mention for providing research and administrative support for the work on the mechanisms and other aspects of the climate regime, and for assisting me to complete this project even when I moved in 2003 to the Institute for Development Studies at the University of Sussex where Oliver Burch has smoothed the final completion of the manuscript. My deepest thanks go as always to my husband, Mike Yule, for patiently putting up with mechanisms-related absences and long monologues about Kyoto and the momentum behind the carbon markets. I am not quite sure if we are there yet but we are a long, long way from where we started.

Farhana Yamin,
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University of Sussex, UK
30 March 2004

About the contributors

Farhana Yamin is a Fellow in Environment at the Institute of Development Studies, University of Sussex, England, where she undertakes research, post-graduate teaching and consultancy work on global environmental issues. Before joining IDS, Ms Yamin was Director of the Foundation for International Environmental Law and Development (FIELD) and Programme Director of its Climate Change and Energy Program from 1992 to 2001. From 1992 to 2002, Ms Yamin also represented AOSIS as a member of the Samoan delegation and was a senior negotiator and policy advisor on the Kyoto mechanisms. She has been a lead author for the IPCC for the SAR, TAR and 4AR and has coordinated several multi-partner research and policy collaborations for a number of international organizations, including most recently leading the consortia that worked with the EU Commission from 1999 to 2001 to define the legal/policy framework for the EU Emissions Allowance Trading Directive. With Joanna Depledge, Ms Yamin has recently co-authored *The International Climate Change Regimes: A Guide to Rules, Institutions and Procedures* which will be published by Cambridge University Press in 2004.

Jason Anderson works at the Institute for European Environmental Policy. He was a policy analyst at Climate Action Network Europe, the European node of CAN International where he coordinated NGO work on CDM and JI. He was also responsible for CAN Europe's work on energy market liberalisation, carbon capture and storage and F gases. He has previously worked for Enersol Associates in Honduras promoting the use of solar energy and at the Solar Energy Office of the United States Department of Energy. He has degrees from Harvard and Berkeley.

Richard Baron has worked as a climate change policy analyst at Iddri (institute du dévelopment durable et des relations internationales). He works on climate change policy and international emissions trading at the International Energy Agency. He also worked on the economic modelling of GHG reductions at CIRED (France) and PNNL (USA).

Odile Blanchard is an Associate Professor in Economics at the University of Grenoble, France, and a researcher at LEPII (Production and International Integration Economics Laboratory), in the department of Energy and Environmental Policies (EPE, formerly IEPE). In 2001–2002, Dr Blanchard spent a year as a visiting fellow at the Climate and Energy Program of the

World Resources Institute (WRI), USA. Her research focuses on the economic analysis of climate negotiations and options to mitigate future climate change, as well as the development of analytical tools to support climate-related decisions. She is also undertaking a climate-friendly project at Grenoble university to define a strategy to reduce the university's greenhouse gas emissions.

Rob Bradley is an energy policy specialist at Climate Action Network Europe where he was an Associate at the World Resources Institute. Previously he was responsible for European NGO input into the European Union's Emission Trading System for the past five years. He has also been an analyst and NGO representative in the UNFCCC negotiations during that time. During the last nine years he has consulted for European governments, the European Parliament, the European Commission and private corporations on energy and environment issues. He has degrees from University College London and the University of East Anglia.

Michel Colombier, Deputy Director of IDDRI, is an energy policy specialist. He held positions at the French Ministry of Economy, the agency for the environment and energy efficiency (Ademe) and was a French delegate at the Kyoto Protocol negotiations. As a private consultant he has developed energy efficiency projects in developing and transition countries.

Erik F. Haites, of Margaree Consultants Inc., has contributed to the design of proposed emissions trading programmes in Canada, the UK, the European Union and the United States. He has assisted the UNFCCC Secretariat on issues related to the Kyoto mechanisms since 1998 and served as Head of the Technical Support Unit for Working Group III of the Intergovernmental Panel on Climate Change for the preparation of its Second Assessment Report.

Jürgen Lefevere is an administrator at the Climate Change and Energy Unit of the Environment Directorate General (DG ENV) of the European Commission in Brussels, Belgium. At the time of writing Part II, Jürgen Lefevere was Programme Director of the Climate Change Programme of FIELD, London. During 1999–2003 he was involved in a number of studies for the European Commission, including studies relating to the Green Paper on Emissions Trading (March 2000), the proposal for a Directive establishing a scheme for greenhouse gas emission allowance trading within the Community (October 2001), the proposal for a Directive to link the ET Directive with the project-based mechanisms (July 2003) and guidelines for the monitoring and reporting of greenhouse gas emissions.

Axel Michaelowa has been doing research on transboundary market mechanisms for the mitigation of greenhouse gas emissions since 1994. He is head of the Programme International Climate Policy at the Hamburg Institute of International Economics in Germany, associate editor of the journal *Climate Policy* and member of the UNFCCC roster of experts on CDM methodologies.

He is consulting for the German Technical Cooperation on the design of its CDM capacity-building programmes in several developing countries of Asia and Africa.

Fiona Mullins is an independent consultant specialising in climate change, with 13 years of experience in this field. She provides advice to governments and industry on a wide range of climate change issues. Fiona's recent work has focused on analysis of the Kyoto mechanisms, including greenhouse gas mitigation policies, the design of emissions trading systems, emissions baseline issues and institutional capacity. Previously Fiona worked at the OECD where she carried out analytical work on climate change policies, including emissions trading. Fiona also worked for the New Zealand government assessing measures to respond to climate change.

Martijn Wilder is a Partner of Baker & McKenzie where he is responsible for the global climate change and emissions trading practice. Martijn advises national and state governments, major corporations and multilateral organizations. In particular Martijn is an adviser to the World Bank's Carbon Finance Unit, has been advising the European Commission, UNEP and leading financial institutions on climate change issues and CDM transactions, and is heavily involved in capacity building and developing climate change and emissions trading laws for a number of developing countries. Martijn is also the Adjunct Lecturer in International Environmental Law at the University of NSW. He has published widely in all areas of environmental and public international law. With honours degrees in both Economics and Law, Martijn has an LLM from the University of Cambridge which he attended as a Cambridge Commonwealth Trust Scholar.

Introduction

Farhana Yamin

Purpose

Climate change is widely acknowledged to be the most important environmental problem facing humankind. Because the atmosphere knows no boundaries and the world's economies are linked through trade and capital flows, international cooperation to curb greenhouse gases is essential. The institutional framework for such cooperation is provided by the 1992 United Nations Framework Convention on Climate Change (UNFCCC) which came into force ten years ago and by its supplementary 1997 Kyoto Protocol. The Protocol is one of the most complex treaties ever negotiated. At its core lie legally binding targets for the world's wealthier countries to reduce greenhouse gas emissions over 2008–2012. Countries with Kyoto targets can achieve these targets through domestic efforts. They can also reduce greenhouse gases (GHG) in other countries at lower cost than at home by making use of the three flexible mechanisms set out in the Protocol: joint implementation (JI), the Clean Development Mechanism (CDM) and international emissions trading (IET). Because the geographic location of GHG emissions is environmentally irrelevant, cost-effectiveness considerations speak for allowing countries to take credit for overseas actions that curb GHG emissions at source or enhance the removal of GHGs by sinks.

Although there are other political, economic, social and ethical reasons for preferring domestic action, one of the most remarkable aspects of the Protocol is how implementation of its flexible mechanisms is proceeding rapidly around the world, ahead of its formal entry into force. One of the Kyoto mechanisms, the CDM, is already being implemented in over 50 developing countries under the legal authority of the Conference of the Parties (COP) of the UNFCCC which is acting as the interim institutional body of the Protocol. More

significantly still is the establishment of a scheme for GHG emission allowance trading within the 25 Member States of the European Union (EU) which will formally commence on 1 January 2005. The EU Emission Allowance Trading Scheme (EU ETS) will cover some 15,000 entities with a market potential estimated at euro 10 billion a year. The EU scheme will link with the existing CDM market and the nascent JI market focused on Central and Eastern European countries. Additionally, notwithstanding rejection of the Protocol by the Bush administration, domestic trading and offset schemes are also being devised in other parts of the world, including the US and Australia, that are Kyoto consistent and in many cases actually anticipate future linkages with the Kyoto mechanisms. These developments signify that interest in implementing the Kyoto mechanisms will increase worldwide over time – among Parties and non-Parties to the Protocol, particularly when the Protocol formally enters into force as is now expected in 2005 with the decision by President Putin, backed by The Russian Duma, to ratify the Protocol.

This book is intended to support the implementation and evolution of the climate change regime by providing an accessible account of the rules, procedures and institutions governing access to and use of the Kyoto flexibility mechanisms. These rules span three different legal planes:

- international rules as set out in the Kyoto Protocol and elaborated through decisions taken by the COP of the UNFCCC;
- regional rules, principally those agreed by the European Union governing the EU ETS; and
- national schemes, agreed at the federal or state level, establishing trading or offset provisions for national entities.

The carbon markets established by these schemes will interact in complex ways. Cost-minimization will be the core motivation for trades among and across schemes, particularly at the entity level, but legal and institutional provisions, and broader political and strategic considerations, will also play a significant role in determining whether, where, when and how trades take place. One of the strength of this book is that it brings together Kyoto mechanisms developments from the international, EU and national jurisdictions in a single place providing a clear understanding of the linkages between these levels. By doing so, it aims to help the growing community of policy-makers in developed and developing countries understand the rules governing emerging carbon markets and how they will function and evolve in the future. It will therefore be useful for companies, market intermediaries and service providers such as brokers, traders, auditing and certification entities, consultants, law firms and stakeholder organizations already active in the Kyoto markets.

Part I

The international rules on the Kyoto mechanisms

Farhana Yamin

I.1 Introduction

This section explains the international rules, institutions and procedures governing access to and use of the Kyoto mechanisms agreed pursuant to the UNFCCC and the Kyoto Protocol. The bare-bone provisions in these two treaties have been extensively elaborated by the UNFCCC governing institutional body, the Conference of the Parties (COP), which has met nine times since the Convention entered into force in 1994. The institutional body with authority for the Protocol is formally called the Conference of the Parties serving as the meeting of the Parties (COP/MOP) and this will come into operation when the Protocol takes legal effect. Until that time the annual session of the COP will continue to operate as the interim institutional body for the Protocol.

As discussed below, negotiations on the mechanisms proved controversial in the run-up to Kyoto for a variety of reasons. The mechanisms-related textual provisions in Articles 6, 12 and 17 of the Protocol had to be substantially elaborated before Annex I Parties felt sufficiently comfortable about submitting the Protocol for domestic ratification proceedings. The international rules to elaborate the additional mechanisms rules and modalities took just under six years. The bulk of significant mechanisms-related issues were finally resolved by COP-6 Part II held in July 2001 with the adoption of the Bonn Agreements, with detailed textual decisions being set out in the Marrakesh Accords adopted by COP-7. Matters related to the inclusion of sinks in the CDM were resolved

more recently at COP-9, held in Milan, December 2003. Many of the international rules related to the Protocol take the form of recommended draft decisions adopted by the COP which will be forwarded by the COP to the first meeting of the COP/MOP for formal adoption. Although they are not yet in full legal force, the COP decisions containing the recommended decisions COP/MOP-1 are expected to be confirmed in full by the COP/MOP without further negotiation as they are part of the finely balanced package of decisions adopted pursuant to the Bonn Agreements and the Marrakesh Accords.

The rules, institutions and procedures of governing access and use of the Kyoto flexibility mechanisms are thus now to be found in two separate treaties and more than a dozen COP decisions amounting to over two hundred pages of text. Rules relating to registration and validation of CDM projects are being further elaborated by the Executive Board of the CDM (EB/CDM). These disparate, intricately related outputs and procedures make international mechanisms-related rules difficult to track down. The purpose of this section of the book is to provide a guide to the rules, institutions and procedures of the Kyoto mechanisms which brings these disparate sources together in an accessible manner.[1] For ease of reference the main decisions agreed by the COP relating to the mechanisms are listed in Table I.1. For those not familiar with the Kyoto mechanisms, Table I.2 provides an overview of the key distinguishing features of each of the three Kyoto mechanisms: Article JI, CDM and ET.

The remainder of Part I is structured as follows. This introductory section sets out the context and historical background to the negotiations on the Kyoto mechanisms, including a brief overview of the negotiating stance groups of Parties have taken on the mechanisms, how their views have evolved and the international challenges to be faced by the mechanisms community in the future. **Section I.2** describes the rules relating to activities implemented jointly (AIJ) under the FCCC as these projects are precursors to the Kyoto mechanisms and many could be converted into JI or CDM projects. **Section I.3** then describes the cross-cutting related issues which affect all three of the Kyoto mechanisms, namely: adoption and review of mechanism modalities, equity issues, supplementarity, fungibility, stakeholder involvement and participation requirements. **Section I.4** then describes participation and eligibility requirements for the Kyoto mechanisms, including requirements relating to submission of GHG inventories and supplementary information under Articles 5, 7 and 8 of the Protocol. **Sections I.5, I.6 and I.7** then describe the rules for each of the three mechanisms starting with international emissions trading under Article 17 of the Protocol before turning to the CDM under Article 12 and JI under Article 6. The linkages with reporting and review provisions are explained in section I.4 with how compliance with them will be assessed set out in **section I.8**.

Table I.1 *Kyoto mechanisms and related COP Decisions*

Issue	*FCCC/KP Article*	*COP Decision**
Accounting of assigned amounts	KP: 7.4; 3.7; 3.10–12	8/CP.4; **15/CP.7; 19/CP.7; 24/CP.8**
Activities implemented jointly (AIJ)	FCCC: 4.2(d) 14/CP.8; 20/CP.8	5/CP.1; 8/CP.2; 10/CP.3; 6/CP.4; 13/CP.5; **8/CP.7**;
Carry-over of Kyoto units	KP: 3.13	**19/CP.7**
CDM	KP: 12, 3.12 **17/CP.7** Guidance to EB: 21/CP.8, 18/CP.9 LULUCF projects: **19/CP.9**	7/CP.4; 14/CP.5; **15/CP.7**;
Compliance	KP: 18	8/CP.4; 15/CP.5; **24/CP.7**
Emissions trading	KP: 17, 3.10–11 **18/CP.7**	7/CP.4; 14/CP.5; **15/CP.7**;
Joint implementation	KP: 6, 3.10–11 **15/CP.7**; **16/CP.7**	1/CP.3; 7/CP.4; 14/CP.5;
Land use, land-use change and forestry	KP: 3.3, 3.4, 3.7 Croatia: 22/CP.9	1/CP.3; 8/CP.4; 9/CP.4; 16/CP.5; **11/CP.7**; **12/CP.7**
Methodologies under FCCC	FCCC: 4.1(a), 4.2(c)	4/CP.1; 2/CP.3
Methodologies under KP	KP: 5 **21/CP.7**; **20/CP.9**	2/CP.3; 8/CP.4; **20/CP.7**;
Reporting under Kyoto Protocol	KP: 7 (Annex I Parties only) **22/CP.7**; 22/CP.8	8/CP.4 (Annex I) Guidelines (Annex I):
Review of emission inventories under FCCC (Annex I): Procedures/guidelines	FCCC: 12	2/CP.1; 6/CP.3; 6/CP.5; 19/CP.8; 12/CP.9
Review of national communications under FCCC (Annex I): Procedures/guidelines	FCCC: 12	2/CP.1; 6/CP.3;
Review process under KP (Annex I): Guidelines	KP: 8	8/CP.4; **23/CP.7**; **22/CP.8**; **23/CP.8**; **21/CP.9**

Note: Bold type indicates the most significant decisions.
Source: Adapted from Yamin and Depledge (2004).

Evolution of the Kyoto mechanisms

Domestic experience of market-based instruments and emissions trading as well as underlying differences in regulatory culture and administrative capacity have influenced how countries have approached the negotiations on the Kyoto mechanisms. This section provides the context and historical background for understanding how Parties approached the inclusion of the Kyoto mechanisms. Three broad phases can be discerned as follows and are described below:

- 1991–1997: learning in a hostile environment;
- 1997–2001: acceptance and cautious engagement;
- 2001 onwards: implementation and experimentation.

Learning in a hostile environment (1991–1997)

In broad terms, many of the non-EU countries, particularly the US, had positive experience of using market-based instruments in the environmental context in the late 1980s and early 1990s. These countries were already using market-based instruments such as trading, taxes and charges in environmental policy, in place of, or as a supplement to, traditional command and control techniques. As a result many regulators, industry and policy researchers had come to regard command and control regulation as overly technology-prescriptive and innovation-unfriendly.

The US leadership within the group of countries called JUSCANNZ was important in converting others to the advantages of using mechanisms in combating climate change.[2] The US had already legislated for two kinds of trading schemes in the context of the 1990 amendments to the Clean Air Act. This legislation created a domestic 'cap-and-trade' scheme which involved setting a limit on total emissions, distributing permits equal to allowable emissions and requiring entities to hold sufficient permits to cover their emissions during a given compliance period as well as a 'baseline and credit' scheme whereby participants received 'credits' for emissions reductions achieved against a hypothetical baseline. A common feature of both schemes is that a financial asset, called a permit or an allowance, is created by governments which is usually given (rather than auctioned) to polluters in a cap-and-trade scheme or issued in the case of baseline and credit schemes upon demonstration that emissions have been reduced. Because they are financially valuable, the allocation of permits generates political 'buy-in' and lessens the 'pain' of pollution control – an aspect which is important in the context of the 'pork-barrel' nature of US politics. Finally, the experience of the Clinton Administration in the early 1990s with the failed introduction of a carbon/energy tax (subsequently the British thermal unit (BTU) tax) convinced US policy-makers that any US domestic policy to reduce GHGs would have to involve emissions

trading. And as US contributions to GHG emissions accounts for nearly 20 per cent of the global total, emissions trading would be a sensible tool to limit the costs of global compliance.

Although some academics were pointing out the merits of the US sulphur trading programme as an innovative precedent for climate negotiators even during the UNFCCC negotiations, these early suggestions were not well enough understood to allow Parties to consider their global application in the UNFCCC (Grubb et al, 1999). The Convention did, however, include a reference to allowing groups of Annex I Parties to achieve their aim of returning their emissions of CO_2 and other GHGs to 1990 levels by 2000 jointly with other Parties (Bodansky, 1993; Yamin, 1993). The Convention's reference to 'joint implementation' in Article 4.2(a) and 4.2(d) was ambiguous, however, because it could be taken to refer to cap-and-trade and baseline and credit forms of trading among Annex I Parties only as well as a multitude of other forms of international cooperation. This made it difficult to operationalize criteria for joint implementation at COP-1, held in Berlin in 1995. Although some developing countries such as Costa Rica and other Central and Latin American states were by then advocates for project-based forms of trading, most developing countries were hostile to these because Annex I Parties had not committed themselves to binding legal targets at Berlin. Additionally, the creation of permits and credits at the international level raised distributional issues concerning their allocation among Parties with highly differentiated legal commitments as well as fundamental moral, equity and environmental considerations.[3] Finally, because JUSCANNZ were also pressing hard for developing countries to take on additional commitments, as well as being the leading advocates for mechanisms, developing countries were mistrustful that trading would be used by these richer countries to buy their way out of taking domestic action while shifting the actual burden of pollution control to the South.

After COP-1, negotiations on Annex I Parties' commitments commenced in the Ad Hoc Group on the Berlin Mandate (AGBM). JUSCANNZ continued to press for emissions trading and project-based mechanisms and sporadically to call for developing country commitments. The resulting atmosphere of hostility and mistrust underlined the doubts developing countries had about the prominence given to the mechanisms by JUSCANNZ. Although differences of view began emerging within the EU, it is true to say that the regulatory culture of the EU Member States as a whole was less embracing of trading instruments, although a number of countries were moving towards the use of environmental taxes and various forms of charging.[4] Developing countries, on the other hand, remained sceptical or hostile for the reasons outlined above. In addition, when AGBM negotiations commenced nearly a decade ago, the majority of developing countries were struggling to introduce first-generation forms of environmental regulations to

tackle urgent environmental problems like water pollution and local air quality. This left them with little time to acquire more knowledge about new techniques dealing with climate change mitigation – a problem they regarded the North should be dealing with first and, given its long-term nature, one that did not justify the use of their scarce regulatory resources with experimental approaches.[5] The academic and policy literature on the mechanisms did not help matters as much of it was fervently either pro-taxes or pro-emissions trading with little discussion of how different instruments could be mixed, matched and overlaid in the context of existing regulations to suit countries' very different legal, administrative and regulatory structures.

The signal that the negotiations on the Protocol would have to take emissions trading seriously came from the US at COP-2 in 1996 when it announced that it wanted to negotiate an instrument that would contain legally binding targets and some form of emissions trading (Depledge, 2000). This was followed up by a US non-paper submitted in December 1996 which formally linked this position with the inclusion of emissions trading.[6] The shift in US position polarized divisions within the OECD as the EU continued to focus on mandatory policies and measures (PAMs) while adding its voice to developing country concerns that domestic action should be emphasized.

As negotiations continued into 1997, it became clear that many EITs would be negotiating targets that had the effect of giving them generous allowances which they could trade with others.[7] The formation of the Umbrella group – combining JUSCANNZ with Russia and Ukraine – raised serious questions about the detrimental affect of 'hot air' on the environmental effectiveness of the emerging regime.[8] The notion that the mechanisms would be used by rich countries to avoid making politically unpopular domestic reductions further stoked EU and developing country opposition. Finally, legal, institutional and procedural concerns also began to be raised by the research community as to whether domestic trading schemes, like the sulphur programme, could be applied to the international context in the rather naive manner being suggested by some economists (Yamin, 1993). This is because unlike domestic trading schemes which rely on high penalties and strict enforcement to deter non-compliance, monitoring, tracking and verifying GHG emissions in an international context is far more complex. Accurate and timely self-reporting by governments in the absence of an international authority enforcing compliance does not have a good track record. These concerns were compounded by the fact that under the Convention many Annex I Parties had failed to keep pace with their reporting commitments, giving credence to concerns that trading mechanisms that required governments to keep tabs on thousands of emissions sources would prove too taxing for many governments and might give rise to fraudulent transactions which would have the effect of undermining the environmental integrity of the regime.

Although developing countries continued to oppose cap-and-trade forms of emissions trading, and in fact did not participate at Kyoto in the drafting groups dealing with JI and IET, many of them became more and more interested in project-based mechanisms – an interest supported by the expansion of AIJ projects which helped institutional learning. In the last six months of 1997, Brazil took the lead in defining the essential features of the CDM. For reasons discussed elsewhere in this book, the CDM is particularly well suited to advancing quantified reductions of GHG in large, industrializing developing countries who have rapidly expanding economies that are inherently difficult to manage, involving as they do very large amounts of domestic and overseas capital investments with many vulnerable to external economic shocks, as evidenced by the financial crisis that devastated many Asian and Latin American economies in the late 1990s.[9] Although the underlying hostility of developing countries to trading almost led to a breakdown of negotiations on the inclusion of Article 17, COP-3 concluded with the inclusion of the three mechanisms and with clarification in Article 4 of how the joint fulfilment of the EU would work in practice.

Acceptance and cautious engagement (1997–2001)

The acceptance of the end deal in Kyoto marked a fundamental shift in the mechanisms negotiations. International fractiousness gave way to attention, some might say obsession, with detail as everyone realized the 'devil is in the details'. This realization was combined with a mild degree of intellectual fundamentalism about which mechanism was 'best' and ought to receive procedural and political priority, a question that was answered differently as blocs of Parties began to cluster round their favourite mechanism. Given their limited negotiating resources and economic interests, developing countries insisted, of course, that the CDM have priority. JUSCANNZ remained focused on emissions trading, regarding project-based mechanisms, with higher transactions costs, as an inferior policy form. Mindful of the difficulties of putting together credible inventory data that would allow them to participate in IET, the smaller EITs fought hard to ensure JI would not be squeezed by IET and CDM as these two mechanisms began to command the lion's share of policy attention and negotiating time.

While the negotiating thrust of JUSCANNZ and developing countries was fairly clear during this period, the EU took on the difficult task of trying to keep everyone happy while trying to maintain its environmental credentials. Although its stance on prioritizing domestic action went down well with environmental NGOs, it was hard to reconcile with the interests of its negotiating partners – and over time with growing domestic interest in emissions trading both at the Member State and Commission level.[10] Many developing countries were interested in ensuring the CDM was not squeezed out of the market as it

would be if the EU's proposed across-the-board supplementarity restrictions on the mechanisms were to be applied – a point now being borne out with the introduction of the EU ETS.[11] The fear that the market for JI might turn out to be very small also worried the EITs who were by then entering into accession negotiations with the EU. All the while, the international agenda was clogged with numerous conferences, workshops and intersessional meetings discussing mechanism 'design' issues, signalling an intense period of learning on the part of negotiators, GHG emitting industries, stakeholders and an array of market intermediaries who all realized that the Kyoto mechanisms could be good news for business, or at least better than the other alternatives.

Growing international momentum behind the Kyoto mechanisms faced two major setbacks in this period. The first was the agreement reached on the inclusion of sinks under Articles 3.3 and 3.4 of the Protocol at COP-6 Part II and COP-7. As discussed by Blanchard in this book, for most Parties, the availability of sinks is the biggest factor impacting compliance costs and this has a critical bearing on the degree to which each country needs to take further GHG reduction action – domestic or overseas (Grubb and Yamin, 2001). The final deal struck in the Bonn Agreement and Marrakesh Accords means Annex I Parties will have less need to use the mechanisms: unless there is domestic pressure forcing them otherwise, many of them are likely to turn first to low- or zero-cost sinks options. The inclusion of sinks in the CDM, agreed in principle at COP-6 and in detail at COP-9, makes this pool of low-cost CERs even bigger. The second setback was the announcement by the Bush Administration in March 2001 that they would not ratify the Protocol. As the largest GHG producer and potentially the biggest buyer of Kyoto units, the US announcement threw the climate regime into a tailspin which dampened expectations about the viability and size of the emerging carbon markets.

Implementation and experimentation (2001 onwards)

The announcement by the Bush Administration that the Protocol was 'fatally flawed' did not, however, kill the Protocol. Rather it had the opposite effect: motivated by multilateralism and a genuine concern for the global environment, it simply galvanized the remainder of the international community to safeguard the Protocol – an instrument which had taken almost a decade to negotiate. The failure by the Bush Administration to come up with a politically viable alternative in time for COP-6 Part II in July 2001 was soon overshadowed by the Administration's preoccupation with responses to the events of 11 September 2001 which took place a few weeks prior to COP-7 held in Marrakesh.

From 2001 onwards, EU leadership on the mechanisms was a significant bonus for the climate community as a whole. The announcement by the EU that it would implement a domestic emissions trading scheme as of 2005,

covering at a minimum 25 countries, ensured that interest in Kyoto and its mechanisms remained high. The initiatives of several governments in launching tenders for project-based credits, such as the Dutch ERUPT and CERUPT programmes and the establishment by the World Bank of its Prototype Carbon Fund (PCF), also signalled widespread support for continuation of the Kyoto mechanisms.[12]

The adoption of the Marrakesh Accords by COP-7 containing nearly a hundred pages of text operationalizing all three mechanisms, including complex interlinkages with the crucial issues of compliance, meant the focus shifted again to another tier of attention, as technical issues concerning registry design and baseline methodologies now began to preoccupy the mechanisms community.[13] The election of members of the Executive Board of the CDM at COP-7, which many feared might become a talking shop, proved misplaced. The EB/CDM commenced work smoothly evidencing a clear desire by all Parties to put the Kyoto mechanisms into swift operation. And it has done so notwithstanding the disruptive effects caused by the Bush Administration's insistence that the US not contribute financially to supporting CDM activities – a stance which is difficult to understand given that the CDM is contributing directly to GHG reductions by the very developing countries the Administration criticized as not doing enough when the US backtracked on Kyoto.

Evidence that the Bush Administration's disruptive tactics and non-engagement with the climate problem is out of step not only with scientific opinion and the international community but also with the thrust of climate policy in the remainder of the US is becoming more and more apparent.[14] As reported by Haites and Wilder in this volume, over 45 bills, resolutions and amendments addressing climate change were introduced in the US Congress in 2003–2004. Many state initiatives evidencing interest in the Kyoto mechanisms in the US are already being implemented. And an important federal initiative which would have established an emissions trading scheme covering 85 per cent of the US GHG emissions in 1990 was only narrowly defeated, with the Bush Administration playing a leading role in its demise.[15]

As the contribution of Wilder in this volume makes clear, implementation efforts are also advancing at the domestic level in other countries as they begin the practical task of designating national authorities and endowing them with resources and legal authority to undertake the functions outlined for them in the Marrakesh Accords. Notwithstanding significant policy uncertainties, the private sector on the whole has played a positive role with many leading players fronting high learning and transactions costs in putting together risky CDM projects, knowing full well that these will be subject to intense scrutiny from regulators and environmental NGOs alike. The EU's leadership on the mechanisms has continued with the adoption of a proposal to link the EU ETS with the Kyoto mechanisms being put forward in late 2003.[16] Although this

will boost the JI and CDM markets, the link has also brought to light the difficulties the EU faces trying to advance the operation of the Kyoto markets prior to the entry into force of the Protocol – a scheme even as large as the EU ETS cannot absorb the potential supply of Kyoto units from non-EU countries. Although understandable on environmental grounds, the proposed exclusion of sinks projects from the EU ETS under the Linking Directive proposal might dampen expectations of some pro-CDM sinks countries about the inclusions of sinks in the CDM as agreed by COP-9. Concerns raised by Japan and other non-EU pro-Kyoto countries that they may be disadvantaged in their access to JI credits by the operation of the EU ETS evidence, for example, there are underlying political tensions about how centre-stage the EU scheme (which is a domestic scheme) should play. These tensions are likely to decrease once Kyoto enters into force and JI and IET come to the fore.

Looking to the future, it is clear that interest in the Kyoto project-based mechanisms, particularly the CDM, will dwindle over the next few years if policy-makers fail to ensure a market value for emissions reductions in the post-2012 period. Investors will not invest significantly in the CDM unless there is certainty that CERs will be valuable and can be banked against future targets. This requires international negotiations to address Annex I Parties' mitigation commitments for the post-2012 period. Many countries are sensitive about discussing the 2012 period because this will bring the question of US engagement to the fore as well as providing an opportunity for developing countries to contribute to the evolution of the Kyoto mechanisms and their role in the design of the future climate regime.

Table I.2 *Overview of the Kyoto flexibility mechanisms*

	Project-related mechanisms		*Non-project mechanism*
Name	*Article 6/Joint Implementation*	*Clean Development Mechanism*	*Emissions Trading*
Parties (subject to participation/ eligibility criteria)	Annex I – Annex I	Non-Annex I – Annex-I	Annex I – Annex I
Authorized Legal Entities (dependent on Party eligibility criteria	Yes	Yes	Yes
Kyoto unit	Emission reduction units (ERUs)	Certified emission reductions (CERs) Temporary CER (tCER) and long-term CER	Assigned amount units (AAUs)

		(lCER) from afforestration and reforestation projects	
Unit fungibility	Yes	Yes	Yes
Unit use restrictions	Refrain from using ERUs from nuclear facilities	CERs from afforestation and deforestation not to exceed 1% of Party's assigned amount Annex I are to refrain from using CERs from nuclear facilities	No restrictions
Unit carry over	Yes – 2.5% of a Party's assigned amount	Yes – 2.5% of a Party's assigned amount	Yes – without restriction
Unit availability	From 2008 to 2012	From 2000	From 2008 to 2012
Coverage of activities	All Kyoto eligible sources and LULUCF activities	All Kyoto eligible sources with priority to small scale Sinks limited to afforestation/ reforestation	Not applicable
Responsible institutions	Accredited Independent Entities, Article 6 Supervisory Committee, COP/MOP	Designated operational entities (DOEs), Executive Board, COP and COP/MOP	National Registries, Transaction Log, COP/MOP
Adminstratrative support	Secretariat	Secretariat	Secretariat
Administrative costs	To be borne by Participants	To be borne by Project Participant and DOEs	No specific provisions

Source: Adapted from Wollansky and Freidrich (2003).

I.2 Activities implemented jointly

This section describes the rules relating to activities implemented jointly under the pilot phase which commenced as a result of Decision 5/CP.1 adopted in Berlin. Article 4.2(a) and (b) of the Convention mandates Annex I Parties to adopt policies and measures to limit their GHG emissions and to modify their long-term emissions trend by implementing PAMs. This includes achieving the

Convention's 'quantified aim' to return emissions of CO_2 and other GHGs to their 1990 levels by the year 2000 (Yamin and Depledge, 2004, ch. 6).

Article 4.2(a) states such Parties 'may implement such policies and measures jointly with other Parties' but this provision is subject to criteria the COP might adopt under Article 4.2(d) regarding joint implementation. Cooperative measures to reduce or sequester GHGs can be undertaken between different governments, businesses and NGOs without sanction from the COP. Although many readings are possible, one intent of Article 4.2(d) was to provide an internationally accepted way for Parties to earn credits for undertaking or financing joint measures. Because the Convention obliges Annex II Parties to provide funding and technological assistance to developing country Parties to help the latter meet their obligations, identifying which activities should be considered by Annex II Parties as fulfilling their mandatory Convention commitments and which should earn credits proved problematic and continues to prove challenging in the context of consideration of how the issues of 'additionality' of AIJ projects should be assessed – an exercise which has many parallels with the assessment of additionality issues for CDM projects.[17]

AIJ pilot phase

COP-1 could not reach agreement on the fundamental issue of in what circumstances Annex I Parties should claim credits that could count towards compliance with their UNFCCC mitigation commitments. Because many developing countries were also opposed to the grant of credits, COP-1 agreed that 'no credits shall accrue to any Party' as a result of AIJ activities during the pilot phase. This phase was to be comprehensively reviewed and was scheduled to end not later than the end of 1999. The timeframe was chosen to allow the pilot phase to support sufficient 'learning by doing' as well as to enable completion of Protocol negotiations addressing political issues about the overall size and burden-sharing agreements relating to Annex I Parties' emissions targets. As discussed above, many developing countries and the EU were concerned about ensuring there was an appropriate balance between domestic and overseas mitigation abatement efforts by Annex I Parties.

Since COP-1, the COP has regularly reviewed the way in which information about AIJ projects should be provided (for example, to help understanding of how additionality may be assessed on a practical level) and to review the geographic spread of projects. COP-5, held in 1999, reviewed the pilot phase as a whole and decided to continue it beyond 1999, encouraging Parties that had not yet had experience with projects to take up such opportunities. Decisions to continue the pilot phase have also been adopted by COP-7 and COP-8. Until COP-8 Parties participating in AIJ projects were requested to provide AIJ information to the Secretariat to enable it to prepare

an annual synthesis document considered by each COP. To simplify and reduce such reporting, COP-8 decided that in future the synthesis document should be prepared on a biennial basis, rather than on an annual basis as originally provided in Decision 5/CP.1.

Uniform reporting format

Decision 5/CP.1 called on the UNFCCC Subsidiary Bodies (SBs) to develop a framework for Parties to report in a transparent and credible manner on 'the possible global benefits and the national economic, social and environmental impacts as well as any practical experience gained or technical difficulties encountered.' Such reporting was critical for determining how baselines that met the financial and environmental 'additionality' criteria set by COP-1 (discussed below) were to be assessed. Because participation in AIJ is voluntary, such reporting was, and remains, distinct from information provided in Parties' national communications. COP-3 adopted the first 'uniform reporting format' (URF) which Parties could use to report, on a voluntary basis, on their AIJ projects.[18] A revised URF was adopted by COP-8 which incorporates experience with the first URF and takes into account the kind of information that would in future be needed to assess whether AIJ projects can meet eligibility criteria for CDM and JI.[19]

Substantive AIJ criteria

Although COP-1 could not reach agreement on credits, Decision 5/CP.1 was groundbreaking in setting out criteria for AIJ, many of which fed or were directly incorporated into CDM and JI modalities. Experience of developing a URF for reporting of AIJ projects assisted negotiations on reporting and methodological issues related to the CDM and JI projects. The substantive criteria for undertaking AIJ projects remain as set out in Decision 5/CP.1 and provide as follows:

- AIJ in no way modifies the commitments of each Party under the Convention and AIJ projects are supplemental to and only one subsidiary means of achieving the Convention's objective.
- AIJ can proceed among Annex I Parties and with non-Annex I Parties that so request.
- Participation in AIJ for all Parties is voluntary and requires prior acceptance, approval or endorsement by the governments of Parties concerned.
- AIJ projects should meet the 'environmental additionality' criterion which is policy shorthand for saying they 'should bring about real, measurable and long-term environmental benefits related to the mitigation of climate change that would not have occurred in the absence of such activities.'

- AIJ projects should meet a 'financial additionality' criterion which states that 'financing of AIJ shall be additional to the financial obligations of [Annex II Parties] within the framework of the financial mechanism as well as to current official development assistance (ODA) flows.'

The environmental and financial additionality criteria for AIJ projects have been incorporated in JI and the CDM modalities and are explained in greater detail below. Decision 5/CP.1 does not limit the scope of AIJ. Thus all types of projects that reduce or sequester emissions can, in principle, be AIJ projects. There are currently over 150 AIJ projects formally communicated to the UNFCCC Secretariat with a large share being in EITs.[20] Regular updates are provided on the number, geographic location and project type of AIJ projects are reported in *JI Quarterly*.[21]

AIJ projects and the Kyoto mechanisms

Although the modalities and procedures for the CDM and JI do not mention AIJ explicitly, COP-7 agreed the following. For the CDM:

> *a project activity starting as of the year 2000, and prior to the adoption of this decision, shall be eligible for validation and registration as a clean development mechanism project if submitted for registration before 31 December 2005. If registered, the crediting period for such project activities may start prior to the date of registration but no earlier than 1st January 2000.*[22]

COP-9 clarified that this wording inadvertently excluded the possibility of projects starting between the date of adoption of Decision 17/CP.7 and the date of the first registration of a CDM project activity earning CERs and accordingly decided that such CDM project activities may use a crediting period starting before the date of registration if the project activity is submitted for registration before 31 December 2005.[23]

JI projects starting as of the year 2000 may be eligible as Article 6 projects if they meet the requirements of the guidelines for the implementation of Article 6 of the Kyoto Protocol as agreed at COP-7. ERUs shall only be issued for a crediting period starting after the beginning of the year 2008 (as before then there is no assigned amount from which they can be issued).[24]

These provisions mean that there is no automatic conversion of AIJ projects to CDM or JI projects as some Parties had wished but that each project must fulfil the criteria set out for CDM and JI projects agreed at COP-7. The crediting start date of 2000 for CDM activities operationalizes the provisions of Article 12.10 of the Protocol which states that CERs obtained during the

period 2000 to 2008 can be used by Annex I Parties for compliance with Article 3 commitments. There is no such equivalent start date for JI activities under Article 6. Thus AIJ projects carried out among Annex I Parties that qualify as JI projects will only generate ERUs from 2008 onwards because no Party will have an assigned amount before 2008.

I.3 Cross-cutting mechanism issues

The Kyoto mechanisms share a number of cross-cutting features. Many of these are set out in Decision 15/CP.7 which deals with the principles, scope and nature of all three mechanisms. Others with a larger technical component are also included in rules relating to the accounting of assigned amounts set out in Decision 19/CP.7, registry-related rules adopted by COP-8 and information-related reporting and review requirements pursuant to Articles 5, 7 and 8 of the Protocol.

Adoption and review of mechanism modalities

Given that the COP and the COP/MOP have their own distinctive legal authority, there was a shared desire to provide a smooth legal pathway from the adoption of mechanism modalities by the COP to their eventual endorsement by the COP/MOP. The transition is achieved by embedding the modalities for the mechanisms in the form of annexes that are attached to draft decisions that the COP recommends the COP/MOP adopt. In the case of the CDM, the COP has agreed to assume the responsibilities of COP/MOP until the entry into force of the Protocol. This means that the CDM is legally in operation in advance of the Protocol's entry into force.

The review of mechanism modalities had to balance the need to provide legal and regulatory certainty to Parties and legal entities that wanted to use the mechanisms on the one hand with the desire to make improvements based on the inevitable 'learning by doing' that will take place as Parties gain practical experience of these innovative mechanisms. Additionally, because all three mechanisms are related to the achievement of binding Article 3 Kyoto commitments, the timing and legal nature of revisions to mechanism modalities was also an issue. The modalities for all three mechanisms contain virtually identical review provisions which provide that:

- any future revisions of the modalities, rules and procedures for each mechanism shall be decided in accordance with the rules of procedures of the COP/MOP as applied;
- the first such review will be carried out no later than one year after the end of the first commitment period (i.e. 2013), based on recommendations

by the SBI, drawing on technical advice from SBSTA, as needed; and
- further reviews shall be carried out periodically thereafter.[25]

The JI and CDM modalities make clear that any changes resulting from overall reviews shall not have retrospective effect for projects that have already commenced.

Although these rules provide legal certainty for investors that the mechanisms will not change, this does not address the issue of ensuring that investors have incentives to actually invest in mechanism transactions. As set out in the evolution of the mechanisms discussed above, investors will need certainty that Kyoto units will have value post-2012 if significant levels of mechanism activity are to be sustained. Thus the issue of negotiating second commitment period targets, which underpin the financial value of Kyoto units, will have to be addressed in the next few years rather than being left to 2013.

Equity issues

In response to moral and equity concerns outlined in section I.1 dealing with the evolution of the mechanisms, the Marrakesh Accords state that the 'Kyoto Protocol has not created or bestowed any right, title or entitlement to emissions of any kind on Parties included in Annex I.'[26] The US Clean Air Act contains a similar provision which was intended to ensure that the federal government could still take decisions about permits where this was deemed necessary to protect the public interest without having to worry about paying off polluters for possible infringement of their legal rights (Yamin, 1999). Although the reference in Decision 15/CP.7 is to 'emissions' rather than to the actual units created by the Protocol, inclusion of this provision signals that Parties do not regard holdings of Kyoto units as property rights. Rather they see them as simply as unitized and divisible embodiments of promises accepted by sovereign states in the context of a multilateral agreement which for that reason can be revoked, revised and altered through further negotiation (Werksman, 1999b).

Concerns that use of the Kyoto mechanisms might entrench as well as exacerbate existing emissions inequalities by encouraging Annex I Parties to seek cheap reductions abroad led COP-7 to agree that AIPs 'shall implement domestic action in accordance with national circumstances and with a view to reducing emissions in a manner conducive to narrowing per capita differences between developed and developing country Parties while working towards achievement of the ultimate objective of the Convention.'[27] This provision will be taken into account in the review of demonstrable progress under Article 3.2 of the Protocol. The Secretariat has been mandated to prepare a report on the implications of the per capita paragraph every time the review process under

Article 8 of the Kyoto Protocol relating to national communications and supplementary information from AIPs is completed.[28]

Supplementarity

Prioritizing domestic action has moral as well as environmental effectiveness dimensions. The extent to which either trumped-up cost-effectiveness considerations and justified quantitative constraints on the use of the mechanisms was one of the most divisive elements of post-Kyoto negotiations. The Marrakesh Accords provide that 'use of the mechanisms shall be supplemental to domestic actions and domestic action shall thus constitute a significant element of the effort made' by each Annex I Party in meeting its Article 3.1 commitments. The word 'significant' carries no quantitative connotations and was chosen in preference to words such as 'principal' and 'primary' which were deleted by the US as they implied a quantitative priority in favour of domestic action.

A qualitative assessment of whether Annex I Parties will meet the supplementarity condition was agreed and this requires Annex I Parties to submit information about their use of the mechanisms and domestic action as part of the information that must be submitted in accordance with Article 7 which will be reviewed under Article 8. An additional report on how each Annex I Party is making 'demonstrable progress' under Article 3.2 of the Protocol will also form part of the information relevant to considering supplementarity. For clarity, questions of implementation raised by the qualitative assessment of supplementarity are to be explicitly mentioned as matters that will be addressed by the Facilitative Branch and cannot be addressed by the Enforcement Branch of the Compliance Committee.[29]

It should be noted that while they are not supplementarity limits, for the first commitment period, the total additions to a Party's assigned amount resulting from eligible LULUCF projects under the CDM shall not exceed one per cent of base year emissions of that Party, times five.[30] To the extent that the rules limiting the banking of CERs and ERUs, described below, constrain the use of the Kyoto mechanisms, they could create more incentives for domestic action.

Fungibility

The term fungibility embraces a range of issues relating to the nature of the initial assigned amount allocated to each Annex I Party pursuant to the Protocol and the interchangeability of Kyoto units with each other and their relationship with the initial assigned amount.

Articles 3.10 and 3.11 allow Parties to add and subtract from their assigned amount ERUs generated through JI under Article 6 and AAUs under

ET under Article 17. Article 3.12 on the other hand allows CERs to be acquired and added to a Party's assigned amount but does not state that Annex I Parties can transfer CERs to other Annex I Parties. The omission of the word 'transfer' from Article 3.12 was used by some developing countries to oppose CERs being traded among Annex I Parties after their initial acquisition. This also led to some of them opposing fungibility.

The Marrakesh Accords provide for full fungibility of ERUs, CERs, AAUs and RMUs.[31] Units generated by CDM LULUCF activities, known as tCERs and lCERs, are equal to other Kyoto units in terms of compliance. Irrespective of how they are created, Kyoto units can be exchanged on a one-to-one basis with each other as Decision 19/CP.7 defines each of these units to equal one metric tonne of carbon dioxide, calculated using agreed global warming potentials (GWPs). Thus for the purposes of compliance, these Kyoto units are equal.

Another aspect of fungibility is the differential ability to bank Kyoto units for the next commitment period. Decision 19/CP.4 limits banking of CERs and ERUs to 2.5 per cent of a Party's assigned amount and states that RMUs cannot be banked at all.[32] Thus there are restrictions on the banking of all Kyoto units except AAUs. Because there are no rules agreed otherwise, Annex I Parties could use enough other units for compliance purposes to meet the respective restrictions and then use AAUs for the balance. Thus the restrictions on banking could be circumvented, limiting the potential impact on the fungibility of the Kyoto units.

So far as the legal nature of assigned amounts and additions to them is concerned, a number of developing countries wanted to clarify the legal nature of Annex I Parties' assigned amounts and had thus pressed for the inclusion of language stating that the Protocol does not create any rights, title or entitlement as explained above. Additionally, Parties agreed that, once recorded in the compilation and database established by the Secretariat as part of the accounting modalities under Article 7.4, the assigned amount of 'each Party shall remain fixed for the commitment period.'[33] The fixed nature of the assigned amount was also intended to address developing country concerns that the additions and subtractions of Kyoto units to the assigned amount would somehow weaken or alter the nature of Annex I Parties' legal commitments. Decision 15/CP.7, paragraph 6, provides that such additions and subtractions will take place 'without altering the quantified emission limitation and reduction commitments inscribed in Annex B to the Kyoto Protocol.'

Decision 19/CP.7 on accounting modalities provides the answer because it states that Kyoto units are not 'added to' a Party's assigned amount until it designates those units to be used for purposes of meeting its commitment – which will be done at the end of the commitment period (which for compliance purposes includes an additional period for fulfilling commitments). Prior to this point in time all Kyoto units are simply held in a national registry. Thus

CERs can be freely transferred like the other Kyoto units and are as liquid as the other Kyoto units prior to being designated for compliance use. Then CERs can no longer be subtracted but other units could be in case the Party specified more units than necessary to achieve compliance with its commitment. By defining the point of 'addition' in this way, Decision 19/CP.7 aims to meet the concerns of developing countries but without practical impact on the transferability or liquidity of CERs.

Stakeholder involvement

Modalities for JI and the CDM contain a common definition of 'stakeholder' which means 'the public, including individuals, groups or communities affected, or likely to be affected' by the JI or CDM project.[34] To support the participation of stakeholders in JI and CDM projects, the modalities for JI and CDM provide that certain types of information must be made publicly accessible. Additionally, such information is necessary because there are various points in the JI and CDM project cycle where stakeholders may intervene to ensure that decisions – whether by national authorities or international bodies – are in conformity with the modalities set out in the various COP decisions. These points of intervention, the types of information that must be available and the timing of their availability are vital for ensuring that stakeholders and others perform 'watchdog' functions for the two project-based mechanisms which if successful could result in thousands of projects worldwide.[35]

Although the rules for emissions trading do not refer to stakeholders as such, rules on the establishment of national registries which will record Kyoto unit transactions, provide that non-confidential information in national registries must be publicly accessible through a user interface available via the Internet that allows 'interested persons to query and view' information held in national registries.[36] NGOs and stakeholders, particularly businesses engaged in the mechanisms, will therefore play a vital function in spotting the frequency, types and implications of discrepancies that might arise, including whether the transaction log established by the UNFCCC Secretariat is itself functioning correctly. Modalities for constructing national registries to enhance their public accessibility have been further elaborated since Marrakesh and are to be considered further, including how issues relating to confidential data should be handled.[37]

I.4 Participation/eligibility requirements

Another common feature of the mechanisms is that Articles 6, 12 and 17 emphasize that Annex I Parties 'may' use the mechanisms to fulfil their Article 3.1 commitments. Although the decision to participate is entirely voluntary,

once made each Party has to fulfil certain participation requirements. All the mechanisms set out certain legal and administrative provisions to ensure that Parties retain sovereign responsibility over mechanism-related transactions taking place under their jurisdiction.

All three mechanisms allow Parties to authorize private actors to participate in the mechanisms.[38] In each case the mechanism modalities specify that the Party which authorizes legal entities shall remain responsible for the fulfilment of its obligations under the Protocol and shall ensure that such participation is consistent with the mechanism's modalities.[39] Legal entities may only transfer and acquire Kyoto units, however, where a Party itself meets the participation requirements set out in the mechanisms. From an economic perspective, the participation of entities in the mechanisms, under the responsibilities of Parties, was considered important because while mechanisms open only to governments are more efficient than no mechanisms at all, mechanisms limited to governments are not as efficient as mechanisms open to a wider range of actors. This is because governmental trading equates national marginal costs but does not equalize marginal abatement costs across sources within each country and it is the latter that lead to more significant reductions in compliance costs.

All the mechanisms define minimum environmental integrity-related standards that must be met by Parties that wish to participate in the mechanisms. The requirements are referred to here as 'eligibility conditions' to distinguish them from the broader legal and administrative participation requirements set out above. For Annex I Parties, these requirements will be assessed by the Enforcement Branch of the Compliance Committee, discussed in more detail in section I.8 below.

Protocol ratification

Whether participating as host or investor, an Annex I Party can only transfer and acquire ERUs under JI and all kinds of Kyoto units under Article 17 emissions trading if it is a Party to the Kyoto Protocol. This is simply because only Parties to the Protocol that have Article 3 commitments will have an 'assigned amount'. If countries that are not Parties to the Protocol, such as the US and Australia, establish national emissions trading schemes, the permits or allowances created by such national schemes will not form part of the Kyoto system.[40] Such non-Parties to the Protocol can unilaterally decide to allow the use of Kyoto units with their domestic obligations.

The CDM modalities specify that until the Protocol enters into force, all Parties to the Convention can participate in CDM projects.[41] After the entry into force of the Protocol, non-Annex I Parties may participate in the CDM only if they are Parties to the Protocol.[42] The CDM eligibility requirements for

Annex I Parties are not as clear and refer to eligibility at the time when such Parties will *use* CERs for compliance. Thus while the CDM modalities are really focused on how Parties to the Protocol can engage in CDM activities, they neither excluded the possibility that non-Parties to the Protocol could participate in CDM project activities nor spelled out how they may do so (Wilkins, 2002). To provide greater clarity, the CDM Executive Board at its eighth meeting clarified that with regard to validation requirements to be checked by a designated operational entity, before entry into force of the Kyoto Protocol, all Parties to the Convention may participate in CDM project activities. Subsequently, in accordance with provisions of paragraphs 37(a) and 40(a) of the CDM modalities and procedures, the registration of a proposed CDM project activity can, however, only take place once approval letters are obtained from Parties to the Convention that have ratified the Kyoto Protocol.

Designating national authorities

Both project-based mechanisms require Parties to designate national authorities to provide oversight of JI and CDM projects. Any Party involved in an Article 6 project shall inform the Secretariat of its designated 'focal point' while the CDM modalities require all Parties to designate a 'national authority for the CDM'.[43] The functions of these bodies are explained below. The requirement to establish a Designated National Authority (DNA) for the CDM were insisted upon by developing countries as they wanted to ensure that governmental bodies would be kept abreast of CDM projects and initiatives. One of the early experiences of the AIJ pilot phase had been the negotiation of projects by Annex I countries/companies directly with non-Annex I entities with the governments often not in the loop until a very late stage.

By February 2003, DNAs had been established in around 50 developing countries and in 10 Annex I Parties with many other Parties nearing the completion of domestic processes for doing so.[44]

Establishing assigned amount and pre-commitment period report

No Annex I Party can undertake JI and ET transactions, or use CERs towards compliance, unless its assigned amount pursuant to Articles 3.7 and 3.8 has been calculated and recorded in accordance with the annex to Decision 19/CP.7 on modalities for the accounting of assigned amounts. To meet this condition, each Annex I Party has to submit a pre-commitment period report which contains all the information needed to calculate its assigned amount as well as other kinds of information necessary to demonstrate that the Party is able to monitor, track and record mechanism-related transactions, such as

having a national system and national registry in place (see below). This report is to be submitted prior to 1 January 2007 or one year after the entry into force of the Protocol for the Party, whichever is the latest. It is subject to a thorough review by the expert review teams (ERTs).

National system

No Annex I Party can undertake JI and ET transactions, or use CERs, unless it has in place by no later than 1 January 2007 a national system for the estimation of GHG emissions and removals pursuant to Article 5.1 of the Kyoto Protocol.

The term national system refers to the institutional, legal and procedural arrangements put in place by an Annex I Party to ensure that it can adequately estimate, report and archive GHG inventory data. Guidelines for the establishment of national systems and review processes which aim to ensure these are robust enough to meet mechanism requirements have been agreed under the Marrakesh Accords.[45] These guidelines require Annex I Parties to adhere to the 1996 IPCC Revised Guidelines for National Greenhouse Gas Inventories which incorporate common methodologies and reporting formats devised by the IPCC and subsequently endorsed by the COP for Parties to use when calculating emissions data and compiling their annual GHG inventories.[46] The guidelines for national systems require Annex I Parties to designate a national authority which is charged with maintaining a national system, including the adoption of quality assurance/control procedures to ensure GHG inventories are to the standard set by Kyoto. A description of the national system must be included in the pre-commitment period report which serves to identify whether Parties have the administrative capacity to track mechanism transactions and to monitor their GHG emissions.

As many EITs lack capacity to provide annual inventories following IPCC guidelines, the national system component of the mechanism participation requirements is likely to present many of them with problems unless additional capacity-building measures are taken. Anxiety that they could find themselves ineligible to participate in the Kyoto mechanisms because of their limited capacity to implement national systems to the standard set by the Protocol was a strong motivation for EITs to negotiate Track 2 JI, discussed below.

National registry

The term national registry refers to procedures and mechanisms set up by an Annex I Party to ensure the accurate tracking of Kyoto mechanism transactions and LULUCF accounting under Articles 3.3 and 3.4. National registries will be part of a broader system of accounting which will also include a separate CDM registry and an independent transaction log maintained by the

UNFCCC Secretariat. Registries, and these related components, are necessary not only for trading under the Kyoto mechanisms but also for linking the Kyoto mechanisms with national schemes that are Kyoto independent. To assist Parties establish registries that are compatible, the COP has developed technical guidelines which were adopted by COP-8 with SBSTA-19 agreeing conclusions on the need for the UNFCCC Secretariat to focus on developing the independent transaction log and for Annex II Parties to fund this work.[47] The chapter by Hobley in this volume describes the functions, design and implementation to date of registries under the Kyoto Protocol and the EU ETS in more detail.

So far as the Protocol participation requirements are concerned, whether or not they choose to participate in the mechanisms, all Annex I Parties must designate an organization that will serve as the 'administrator' of the national registry that must be established and maintained by all Annex I Parties as part of the accounting modalities necessary for tracking their assigned amounts.[48] Because registries are such a vital part of the administrative infrastructure for tracking transactions under the mechanisms, their effective functioning will be thoroughly reviewed and tested by expert review teams (ERTs) as part of the pre-commitment period report and review procedures. Confirmation that they are working effectively will be part of the review of the pre-commitment period report which is necessary for Annex I Parties to establish their assigned amounts (without this they have no assigned amount to trade).

Annual inventories and adjustments

Submission of accurate annual inventories, prepared in accordance with guidance adopted pursuant to Article 5.2 and Article 7.1, and submitted and reviewed annually and according to schedule, together with the supplementary information described below, is the backbone of the mechanisms eligibility requirements for Annex I Parties.[49]

The threshold conditions of failing to meet Article 5.2 and Article 7.1 eligibility conditions are set out in Decision 22/CP.7 which provides that any Annex I Party shall fail the mechanisms, methodological and reporting eligibility requirements for JI, the CDM and ET as follows:[50]

- if it has failed to submit an annual inventory of anthropogenic emissions by sources and removals by sinks, including the national inventory report and the common reporting format within six weeks of the submission date established by the COP;
- if it has failed to include an estimate for an Annex A source category (as defined in the IPCC Good Practice Guidance and Uncertainty Management in National GHG Inventories) that individually accounted for 7 per cent or more of the Party's aggregate emissions, defined as aggregate submitted emissions of the gases and sources listed in Annex A to the

Protocol, in the most recent of the Party's reviewed inventories in which the source was estimated;

- if any single year during the commitment period the aggregate adjusted GHG emissions of the Party concerned exceed the aggregate submitted emissions, defined as aggregate submitted emissions of the gases from the sources listed in Annex A to the Kyoto Protocol, by more than 7 per cent;
- if at any time during the commitment period the sum of the numerical values of the percentages calculated in relation to the single year eligibility requirement (stated above) for all years of the commitment period for which the review has been conducted exceeds 20; and
- if an adjustment for any key source category (as defined in IPCC Good Practice Guidance) of the Party concerned that accounted for 2 per cent or more the Party's aggregate emissions of the gases from the sources listed in Annex A was calculated during the inventory review in three subsequent years, unless the Party concerned has requested assistance from the Facilitative Branch of the Compliance Committee in addressing this problem, prior to the beginning of the first commitment period and assistance is being provided.[51]

The application of adjustments will be a critical element for many Annex I Parties, especially some EITs who continue to have capacity-related difficulties in submitting complete inventories. If current inventory standards are anything to go by, the application of adjustments to complete missing or inadequately justified emissions data is likely to be a not infrequent event. Where an adjustment is proposed by an ERT and is disputed by an Annex I Party, the matter is to be determined by the Enforcement Branch of the Compliance Committee. COP-9 adopted technical guidance in the form of recommendations for COP/MOP on methodologies for the application of adjustments by ERTs to ensure the circumstances in which these are proposed and applied are understood and acceptable to Annex I Parties in the hope this will limit the number of cases bought before the Enforcement Committee concerning disputed adjustments.[52] Decision 20/CP.9 requested the Secretariat to establish a process to enable ERTs to gain experience with adjustments in the inventory review process in 2003–2005 using real inventory data subject to the consent of the Party concerned.

The issue of guidance on how adjustments will be applied in respect of sink sources will be considered at COP-10, taking account of methodological work by the IPCC (completed for COP-9 in accordance with a request from COP-7) to develop Good Practice Guidance for LULUCF.[53] It is important to note that the mechanisms' eligibility provisions make clear that for the first commitment period, Parties will have to submit annual inventory data on sinks as part of their mechanisms eligibility requirements. The *quality* of sinks

data, however, will be immaterial because the quality assessment for determining eligibility is limited to the parts of the inventory pertaining to emissions of GHGs from sources/sectors listed in Annex A to the Protocol. The lack of a quality assessment of sinks data was a significant issue at Marrakesh because a number of Annex I Parties, particularly EITs, still find it difficult to provide accurate data on sinks.[54] Parties that had wanted to link improvement of sinks data to mechanism eligibility had to be satisfied by the fact that Parties that fail to provide accurate data on sinks will only be allowed to issue RMUs in respect of sinks on which they have reported adequately – a provision which provides some degree of environmental integrity but which creates no incentives for general improvement of sinks data as a whole.[55]

Supplemental information

Submission of supplementary information on assigned amounts pursuant to Article 7.1 by Annex I Parties and adherence to guidelines for the accounting of assigned amounts adopted pursuant to Article 7.4 are eligibility requirements for all three mechanisms. The supplemental information to be included in national communications is set out in the KP reporting guidelines set out in Decision 22/CP.7 and 22/CP.8, and Decision 19/CP.7.

Questions of implementation relating to information about how an Annex I Party is striving to implement its Article 3.14 commitments (relating to the minimization of adverse impacts of response measures) are not an eligibility condition for the mechanisms.[56]

Commitment period reserve

The requirement to establish and maintain a commitment period reserve (CPR) is set out in Decision 18/CP.7 on emissions trading. Although it is not formally expressed as an eligibility requirement for all mechanisms, provisions relating to it must be adhered to if a Party is to engage in mechanism transactions in conformity with Decision 18/CP.7. The CPR is discussed further below under IET pursuant to Article 17.

Acceptance of compliance procedures

At Marrakesh, Parties agreed language that 'environmental integrity is to be achieved through sound modalities, rules and guidelines for the mechanisms, sound and strong principles and rules governing land use, land use change and forestry activities and a strong compliance regime.'[57] But unresolved differences about the binding nature and form of the compliance procedures that should be adopted by the COP/MOP left a number of JUSCANNZ countries unwilling to agree acceptance of the compliance procedures as an eligibility condition for use of the mechanisms.

The final wording agreed at Marrakesh provides that:

> *The eligibility to participate in the mechanisms by a Party included in Annex I shall be dependent on its compliance with methodological and reporting requirements under Articles 5.1 and 5.2 and Articles 7.1 and 7.4 of the Protocol. Oversight of this provision will be provided by the enforcement branch of the compliance committee, in accordance with the procedures and mechanisms relating to compliance as contained in decision 24/CP.7, assuming approval of such procedures and mechanisms by the [COP/MOP] in decision form in addition to any amendment entailing legally binding consequences, noting that it is the prerogative of the [COP/MOP] to decide on the legal form of the procedures and mechanisms to compliance.*

It is important to emphasize that this wording was not intended to undermine or prejudice the oversight of agreed eligibility conditions by the Enforcement Branch which all Parties agree is necessary.

Eligibility assessment, consequences and reinstatement

Oversight of the mechanisms' eligibility conditions is to be provided by the Enforcement Branch of the Compliance Committee in accordance with Decision 24/CP.7. Enforcement Branch procedures and timetables for how mechanism eligibility will be assessed are explained briefly in section I.8 below.

I.5 Emissions trading

Article 17 requires the COP (not the COP/MOP) 'to define the relevant principles, modalities, rules and guidelines, in particular for verification, reporting and accountability for emissions trading' among Annex B Parties with the proviso that such trading shall be supplemental to domestic action for the purposes of meeting the quantified commitments under Article 3. Because more substantive provisions on trading threatened adoption of the Protocol, the three short sentences of Article 17 represent all that could be agreed in Kyoto. Four years of negotiations later, the IET modalities agreed at Marrakesh barely run to two pages – evidence enough that if foundational principles can be agreed, the conceptual simplicity of emissions trading is an alluring feature, but one which requires binding targets, robust reporting and a strong national and international infrastructure to monitor, track, verify and compel compliance to make good its promise. The following sections provide an overview of IET under the Protocol and sets out the salient features of the trading modalities agreed at Marrakesh.

Overview

The key feature of Article 17 trading is that it is confined to Annex B Parties, i.e. countries with binding targets under the Protocol.[58] These Parties will have access to units of 'assigned amount' and, subject to the modalities agreed at Marrakesh, and not otherwise, they will be able to transfer and acquire these units and the full range of Kyoto units from each other to fulfil their Article 3.1 commitments.[59] The purpose of IET – to meet Article 3 commitments – is important to bear in mind because it means IET is a *means* to achieve a given environmental constraint. Article 17 trading is therefore a classic example of a cap-and-trade scheme of the kind first proposed by the USA in the Protocol negotiations in 1996.

As with the other mechanisms, the Marrakesh Accords provide that IET has to be undertaken in accordance with the modalities agreed by the COP which will be endorsed by the COP/MOP. This is significant because at Kyoto a number of JUSCANNZ countries had argued that the provisions of the Protocol gave them a 'right to trade' without further reference to the COP. On the other hand, the need to develop further trading modalities quickly was one reason why Article 17 refers to the COP, and not the COP/MOP, as the body charged with defining further trading rules, the rationale being that the COP could provide institutional authority for interim trading which Parties thought might proceed even prior to the entry into force of the Protocol in a way that is now envisaged for the CDM. A clearer appreciation of the need to separate Convention from Protocol related matters has meant the reference to the COP in Article 17 is now largely of historic interest and the IET modalities confirm that it is the COP/MOP that will make further decisions relating to Article 17.

Principles and supplementarity

The reference in Article 17 to defining the relevant 'principles' for IET was a code word referring to a range of moral and equity issues and environmental concerns that had been touched on during the Protocol negotiations but which developing countries felt had not been adequately considered.[60] Decision 15/CP.7 sets out the principles, nature and scope of all three mechanisms and addresses issues relating to equity, fungibility and supplementarity which are discussed above.

Participation requirements

The reference in Article 17 to 'modalities, rules and guidelines, in particular for verification, reporting and accountability for emissions trading' relates to concerns that emissions trading could serve the purposes of helping Parties meet their Article 3 commitments and not adversely affect the environmental

integrity of the Protocol. These concerns are addressed through the participation and eligibility requirements, explained above, and through the commitment period reserve, explained below.

Commitment period reserve

Because selling Kyoto units through emissions trading is likely to prove profitable, Article 17 creates the possibility that an Annex I Party could find itself in non-compliance with its Article 3 commitments through calculated or inadvertent overselling, particularly where there is weak international enforcement of compliance with international commitments (Yamin et al, 2001). Originally proposed by AOSIS, the concept of a commitment period reserve (CPR) emerged as a compromise to address large-scale selling by specifying the minimum quantity of Kyoto units a country must have in its national registry at any time and thus limiting the scope of non-compliance. One of the challenges was to set the CRP requirements so that they would protect against non-compliance yet not be so restrictive as to limit the liquidity of the market. The Bonn Agreement provided that 'each [Annex I] Party shall maintain … a commitment period reserve which should not fall below 90 per cent of [its] assigned amount … or 100 per cent of five times its most recently reviewed inventory, whichever is the lowest.'[61] The reserve can be made up of any Kyoto units valid for that commitment period. The limits adopted would prevent large-scale non-compliance.

At Marrakesh insistence by some Parties that the word 'should' did not make *maintenance* of the CPR at 90 per cent levels mandatory resulted in the CRP-related text being shifted from the eligibility section of Decision 18/CP.7 into a later portion of the text. Because lack of a mandatory level would have provided no safeguard against overselling, and thus undermined the sense of the compromise agreed in Bonn, negotiators agreed to leave the Bonn wording intact but agreed that 'a Party shall not make a transfer which would result in these holdings [of ERUs, CERs, AAUs and/or RMUs] being below the required level of the commitment period reserve.'[62]

Decision 19/CP.7 requires an Annex I Party to calculate the level of its CPR as part of the process of establishing its assigned amount. The transaction procedures set out in this Decision also make it difficult for any Annex I Party to breach the minimum level of the CPR without attracting immediate attention because the transaction log to be maintained by the Secretariat will verify whether all transactions of Kyoto units are in conformity with the required rules.[63] If any transaction is found not to be in order, because for example it breaches the CPR limits, the log will notify the national registry concerned which is legally obliged to stop the transaction. The acquiring registry will also be notified. Any units already transferred in breach of CPR limits will be deemed invalid for compliance purposes

until the level of the CPR is re-established, with Parties being given 30 days to return to the required level. All discrepancies must be forwarded to the Secretariat as part of the review process for the Party or Parties concerned under Article 8. Thus any Party that has dropped its CPR below required levels will have to address questions relating to this in the context of the review of supplementary information under Articles 7.1 and 7.4 which is conducted annually by ERTs.[64] Any Party that allows its CPR to fall below required limits without taking prompt corrective measures risks finding itself before the Enforcement Branch and in the meantime not being able to transfer Kyoto units (other than those issued and transferred under Track 2 JI explained below).

Restraints and linkages

Because participation in Article 17 is voluntary, an Annex I Party is free to impose restrictions on who it will trade with under Article 17 and with respect to what. For example, a Party may refuse to accept certain ERUs and CERs towards its commitments and is free to decide the amount of CERs its legal entities can acquire for use towards compliance with domestic obligations it may establish.[65] No trade law implications would appear to flow from these types of restraints because transfers of Kyoto units represent exchanges of sovereign commitments which are not covered by international trade law disciplines as these are concerned with trade restraints relating to traditional types of goods and services (Werksman, 1999a, 1999b) and carbon permits cannot be considered as goods and services.

Parties that can participate in Article 17 emissions trading may do so without establishing a national emissions trading scheme. They may grant authorization to governmental bodies or authorize legal entities to participate even in the absence of a national trading scheme. Many Parties will, however, establish national trading schemes as one kind of domestic policy measure. Where such national trading schemes exist, the relationship between Kyoto units and the permit or allowance of the domestic scheme will need to be addressed.[66]

I.6 Clean development mechanism

Overview

Subject to meeting the participation requirements outlined above, the CDM modalities developed pursuant to Article 12 of the Protocol at Marrakesh allow non-Annex I and Annex I Parties and their authorized entities to jointly undertake emission reduction and afforestation/reforestation projects, in non-Annex I Parties that contribute to sustainable development and result in certified emissions reductions (CERs).[67] Article 12 of the Protocol therefore

creates an innovative international 'baseline-and-credit' trading scheme with unprecedented levels of coverage in terms of activities and types of partnerships. By creating assets with market value, CERs, the CDM is intended to help channel private sector investment towards climate-friendly projects that might not otherwise have taken place.

Lack of non-Annex I Parties' quantitative mitigation commitments in the CDM context creates incentives for those involved in CDM projects to inflate the amount of CERs claimed, through, for example, manipulation of counterfactual 'baseline' scenarios. Processes leading to CER issuance thus require multilateral oversight. This oversight is provided by the Executive Board of the CDM (EB) which itself draws on independent organizations to assess conformity of CDM project activities with internationally agreed modalities. An additional innovative aspect of the CDM is that a share of the proceeds from certified project activities (set at 2 per cent of the CERs), is automatically deposited in the CDM Registry, maintained by the UNFCCC Secretariat, to fund adaptation in developing countries vulnerable to climate change and, in due course, to cover CDM-associated administrative expenses.

Finally, apart from generating CERs, one strategic rationale for the CDM's inclusion in the Protocol was to provide a quantified means for non-Annex I Parties to contribute to mitigation commitments and to get a better understanding of trading mechanisms, but without such Parties having to take on legally binding mitigation targets. Participation by developing countries in the CDM is thus part of their broader efforts to contribute to climate mitigation in a manner which provides for 'learning by doing' while respecting their sustainable development priorities.

CDM project cycle

Article 12 of the Protocol lacked operational details specifying various actors' roles in CDM project activities. Many project cycles with different implications for actors were possible and there were many competing visions and preferences. These included the 'classic' model where an Annex I Party or its legal entities invests in projects in partnership with a developing country Party (bilateral approach), a unilateral approach where a non-Annex I Party undertakes CDM activities without an Annex I Party counterpart (unilateral CDM) and where an international financial institution or other intermediary puts together a portfolio of CDM activities on behalf of others (multilateral or portfolio approach). Like Article 12 itself, the project cycle set out in the Marrakesh CDM modalities can be tailored to fit all these approaches provided that the project concerned follows the five stages of the CDM project cycle and conforms to all the substantive requirements therein. Only projects that do so will result in the issuance of CERs by the EB into the CDM Registry.

Before any particular project can commence its journey through the project cycle, the following preliminary steps are necessary:

- designation of a national authority, called the Designated National Authority (DNAs) to provide written approval of the voluntary participation of each Party involved in the proposed project and to confirm the project's sustainable development credentials;
- designation of one or more Applicant Entities (AE) to carry out key functions in the project cycle by EB on a provisional basis. Once confirmed by COP/MOP these are known as designated operational entities (DOEs). DOEs must be hired on a contractual basis by project participants to perform specific functions;
- written clarification by Project Participants (PP) of their respective roles, including, crucially, how CERs arising from the project are to be distributed and the communication modalities necessary for PPs to liaise with the EB/CMD and the Secretariat. PPs can be Parties or private and/or public entities authorized by a Party to participate in the project under the responsibility of the Party; and[68]
- establishment of a CDM Registry by the EB to ensure the accurate accounting of the issuance, holding, transfer and acquisition of CERs by Parties not included in Annex I.[69]

The project cycle is set out in Figure I.1 which indicates the lead institutional actor with responsibility for the steps needed to progress from one stage to the next stage of the CDM project cycle. This project cycle applies to all CDM activities except for CDM small-scale project activities for which a more streamlined cycle has been agreed (see below).[70] The five steps of the CDM project cycle are:

Step 1: Design

A PP should design and submit information about a proposed project using a specific format. Appendix B of Decision 17/CP.7 outlines the key categories of information that 'shall' be included by PPs in the format of a document called the Project Design Document (PDD). This element of the PDD has been further refined by the Executive Board on the basis of Appendix B of the CDM modalities.[71] Submission of the PDD is necessary to commence the process for validation.[72]

Step 2: Validation and registration

Validation is the process of independent evaluation of a project activity by a DOE on the basis of the PDD to assess whether the proposed activity conforms to the CDM modalities.[73] Registration is the formal acceptance by the EB of a validated project as a CDM project activity. Registration is the prerequisite for the verification, certification and issuance of CERs related to that project activity. Validation ensures that a proposed project has the approval of the host Party. Registration ensures that all CDM projects fall under the purview of the EB/CDM and are thus subject to international scrutiny.

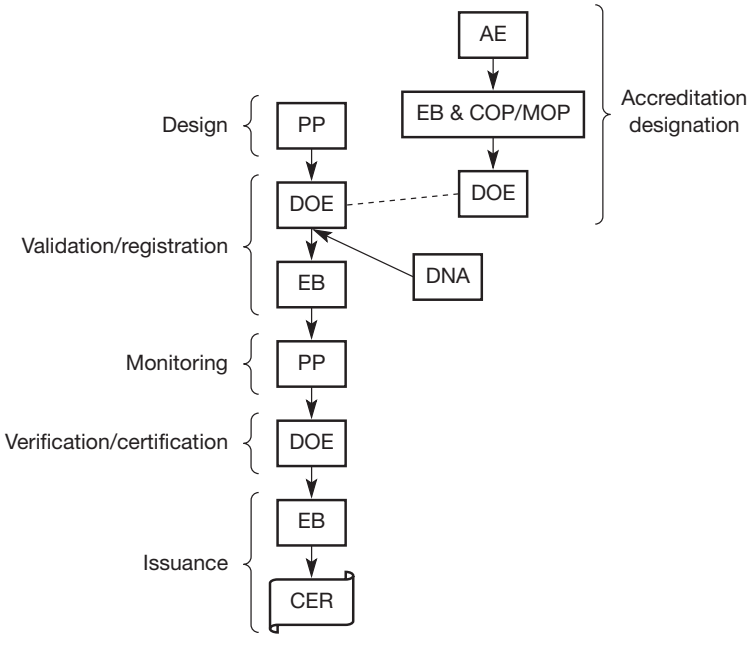

Figure I.1 *CDM project activity cycle*

Source: UNFCCC Secretariat CDM website

A 'pre-validation' stage is also now envisaged where a project is based on a new baseline and/or monitoring methodology. In such pioneering cases, the new baseline methodology shall be submitted by the DEO to the Executive Board for review, prior to a validation and submission for registration of this project activity, with the draft PDD, including a description of the project and identification of PPs.[74] This procedure is likely to be invoked more frequently in the early stages of the CDM. Where methodologies previously approved by the EB are being used, these methodologies must have been made publicly available along with any relevant guidance by the Board.

Step 3: Monitoring

Monitoring refers to the identification, collection and archiving of information necessary to design and implement a monitoring plan as required by CDM modalities. Implementation of the monitoring plan by the PP is a condition for the verification, certification and issuance of CERs.[75]

Step 4: Verification and certification

Verification refers to the periodic independent review and *ex post* determination by a designated operational entity (DOE) of the monitored reductions in

anthropogenic GHG emissions by sources that have occurred as a result of a registered CDM project activity during the verification period.[76] Certification is the written assurance by the DOE that, during a specified time period, a project activity achieved the reductions in anthropogenic emissions as verified.

Step 5: Issuance of CERs

Certification results in a certification report by the DOE which forms the basis of a request by the DOE to the EB for the issuance of CERs.[77] Issuance refers to the instruction by the EB to the CDM Registry Administrator to issue (i.e. create) a specified number of CERs into the pending account of the EB. The responsibility to forward CERs to the registry accounts of the PPs rests with the CDM Registry which must also forward the CERs to cover the share of the proceeds for administrative expenses and adaptation to the appropriate accounts. Thus the EB has no role in the final allocation of CERs to PPs as this is a purely technical act undertaken by the CDM Registry Administrator.

CDM institutions and procedures

Article 12.4 provides that the 'CDM shall be subject to the authority and guidance of the COP/MOP and be supervised by an executive board of the CDM.' This section outlines the roles and responsibilities of various institutions and actors in the overall oversight of the CDM focusing on how the institutions, rules and procedures of the CDM have given effect to Article 12.7 which requires the COP/MOP 'to elaborate modalities and procedures with the objective of ensuring transparency, efficiency and accountability through independent auditing and verification of project activities.' Accordingly, apart from the actors involved in the project cycle set out above, it describes how stakeholders and UNFCCC accredited observers are involved in the CDM.

Prompt start of CDM

Until the entry into force of the Kyoto Protocol, the COP will play a significant preparatory role in Protocol issues. The 'prompt start' of the CDM envisaged in Article 12.10 has necessitated that in relation to the CDM, the COP plays a decision-making, rather than a preparatory, role. Decision 17/CP.7 at paragraphs 2 and 4 accordingly provides that the COP 'shall assume the responsibilities of the COP/MOP' as set out in the CDM modalities and that the EB and any DOEs 'shall operate in the same manner' as specified in the CDM modalities, i.e. as if the Protocol had entered into force. All the decisions taken by the COP, the EB and DOEs will be confirmed and given full retrospective effect by the COP/MOP upon the Protocol's entry into force, including issuance of CERs. For clarity the remainder of this section refers to the role of the COP/MOP but readers should bear in mind that

presently the COP is legally already acting as the COP/MOP in matters relating to the CDM.

COP/MOP

The COP/MOP has ultimate authority over the CDM as a whole. Other than fundamental procedural matters of political relevance, such as amendment or elaboration of the rules of procedure of the EB, over which the COP/MOP retains decision-making powers, the CDM modalities confine the role of the COP/MOP essentially to examining broader strategic issues relating to the CDM, such as the geographical spread of projects and of DOEs and arranging funding of CDM project activities for those in need of assistance (discussed in the section on funding issues below). Because only the COP/MOP has the necessary legal authority, it also takes formal decisions involving external bodies, such as the designation of DOE.

So far as the relationship between the COP/MOP and the EB is concerned, the COP/MOP shall give 'guidance' to the EB on recommendations made to the COP/MOP by the EB as well as on the basis of annual reports submitted from the EB.[78] This formulation means that the COP/MOP is not intended to be involved in the day-to-day administration of the CDM or to re-open matters which the CDM modalities define as functions to be exercised by the EB. This division of labour was not readily accepted by a number of developing countries, particularly OPEC countries, as they wanted the EB either to formulate recommendations which the COP/MOP should decide and/or allow matters decided by the EB to be appealed to the COP/MOP. These views did not prevail because the lack of majority-voting decision-making rules for the COP/MOP would have meant PPs could not be certain any agreement would ever be reached by the COP/MOP, or even if it did, would have resulted in lengthy delays.

Executive board

Apart from the mention in Article 12.4 stating that subject to guidance from the COP/MOP, the Executive Board should supervise the CDM, Article 12 mentions only one other function for the EB: the provision of guidance on the involvement of private and/or public entities. Decision 17/CP.7 elaborates the functions, composition and rules of procedure for the EB. The creation of a limited membership body with substantive decision-making functions *and* majority voting was a breakthrough in the Bonn Agreement as until then Parties had been unable to agree composition and voting issues in relation to other bodies.

Because the EB is the first of the Marrakesh Accord bodies to commence operation, its rules of procedure and working practices are under greater scrutiny and will, in all probability, develop further with more experience. The

iterative nature of the additional rules adopted by the Board is reflected in guidance provided by COP-8 which adopted the Board's rules of procedure but encouraged the Board 'to keep its rules of procedure under review, and if necessary, make recommendations … of any amendments or additions aimed at safeguarding its efficient, cost-effective and transparent functioning.'[79]

Functions

The Board's main functions are to formally accept validated projects as CDM projects, issue CERs and accredit operational entities provisionally, pending their formal designation by the COP/MOP. These functions, however, are carried out on the basis of rules and guidelines approved by the COP/MOP. The Marrakesh Accords include a number of procedural rules relating to the operation of the Board which were supplemented through a full set of rules of procedure elaborated by the Board and adopted (with some amendments) by COP-8.[80]

The operational functions of the EB involves close and direct liaison not only with Parties and intergovernmental organizations (IGOs) but also with businesses, project developers, non-governmental organizations (NGOs) and other market intermediaries involved in implementing CDM projects. To be effective, the EB has therefore had to adopt a more 'business-like' approach than that commonly seen in other IGOs. The environmental integrity of the CDM, and potentially of the Protocol, could come to depend on the quality of decisions made by the Board. Finally, because its work involves financial investments worth millions of dollars, it must be seen to be acting in an impartial manner. For this reason special requirements have been built in to safeguard commercially confidential information that members of the EB come across during their duties as well as after their term has expired.[81]

Membership

The Board is composed of ten members from Parties to the Kyoto Protocol, including one from each regional group plus one from the small island developing states (mirroring the COP Bureau formula), along with two representatives of Annex I Parties and two of non-Annex I Parties. In addition, the Marrakesh Accords specify that the formula will be applied taking into account the current practice in the COP Bureau, an implicit reference to the representation of oil exporting developing countries through one of the groups. Given that three of the five regional groups are almost exclusively composed of developing countries, this formula ensures a greater representative of developing countries in the EB. In an innovative move aimed at accommodating the high demand for representation on the EB, each full member is accompanied by an alternate from the same group. Alternates enjoy most of the rights of members, but not the right to vote. The addition of alternates has proved to be an especially useful resource to

draw upon because the Board has established a number of specialist panels and liaison points and the intensity of meetings (six per year) means not all members have been able to attend all meetings. References to 'members' below therefore also apply to 'alternates', unless otherwise specified.

Members are nominated by their groups and elected by the COP/MOP. As with other elected posts, Parties will be required to give active consideration to the nomination of women for the EB to improve the gender balance of FCCC and KP elected institutions.[82] The EB elects its own Chair and Vice-Chair at its first meeting each year, with one being from an Annex I Party and one from a non-Annex I Party and the positions rotating annually between the two groups.[83] The Chair's functions inscribed in the EB's rules of procedure are very similar to those set out for the COP President in the COP's Rules of Procedure, described above. The Vice-Chair's main function is to replace the Chair, should s/he be absent.

Members of the EB are elected for a period of two years and are eligible to serve for a maximum of two terms.[84] They must 'possess appropriate technical and/or policy expertise' (although the nature of such expertise is not specified). Importantly they must act in their personal capacities, a departure from other bodies under the Convention where members of bodies act as government representatives. To ensure financial integrity and independence, EB members must not have any 'pecuniary or financial interest' in any CDM project or designated operational entity. Additionally, EB members are forbidden from disclosing any confidential or proprietary information relating to their work, including after their term of office has expired. All EB members must take a written oath of service confirming their adherence to the above-mentioned stipulations before assuming their duties.[85] In addition, the Board may suspend any member, and recommend to the COP/MOP that his/her service be terminated, if that member is found to be in breach of the above provisions or fails to attend two consecutive EB meetings without proper justification.[86] However, the member concerned is given the right to a hearing and the matter must be put to a vote within the EB.

Board meetings

The EB must meet at least three times a year, where possible in conjunction with sessions of the regime bodies. It has actually done so 12 times since establishment – six per year (see below). The cost of participation by developing country members and their alternates as well as other Parties eligible under the FCCC are to be covered by the budget of the EB.[87] Details of these costs are provided in the EB second report to COP-9. Desire to reduce costs has lead to innovate ways for the Board to meet 'virtually' and use the Internet to facilitate decision-making (see below on voting).

The Chair, assisted by the secretariat, drafts the provisional agenda for each meeting, which is agreed by the EB at its previous meeting. Members may, however, propose additional items up to four weeks before the start of the meeting, with the provisional agenda then circulated to members by the secretariat at least three weeks before the meeting's opening. All documents for the EB are first sent to members two weeks before each meeting, and then posted on the secretariat website, subject to confidentiality provisions. Before a meeting of the EB can start, a quorum must be present, consisting of at least two-thirds of the members (not alternates), including a majority of Annex I and non-Annex I Party members.[88] The working language of the Board is English but all decisions of the EB must be made publicly available in all six UN languages.[89]

The EB began its work as soon as the modalities and procedures for the CDM were decided upon through the Marrakesh Accords, with an organizational meeting held immediately after COP-7. Since then it has met a total of 12 times. Its work programme and decisions are set out in its two annual reports submitted by EB to COP-8 and COP-9.[90] On the basis of these reports, COP-8 approved the rules of procedure of the EB and the simplified modalities and procedures for small-scale CDM projects (SCC) which are to be found at Annex I and Annex II of Decision 21/CP.8. This Decision also provided further guidance on the EB's work with additional guidance being provided by COP-9.[91]

Observers and stakeholders

According to both the Marrakesh Accords and the CDM rules of procedure, meetings of the EB are 'open to attendance, as observers, by all Parties and … UNFCCC accredited observers and stakeholders, except where otherwise decided.' In this regard, the CDM rules of procedure specify that Parties to the Convention that are not Parties to the Protocol may exercise the same rights as all other observers.[92]

To enhance the efficiency of the EB's work, the 'open to attendance by observers' rule has been interpreted in a novel, highly restrictive manner that runs contrary to the usual meaning given to the term 'attendance' which refers to physical presence at a meeting. In the CDM case, Parties and IGOs, along with representatives nominated by each NGO constituency up to a maximum of 50 persons, have not been permitted to enter into the room where the EB is meeting but are allowed to observe the proceedings of the Board by sitting in a nearby room where the meeting is broadcast live. Observers are permitted to make presentations to the Board, on the invitation of its Chair. Meetings are, in addition, broadcast live over the Internet without any viewing restrictions and, where EB meetings have coincided with subsidiary body sessions, the EB Chair has briefed observers after the meetings.

Voting

Decisions of the EB are to be taken by consensus where possible but, if all efforts at reaching consensus have been exhausted, decisions may be taken by a three-fourths majority[93] of members present and voting, that is members present at the meeting and casting an affirmative or negative vote.[94] The interaction of this rule with the quorum requirements described above mean that in practice decisions can only be made by the Board if they have support from the majority of Annex I Parties and also from Parties not included in Annex I. Each member has one vote and alternates may not vote, unless they are acting for the member in his/her absence.[95] Interestingly, the CDM rules of procedure go further in defining an operational meaning of consensus; that is, the Chair ascertains whether consensus has been reached, but is required to declare that there is no consensus 'if there is a stated objection to the proposed decision under consideration'.[96] This definition implies that one member can force the issue to a vote.

The CDM rules of procedure include innovative procedures for electronic remote voting if the Chair judges that a decision cannot wait until the next meeting.[97] A decision proposed by the Chair with an invitation to adopt it by consensus is transmitted to all members (and alternates for information), via the Board's electronic listserv maintained by the secretariat. A quorum of the board must confirm receipt of the message, after which point members have two weeks to formulate comments. Unless any objections are raised, the decision is deemed adopted after that time. However, if an objection is made, the proposed decision is not adopted and is included on the provisional agenda for the next meeting. The electronic voting procedures enable the EB to take decisions on a virtual basis, speeding up its work while keeping the operational costs of the Board low. These requirements also ensure that members do not prejudice the adoption of decisions by the Board by simply failing to turn up.

Panels and liaison with SBSTA

The EB is mandated to establish any 'committees, panels or working groups' that it deems necessary, and may draw on outside expertise, including from the UNFCCC roster of experts, taking into account the need for regional balance among the providers of such expertise.[98] A public call for experts is usually issued via the Internet to obtain a slate of candidates for the panels with 'demonstrated and recognized technical expertise',[99] and members are then appointed by the EB. The Panels are served by a Chair and Vice-Chair (one each from an Annex I and non-Annex I Party) designated from among the EB members. Where the work involved is particularly technical or time-consuming, Panel members are paid fees according to UN procedures.[100] The Board moved quickly to agree General Guidelines for Panels in March 2002.[101] The following panels have since been established:

- CDM Accreditation Panel (CDM-AP), June 2002, which is supported by CDM Assessment Teams (CDM-AT);
- CDM Methodologies for Baselines and Monitoring Plans (Meth Panel), June 2002;
- CDM Small Scale Project Activities (SCC Panel), April 2002.

The work of the EB is closely linked to that of the Subsidiary Body for Scientific and Technological Advice (SBSTA) in several areas including, for example, the SBSTA's work on provisions for LULUCF projects. Interaction between the two bodies was called for in the CDM modalities, and has been ensured by the nomination of certain Board members to follow the work of the SBSTA in these areas, reporting to the EB on developments.[102]

Designated national authorities

The two main functions of a DNA are to:

- provide written approval of the voluntary participation of *each Party* involved in the project; and
- obtain confirmation by the *host Party* DNA that the project activity assists it in achieving sustainable development.[103]

These requirements were drafted to take into account that many Annex I Party countries found the idea of approving individual projects unnecessary and laborious. Developing country Parties on the other hand insisted on formal approval of each project to ensure their officials would be able to better track and control CDM activities to conform to their national sustainable development priorities and strategies. The absence of such a requirement would have meant private and/or public entities in the host country would have determined what was or was not sustainable development for the country as a whole. Letters of approval for each project activity by the host Party must be provided before registration of a CDM project activity by the Board.

Designated operational entities

The CDM project cycle makes DOEs primarily responsible for checking that CDM projects are in conformity with the CDM modalities by specifying that DOEs shall:

- validate proposed CDM project activities and put them forward for registration by the EB; and
- verify and certify reductions in emissions.[104]

Prior to anything being submitted to the EB, therefore, DOEs must be hired on a contractual basis by PPs to undertake one or other of these functions in relation to a particular project (because doing both might create conflicts of interests for a particular project, although in exceptional circumstances and upon request to the EB, a DOE can perform all these functions for a project).[105]

Although the CDM modalities contain provisions allowing the Board to review DEO actions relating to the execution of these functions, the CDM modalities envisage that in the vast majority of cases validation, verification and certification decisions taken by DOEs will be final with the Board only getting involved in examining 'problem' CDM projects (see Box I.1 below on stakeholder involvement in CDM projects which explains the information and reviews relevant for such CDM projects).

Because the quality, consistency and transparency of the work done by DOEs is critical to the CDM, the modalities set out certain standards that must be met by any organization that wants to become a DOE.[106] These standards are referred to as *accreditation standards* and are contained in Appendix A of the CDM modalities. Additional procedures specifying how applicant entities (AEs) should go about applying for DOE status have been agreed by the Board.[107] Designation of an AE can be made by the EB on a provisional basis with COP/MOP reserving the right to confirm this status. Only once the COP/MOP has done so is the entity formally called a DOE.

To maintain standards, the CDM modalities also specify procedures to suspend or withdraw the designation of a DOE if a review pursuant to paragraph 20 of the CDM modalities (which takes place once every three years or is triggered if a spot-check reveals relevant information) finds that the DOE no longer meets the accreditation standards. In such a case, the EB can make a status decision with immediate effect about the status of the DOE which remains in effect until a final decision is made by the COP/MOP. Projects that have been validated, verified or certified by a DOE that has subsequently been suspended are not affected unless 'significant deficiencies' in the DOE's work relating to these were found. In such cases, the EB can decide to appoint a different DOE to review those projects. If this review finds that excess CERs have already been issued, the original DOE shall acquire and transfer the equivalent amount of CERs to the CDM Registry within 30 days of the end of the review. These requirements, in particular making DOEs liable for restoring CERs resulting from their 'bad work', are intended to keep DOEs on their toes.

Additional responsibilities and functions for DOEs are spelt out in the CDM modalities. These specify that a DOE shall:

- be responsible for ensuring that the DOE complies with applicable host-country laws when carrying out its functions;

- demonstrate that it has no real or potential conflict of interest in the CDM project;
- maintain a publicly available list of all CDM projects in which it is involved;
- submit annual activity reports to the EB; and
- make non-confidential information from CDM projects publicly available as required by the Board.

To assess whether applicant entities (AEs) meet the accreditation standards to be recognized as DOEs, the Board has set up a special panel, CDM-AP, which will go through each application, including conducting on-site visits by CDM Assessment Teams, to see if the requisite criteria are met. The Board has confirmed that once the CDM-AT has been undertaken for an AE, the AE can propose a new methodology for baselines which is the first step in getting CDM projects ready for validation (see below).

Box I.1 Information and review provisions and stakeholders and observers in CDM project cycle

Proposing projects will require resources and time, and, while the CDM is in its start-up phase, a certain amount of dedication from the pioneers. Negotiators of CDM modalities had to balance the need for a project cycle that generated legal certainty and reduced transaction costs with the need to ensure that decisions taken by the Board and the DOEs are environmentally credible, of a consistently high quality and are made in a transparent and legitimate manner. The CDM modalities balance these needs in a number of ways. First, the modalities provide for *representation* of UNFCCC accredited observers, stakeholders (discussed under cross-cutting issues) and Parties not on the Board at meetings of the EB (discussed above), and, of course, subject to UNFCCC accreditation procedures, at sessions of the COP.

Second, the CDM modalities mandate that certain kinds of *information* must be made publicly available to allow third parties to subject aspects of the EB to greater scrutiny than might be provided if such information was provided only to fellow time-pressed government delegates who may lack expertise or first-hand knowledge about particular problems. Prior to the project cycle, information provided by an applicant entity to gain DEO status must include publicly available information about its internal procedures for carrying out DEO functions, including procedures for allocation of responsibility and for handling complaints.[108] These Accreditation Procedures adopted by the Board make clear how others actors can help the Board determine whether an AE is qualified to be designated as a DEO. As part of the validation process, the PDD must show that comments by 'local stakeholders' have been invited and were duly taken into account in designing the project;[109] the PDD must contain information provided by stakeholders as well as how it was taken into account.[110]

The PDD and other information provided by a PP related to validation of a particular project must also be made publicly available by a DOE except for those sections which are covered by legitimate confidentialityconcerns (these cannot include matters relating to additionality and environmental impacts).[111] The DOE must allow 30 days to receive comments from Parties, stakeholders and UNFCCC accredited observers, make such comments publicly available and report how it has taken them into account if it decides to go ahead with requesting registration of the project. After a project has been registered another significant provision of information requirement is at the point of verification and certification when the DOE must make the monitoring report and the verification report, which together provide the basis for calculating the amount of CERs that the DEO will request the EB issue, publicly available, as well as the final certification report itself.[112]

The third element is the provision of two sets of *formal reviews* by the EB. NGOs and stakeholders do not have direct standing to trigger these two reviews but can, of course, provide information to and lobby Parties involved in the project and Board Members. The first review relates to validation and registration of CDM projects and is set out in paragraph 41 of the CDM modalities. This provides that registration of a CDM project validated by a DEO becomes final after eight weeks if no request for review has been made by a Party involved in the project or at least three members of the EB. The scope of the review must be related to the validation requirements and the Board must finalize its decision about the review no later than the second meeting following the request for review. The Board has recently adopted procedures which spell out how the review pursuant to paragraph 41 may be undertaken and these are being applied provisionally by the Board pending their adoption by the COP (COP/MOP).[113] The second review relates to issuance of CERs which will be considered final 15 days after the DOE has submitted a certification report unless a review has been triggered by a Party involved in the project or at least three Board members in accordance with paragraph 65 of the CDM modalities. The scope of this review shall be limited to issues of fraud, malfeasance or incompetence of the DEO. The request for a review must be considered by the EB at its next meeting to determine if it has merits. If so, the review must be completed within 30 days following the decision to perform the review. If the EB decides that excess CERs have been issued, it shall request the CDM Registry to transfer an equivalent sum of Kyoto units to its cancellation account and these may not be further transferred or used for compliance purposes.

Validation and registration requirements

This section describes project level requirements that must be met if a project is to be validated by a DOE and then registered by the Board. With the exception of small-scale projects and projects relating to afforestation and reforestation (discussed below), project-level validation and registration requirements are the same for *all* types of CDM projects relating to emission sources.

Although some Parties wanted to exclude certain project activities, such as nuclear projects, based on their views about their inherently unsustainable development credentials, these views did not prevail and, in fact, no project types are excluded from the CDM as such. In the case of nuclear projects the Preamble to Decision 17/CP.7 recognizes that 'Annex I Parties are to refrain from *using* CERs generated from nuclear facilities to meet their commitments under Article 3.1.'[114] Parties agreed, however, that it is the host Party's prerogative to confirm whether a CDM project assists sustainable development. Annex I Parties also have choice over whether to authorize particular legal entities to engage in nuclear CDM projects or to accept certain kinds of projects or CERs.[115]

Standard CDM projects

It is important to remember that a Party and its legal entities can only participate in the CDM if the *government-level participation requirements*, set out above, are met. In the case of the CDM, it is the responsibility of the DOE to check that PPs meet the participation requirements relating to the designation of national authorities and that all PPs meet the 'Party to the Protocol' requirements. The latter requirement has been clarified by the Executive Board and to avoid duplication is discussed under participation in the section on cross-cutting issues.

In addition to these participation requirements, the DOE has responsibility to review the PDD and any supporting information to confirm that a project meets the following requirements:

- Comments by local stakeholders have been invited, a summary of the comments received has been provided and a report to the DOE on how due account was taken of any comments has been received from the PP (see Box I.1).
- PPs have submitted to the DOE documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, and, if those impacts are considered significant by the PP or the host Party, have undertaken an environmental impact assessment in accordance with procedures required by the host Party.
- The project activity is expected to result in a reduction of anthropogenic emissions of GHGs from sources 'that are additional to any that would occur in the absence of the proposed activity' subject to paragraphs 43–52 of the CDM Modalities (see Box I.2).
- If the baseline and monitoring methodologies used for the project have previously been approved by the Board, they have been made publicly available along with any guidance provided by the Board. If new baseline and monitoring methodologies are proposed, the DOE has submitted these prior to the request for validation for review by the Board and these have

been approved by the Board without subsequent COP/MOP revision (see Box I.2).
- Provisions for monitoring, verification and reporting are in accordance with Decision 17/CP.7, its annex and relevant COP/MOP decisions.
- The project activity conforms to all other requirements for CDM project activities contained in Decision 17/CP.7, its annex and relevant COP/MOP decisions.[116]

Box I.2 CDM additionality, baselines and crediting[117]

Additionality, baselines and choice of methodologies are highly technical issues but issues upon which the environmental integrity of the CDM depends. Article 12.5 provides that CERs should be generated from a CDM project if the emissions reductions can be certified on the basis of:

- real, measurable and long-term benefits related to the mitigation of climate change; and
- reductions are additional to any that would occur in the absence of the certified project activity.

Various 'additionality tests' were proposed during the Marrakesh negotiations to prevent CERs going to projects that would happen even without the CDM. Paragraph 43 provides that a project is considered to be additional if anthropogenic emissions by sources are reduced below those that would have occurred in the absence of the registered CDM project activity. Proposals that additionality requirements should include a financial test to ensure that funding for CDM projects is additional to ODA, including Global Environment Facility (GEC) contributions, proved controversial although a reference with this intent is set out in the Preamble to Decision 17/CP.7.[118]

Paragraph 44 provides guidance on the construction of baselines (which refer to estimates of what future emissions would be within the project boundary *without* the CDM project intervention) as these are crucial to deciding how many CERs will be generated by a project. What happens to emissions outside the project boundary is crucial for environmental integrity as CERs can be generated but with increased emissions outside the project boundary – an issue known as 'leakage'. The CDM modalities provide that baselines shall be established in a 'bottom-up' manner by PPs working through DOEs to propose new methodologies for the Board's approval using the 'pre-validation' procedure. Baselines are meant to be transparent, conservative and importantly *project-specific*. They must take national circumstance into account, may include scenarios where projected emissions rise above current levels and must be defined so that CERs cannot be earned for decreases attributable to *force majeure*.

Project-specific baselines increase transaction costs for PPs. Multi-project baselines or where several projects could use the same baseline would reduce

these. The CDM modalities try to create some degree of standardization of approach to baseline setting by requiring PPs to select from three approaches set out in paragraph 48, and also by defining how leakage issues should be addressed by PPs. The issue of the crediting period is linked to baselines because the length of time credits can be claimed can 'freeze' the degree of technological and other developments that can be taken into account in constructing a 'reasonable' future. The CDM modalities state that the crediting period must be either a maximum of ten years with no renewal option or a maximum of seven years but which may be renewed twice provided that for each renewable, the DEO informs the EB that the original baseline is still valid.

More detailed provisions on baseline methodologies proved difficult at Marrakesh due to lack of time, conceptual differences and lack of technical expertise. Additional elements were developed in the form of Appendix C to the CDM Modalities but there was insufficient understanding of their full implications. Thus these elements, entitled 'terms of reference for establishing guidelines on baseline and monitoring methodologies' and also included in the CDM Modalities, are not actually mentioned therein. Appendix C is referenced, however, in the 'prompt start' part of Decision 17/CP.7 concerning the COP request to the EB to prepare recommendations on any 'other relevant matter', including but not limited to Appendix C. In response, the EB has undertaken an extensive body of work on baseline and monitoring methodologies.

It has provided guidance and clarification on this issue in four separate guidance/clarification notes.[119] At its eleventh meeting, the Board elaborated procedures for submission and consideration of proposed new baseline methodologies.[120] To date, some 17 proposals for new baseline and monitoring methodologies have been submitted to the Board by PPs, two of which have been approved, nine not approved and the remaining five are to be reconsidered after suggested amendments are taken into account.[121]

These substantive requirements for the DOE are accompanied by additional procedural rules the DOE itself must comply with if it is to transmit a validation report to the Executive Board that is itself in conformity with Decision 17/CP.7. These procedural requirements state that the DOE shall:

- prior to the submission of the validation report, obtain written approval of the voluntary participation of all Parties involved in the project and in addition confirmation from the host Party that the project achieves sustainable development;
- make the PDD publicly available while safeguarding information deemed confidential;
- receive, within 30 days, comments on the validation requirement from Parties, stakeholders and UNFCCC accredited NGOs and make these publicly available;

- after the deadline for receipt of comments, make a determination as to whether, on the basis on the information provided and taking into account comments received, the DOE will validate the project;
- inform PPs of the DOE's decision and date, including, if the project is rejected for validation, the reasons for its rejection; and
- where it decides to validate a project, to make the validation report, comprising the PDD, approval of host Party and comments received, publicly available upon transmissions to the Board.[122]

Any project that has been rejected for validation may be reconsidered provided, after appropriate revisions, it goes through the validation and registration steps, including the public comment requirements.

In sum, to be validated and registered as a standard CDM project, the Parties involved in the project have to meet their participation requirements, the PP and the project itself must conform with the substantive requirements spelled out in the CDM modalities, including, in this early phase, prior acceptance of baseline and monitoring methodologies, and finally the DOE itself must adhere to certain procedural requirements relating to its preparation of the validation report before this can be transmitted to the EB to trigger a valid request for registration.

Small-scale projects

Because Parties realized that the complexity and transaction costs of the 'standard' CDM project cycle might deter small projects and skew the CDM in favour of large-scale projects, COP-7 agreed that as part of the CDM 'prompt start' simplified modalities and procedures should be adopted for small-scale CDM project activities (SCC projects). Based on the Board's work, COP-8 adopted such modalities and procedures as explained in Box I.3.[123]

Afforestation/reforestation projects[125]

The inclusion of sinks in the CDM was controversial at Marrakesh for many political reasons as discussed in section I.1 above.[126] There were also complex technical issues such as measurement uncertainties and how the temporary nature of sinks projects could be reconciled with the creation of CERs that would have long-term value. The Bonn Agreements brokered a compromise that only afforestation and reforestation projects shall be included in the CDM for the first commitment period with a decision on activities to be included in the second commitment period to be negotiated in the context of these negotiations. CDM sinks activities shall be subject to the forest principles set out in Decision 11/CP.7.[127] For the first commitment period, additions of CERs from sinks projects by an Annex I Party are capped at 1 per cent of its base year emissions (times 5). The implications of this cap for each Annex I Party are set out in the Technical Appendix to this book.

Box I.3 Simplified modalities and procedures for small-scale CDM projects

Decision 17/CP.7 states that the following three small-scale project activities can take advantage of simplified modalities and procedures:

- renewable energy project activities with a maximum output capacity equivalent to up to 15 megawatts (or appropriate equivalent);
- energy efficiency improvement project activities which reduce energy consumption, on the supply and/or demand side, by up to the equivalent of 15 gigawatt/hours per day;
- other project activities that both reduce anthropogenic emissions by sources and directly emit less than 15 kilotonnes of carbon dioxide equivalent annually.

COP-8 adopted small-scale simplified modalities and procedures (SCC M&P) contained in Annex II of Decision 21/CP.8. The EB completed the SCC M&P by agreeing the three appendices envisaged in Annex II of Decision 21/CP.8 as follows: simplified PDD (Appendix A), indicative methodologies (Appendix B) and provisions for avoiding debundling (Appendix C). The completion by the Board of this work in early January 2003 gives the green light for submission of applications for potential SCC projects. The Board further stressed that PPs may propose new SCC project activity categories and amendments/improvements to the SCC M&P which shall be reviewed at least once a year, and that the CDM Meth Panel will continue to work on Appendix B in consultation with experts.[124]

Because Article 12 of the Protocol and the CDM modalities themselves refer only to emissions sources and not to sinks, it was not clear how inclusion of afforestation/reforestation would fit into the CDM project cycle, particularly bearing in mind that inclusion of sinks brings in issues that are either unique or have different policy implications. These include issues regarding non-permanence, additionality, leakage, uncertainties and socio-economic and environmental impacts, including impacts on biodiversity and natural ecosystems. Because supporters of sinks inclusion tried at Marrakesh to resist negotiations of an entirely different and new project cycle for sinks, Decision 17/CP.7 specified that inclusion of CDM project activities covering afforestation and reforestation 'shall be in the form of an annex on modalities and procedures … reflecting, *mutatis mutandis*, the annex to the present decision.'

Modalities for afforestation and reforestation projects under the CDM were adopted by COP-9 in December 2003 and are set out in Decision 19/CP.9. The rules for afforestation and reforestation projects under the CDM are identical to those for emission reduction projects with a few exceptions. A CDM sinks project must be implemented on land that was not forested on 1 January 1990. A project may choose a single crediting period of 30 years or a renewable crediting period of 20 years with up to two renewals for a total of

60 years. The project proponents must consider the socio-economic and environmental impacts of the proposed project in accordance with the procedures required by the host Party. The deference to host Party acceptance was criticized by environmental NGOs who argued that this would benefit genetically modified large-scale plantations of non-native monocultures and that local communities and stakeholders will only have a minimal say in national CDM approval processes (Greenpeace, n.d.).

Projects may specify which of the carbon pools – above-ground biomass, below-ground biomass, litter, dead wood and soil organic carbon – are to be included in the project. Project participants may choose not to account for one or more carbon pools if they can provide transparent and verifiable information that the exclusion will not increase the quantity of reductions claimed. Thus if a pool is a sink, it need not be measured, but if a pool is a net source it must be measured since failure to do so would overstate the reductions achieved by the project.[128] Greenhouse gas emissions from activities on the land prior to afforestation or reforestation are not included in the baseline.[129] But emissions associated with the project must be deducted from the increase in carbon stocks.

Since the carbon stored by the trees and soil can be released again by disease, fire, harvesting or other events, special provisions are included to address the non-permanence of these projects. The project proponents must choose one of the two options to address non-permanence. Both options verify and certify the net increase in the carbon stocks due to the project since its inception at regular intervals.

Under one option temporary CERs (tCERs) equal to the certified net increase in the carbon stocks *since the inception of the project* are issued after each verification. The tCERs expire at the end of the subsequent commitment period, so they can only be used for compliance with the commitments for the period in which they are issued. If the trees are still there when the project is next verified, new tCERs will be issued to replace the ones that have expired. No new tCERs can be issued after the end of the project's crediting period.

Under the other option long-term CERs (lCERs) equal to the certified net increase in the carbon stocks *since the previous verification of the project* are issued after each verification. If there has been an increase in the carbon stocks during the period, additional lCERs are issued. If there has been a partial or complete release of carbon since the previous verification, an appropriate share of the outstanding lCERs must be replaced by AAUs, CERs, ERUs, RMUs or lCERs from the same project. If a verification report is not received when required, the lCERs for that project must be replaced. The lCERs for a project expire and must be replaced at the end of the project's crediting period.

The rules define small-scale afforestation and reforestation project activities under the CDM as those that are expected to result in net removals by

sinks of less than 8 kilotonnes of CO_2 per year and are developed or implemented by low-income communities and individuals as determined by the host Party. If a project is designated a small-scale afforestation or reforestation project activity and then achieves net removals greater than 8 kilotonnes of CO_2 per year, the excess removals will not be eligible for the issuance of tCERs or lCERs. Simplified rules for small-scale afforestation and reforestation projects are to be developed for adoption at COP-10 in December 2004.

Monitoring and verification and certification requirements

Monitoring refers to the identification, collection and archiving of information necessary to design and implement a monitoring plan as required by CDM modalities.[130] A monitoring plan for a proposed projected activity must be based on a previously approved monitoring methodology or, if it is new, one that has been submitted to the Board using the 'pre-validation' procedure set out in paragraphs 37 and 38 of the CDM modalities (described above in relation to methodologies for new baselines). The proposed plan must satisfy the DOE it is appropriate and reflects good monitoring practice.

If approved it becomes known as *the registered monitoring plan*. Any revisions to this shall be justified and submitted for validation to the DOE. Implementation of the registered monitoring plan by the PP is a condition for the verification, certification and issuance of CERs. The PP shall provide a monitoring report to the DOE contracted to perform verification in accordance with the registered plan which will normally set out the frequency, content and timing of such information.

Verification and certification are defined in the section on the CDM project cycle above.[131] A DOE is responsible for performing verification at regular intervals on the basis of the *monitoring report* which, subject to confidentiality provisions, it shall make publicly available. A DEO may conduct on-site visits, review performance records, talk with PPs and stakeholders, examine measurement equipment and use alternative sources of data with a view to establishing that monitoring methodologies have been correctly applied. It may make recommendations for future improvements. On the basis of the foregoing it shall calculate the reductions in emissions that would not have occurred in the absence of the CDM project activity and inform the PP of any concerns it may have regarding the conformity of the actual project with the PDD, giving the PP an opportunity to address and correct these concerns.

The DOE's *verification report* shall be provided to the PP, the Parties involved and the Board and made publicly available. This report will give rise to a *certification report* by the DEO certifying how many CERs the project has achieved during a specific time period which shall be transmitted to PPs and the EB and made publicly available.

Issuance of CERs

The DOE's certification forms the basis of a request by the DOE to the EB for the issuance of CERs.[132] Issuance refers to the instruction by the EB to the CDM Registry Administrator to issue (i.e. create) a specified number of CERs into the pending account of the EB.

Issuance becomes final 15 days after the date of receipt of the request for issuance, unless a Party or at least three members of the EB request a review of the proposed issuance of the project. The scope and procedures for this review are explained in Box I.1 above.

Upon being instructed by the EB to issue CERs, the responsibility to forward CERs to the registry accounts of the PPs rests with the CDM Registry which must also forward, at the same time, the relevant number of CERs to cover the share of the proceeds for administrative expenses (not yet determined) and adaptation (set at 2 per cent) to the appropriate accounts. Thus the EB has no role in the final allocation of CERs to PPs as this is a purely technical act undertaken by the CDM Registry Administrator. A particular merit of these provisions is that the CERs to cover adaptation (and at some future stage for administrative expenses) are collected automatically at the point of issuance leaving no possibility of their non-payment by PPs.

The Executive Board has responsibility for the development, establishment and functioning of the CDM Registry, as defined in Appendix D of the CDM modalities.[133] This Registry creates accounts for non-Annex I Parties and thus allows the accurate tracking of issuance, holding, transfer and acquisition of CERs by non-Annex I Parties. The requirement for the EB to develop and maintain the CDM Registry not only makes possible various approaches to CDM (unilateral, bilateral and multilateral, explained above) but also ensures that non-Annex I Parties are not under an obligation to develop their own national registries. The structure and functioning of the CDM Registry is similar in substance to the national registries to be established by Annex I Parties, including public disclosure requirements.

Where a DOE's accreditation status has been withdrawn or suspended any ERUs, CERs, AAUs and RMUs equal to the excess CERs issued, as determined by the EB, shall be placed in a cancellation account in the CDM Registry and cannot be further transferred or used for the purpose of compliance with Article 3.1 commitments.[134]

Given the work going on in SBSTA to develop Annex I Parties' national registries, the EB has decided it will not establish an interim CDM Registry in 2003.[135] It has agreed instead to issue a public call to Parties and organizations for inputs relating to the development of the CDM Registry and to request the Secretariat to begin development of the CDM Registry with a timeline for continuing work.

Funding issues

ODA/public funds

The issue of whether donors can generate CERs on the back of public funds has given rise to friction between donors and developing countries throughout the negotiations on AIJ and then on the CDM. Developing countries have argued that ODA and public funds should not be used to fund CDM projects because doing so means resources earmarked for the sustainable development of developing countries are used instead to assist Annex II Parties (donors) meet their own climate mitigation commitments, and this has the potential to distort the funding of developing countries' sustainable development as prioritized by them.

This view is widely accepted. Accordingly, Decision 17/CP.7 states that 'public funding for CDM projects from Parties in Annex I is not to result in the diversion of official development assistance and is to be separate from and not counted towards the financial obligations of Parties included in Annex I.'[136] This reference, included in the preamble to Decision 17/CP.7 to reflect its weakened legal status, is not included as a test of additionality to be examined by DOEs. Assessment of whether Annex I Parties are complying with it is a matter for the COP/MOP to review, following its mandate to 'assist in arranging funding of CDM project activities, as necessary.'[137] It should be noted that tracking and separating out funding for sustainable development generally from 'new and additional' resources provided to the Convention's financial mechanism has historically proved problematic for reasons explained elsewhere. Thus broader financial mechanism discussions, in particular whether public expenditures on CDM activities will be defined in non-climate regime institutions such as the OECD Development Assistance Committee (DAC), as climate-related ODA, will have a bearing on monitoring adherence to the 'no diversion' stipulation set out in Decision 17/CP.7.

Assistance in funding and geographic imbalance

Private investment gravitates primarily toward a handful of the larger developing countries. Concerns that the bulk of developing countries would not benefit from the CDM led to inclusion of Article 12.6 in the Protocol. This states that the 'CDM shall assist in arranging funding of certified project activities, as necessary.' The COP/MOP has an explicit function to review the regional and sub-regional distribution of CDM projects with a view to identifying systematic or systemic barriers to their equitable distribution and take appropriate decisions, based, *inter alia*, on a report by the EB.[138]

Concern that, due to lack of capacity and technical expertise, DOEs might only be based in developed countries, which might increase costs and reduce

choice for developing country PPs, led to the inclusion of a review function for the COP/MOP of this issue. In this case the EB does have an explicit mandate to report to the COP/MOP on the geographic and regional distribution of DOEs and has already endorsed corrective actions to make the financial payment of fees by developing country based DOEs less onerous (see below). Discussions are also under way regarding a 'phased' approach to accreditation that would allow more developing country DOEs to come forward as applicant entities.[139] Additionally, COP-9 has requested Parties and other organizations to assist with capacity building to encourage a greater spread of DOEs from developing countries.[140]

Share of proceeds

Given the private sector nature of the CDM, Article 12.8 includes a unique international 'levy' on CDM activities by mandating that a 'share of the proceeds' of certified project activities is to be used for two purposes: to cover the CDM's administrative costs and to fund the adaptation needs of developing country Parties vulnerable to the adverse effects of climate change. The wording of Article 12.8 creates no priority between these two uses. The Marrakesh Accords reached a political agreement that the share of the proceeds for adaptation 'shall be two per cent of the CERs issued for a CDM project activity.'[141] CERs will be collected by the EB at the point of issuance of CERs and, in due course, made available to the Adaptation Fund established under the Protocol.[142] It further agreed that CDM projects hosted by LDCs shall be exempt from the share of the proceeds related to adaptation.

So far as administrative expenses are concerned, Parties agreed that the share of the proceeds to cover these shall be determined by the COP upon recommendation of the EB.[143] The EB has in turn stated that it will not consider making a recommendation until 2004 when there is more information about CER prices.[144] Additionally, the Board has pointed out that requiring PPs to pay CDM administrative costs in the early stages of the prompt start phase in which costs are front-loaded due to the need for intensive development of additional rules and procedures could penalize, rather than support, CDM pioneers.

Pending a recommendation by the EB and a decision by the COP, Parties have been invited to provide funding for the EB by contributing to the Trust Fund for Supplementary Activities recognizing that some basic funding for Secretariat support has come from the core budget. COP-7 called for contributions 'in the order of $6.8 million' to support the prompt start of the CDM,[145] on the understanding that, if requested, these would later be reimbursed. By COP-8, however, only a fraction of this total had been received.[146] This led to the preparation of a revised budget for 2002–2003 amounting to US$4.32 million. Actual contributions to date amount to US$1.74 million.[147]

To lessen resource constraints, organizations applying for accreditation as operational entities must also pay a registration fee of US$15,000 with the

option for applicants from developing countries to pay this in two instalments.[148] This has raised a total of US$240,000 from the 16 applicant entities to date.[149] In addition, the Board has recently agreed to a system of raising a registration fee as a down payment until a share of the proceeds may be determined.[150] The fee will vary depending on the size of the project, ranging from a minimum of US$5000 to a maximum of US$30,000, with these figures to be reviewed and revised in light of experience. The second report of the EB to COP-9 addresses the financial and budgetary issues in more detail. The costs of operating the CDM prior to the entry into force of the Protocol was part of the contentious negotiations on the budget that took place at COP-9 due to the US position to refuse to contribute towards Protocol-related activities. US intransigence on this matter has prompted COP-9 to invite Parties to urgently make contributions for funding the administrative expenses of the CDM.

I.7 Joint Implementation (Article 6)

Overview

Article 6 of the Protocol allows Parties in Annex I to use 'emission reduction units' (ERUs) resulting from GHG abatement or sequestration projects in any other Annex I Party for the purposes of meeting their Article 3.1 commitments.[151] Joint implementation among Parties with binding quantitative commitments under the Protocol has been succinctly described 'as a specific form of emissions trading related to individual projects rather than a trading of assigned amounts from any source.'[152]

Delegates often find the concept of JI confusing because the term 'JI' straddles elements of emissions trading with project-based forms of trading. Accordingly, the 'hybrid' nature of JI, its history and its institutional implications are explained in more detail in Box I.4.

The Bonn Agreement provided limited guidance on how to institutionalize JI. It clarified that Annex I Parties' eligibility to participate in all mechanisms was dependent on meeting reporting and review requirements. It also recommended that the COP/MOP establish 'a supervisory committee to supervise, *inter alia*, the verification of ERUs generated by Article 6 project activities but without specifying its functions and composition.[153] Negotiations on Decision 16/CP.7 interpreted the Bonn guidance so as to create two 'tracks' for JI. Track 1 and Track 2 are available when a host Annex I Party is in conformity with its reporting and review requirements and allow this Party to validate JI projects and issue and transfer ERUs without additional external scrutiny.[154]

Where the host Annex I Party fails to meet its reporting and review eligibility requirements, it can only participate in JI projects under Track 2. This requires international oversight of JI activities provided by the Article 6

Supervisory Committee (A6SC) whose functions, powers and rules of procedure are very similar to those of the EB. The project cycle under Track 2 is also very similar to the CDM project cycle incorporating reliance on 'independent entities' (IEs) rather than on DNAs. IEs are accredited third-party organizations that perform essentially the same functions as DNAs but in the context of a streamlined project cycle that merges the distinct steps of the CDM project cycle. Issues relating, *inter alia*, to participation, eligibility, fungibility, equity and supplementarity are addressed in section I.3 on cross-cutting issues.

Box I.4 Joint implementation: history and characteristics

From Kyoto right through to Marrakesh, negotiators found it hard to address the particular challenge JI created: how to create institutional arrangements that would address simultaneously the environmental policy concerns arising from a cap-and-trade trading scheme with concerns arising from the operation of a baseline-and-credit one. Where the host Party has a binding target it does not have long-term incentives to give away ERUs. Although Article 6 provides that JI projects must generate ERUs additional to any that would otherwise occur, the zero-sum nature of Annex I Article 3 commitments means additionality is not critical for the environmental integrity of JI as a mechanism where all Parties are meeting their reporting and review commitments. By contrast, where reporting and review commitments are not being met, a host Party can easily underestimate its emissions and thus oversell its assigned amount through JI. In these circumstances, its participation in JI requires some form of external scrutiny if environmental integrity is to be secured.

Article 6 of the Protocol did not help negotiators sort out responses to these distinct policy issues because its provisions included additionality and reporting and review commitments as conditions for JI participation. Finally, sound environmental reasons, cross-cutting concerns relating to supplementarity, fungibility, equity and the application of the 'adaptation levy' to JI and ET led many developing countries to insist on 'institutional parallelism' for Article 6 – meaning that JI should replicate as closely as possible the rules, institutional structures and procedures for the CDM.

Substantive progress was only possible at Marrakesh after modalities for the CDM and ET were finalized for three reasons. First without knowing the nature of its parentage, the CDM and ET, the 'hybrid' mechanism could not emerge. Second, mechanism negotiations, with complex linkages to simultaneous negotiations on compliance and Articles 5, 7 and 8, left delegates with little time to focus on JI which was accorded the lowest priority out of the three mechanisms by JUSCANNZ and developing countries. Finally, because EITs, the principal beneficiaries of JI, do not form a cohesive political bloc in negotiations and have capacity constraints, a coherent vision of JI modalities emerged relatively late on in the negotiations.

JI institutions

COP/COP/MOP

The role of the COP/MOP is defined in the annex to Decision 16/CP.7 in one short sentence stating that it 'shall provide guidance regarding the implementation of Article 6 and exercise authority over the Article 6 supervisory committee.'[155] The lack of specificity results from Annex I Parties' overall preference for bilateral approaches to project-based mechanisms. A number of specific tasks and functions for the COP/MOP are set out and/or implied from the section on the A6SC. Additionally the wide scope of this short reference combined with the general functions and power of the COP/MOP under Article 13 mean it could undertake a very wide range of functions on any Protocol matter, including JI.

JI projects starting as of the year 2000 may be eligible as Article 6 projects but these cannot result in ERUs until 2008 as there is no assigned amount before then. Because of this, no prompt start or interim role has been envisaged for the COP prior to the entry into force of the Protocol or of the A6SC.

Article 6 Supervisory Committee

The A6SC was not envisaged in the Kyoto Protocol but was established through the Marrakesh Accords when it became clear some form of independent body was needed to supervise Track 2 JI (see Box I.4).[156] The A6SC will be established at the first session of the COP/MOP. The Marrakesh Accords include provisions governing the institutional and procedural aspects of its operation but a fuller set of procedural rules for the A6SC functioning may be devised for consideration by the COP/MOP, as has happened with the EB/CDM.

When established, the A6SC will function under the authority and guidance of the COP/MOP, to which it will report annually.[157] The Marrakesh Accords include provisions governing the institutional and procedural aspects of its operation but a fuller set of procedural rules for the A6SC functioning may be devised by the A6SC itself for consideration by the COP/MOP.

The main function of the A6SC is to supervise the work of IEs which will be responsible for verification of emission reduction units generated through JI projects hosted by countries that are not fully in compliance with their reporting and review commitments under Track 2.[158] Thus, like the Executive Board, the A6SC's functions include responsibility for the following:

- accreditation of IEs in accordance with standards and procedures contained in Appendix A of the Article 6 Guidelines;
- review of standards and procedures for the accreditation of IEs, giving due consideration to the relevant work of the EB and making recommendations to the COP/MOP on revisions to these standards and procedures;

- review and revision of reporting guidelines and criteria for baselines and monitoring in Appendix B of the Article 6 Guidelines for consideration by the COP/MOP;
- elaboration of a PDD for Article 6 projects for consideration by the COP/MOP, taking into consideration Appendix B of the CDM Modalities and giving consideration to relevant work of the EB as appropriate;
- review of the validation determination made by an IE under paragraph 35 of the Article 6 Guidelines (JI validation review) and review of the verification/ certification determination made by an IE under paragraph 39 of the Guidelines (JI verification/certification review); and
- elaboration of additional rules of procedures for consideration by the COP/MOP.

Given that JI projects take place exclusively among Annex I Parties, the supervisory committee's composition is deliberately skewed to provide for greater representation of Annex I Parties, with EITs granted strong representation. The A6SC is composed of ten members, including three members from the Annex I Party EITs, three from Annex I Parties that are not EITs,[159] three from non-Annex I Parties and one member from the small island developing states.[160] As with the EB, however, each member is accompanied by an alternate from the same region, and both members and alternates are nominated by their constituencies and formally elected by the COP/MOP.[161] As with other elected posts, Parties will be required to give active consideration to the nomination of women for the A6SC to improve the gender balance of FCCC and KP elected institutions.[162] The cost of participation of developing country members and those of other Parties eligible under UNFCCC practices are to be covered by the budget of the A6SC.[163]

The A6SC's procedures parallel those of the EB also in many other respects, including provisions for election of a Chairperson and Vice-Chairperson and the rotation between them, the terms of office for its members, the need for them to serve in their personal capacity, the financial interest and confidentiality provisions to which they are subject and the role of alternates. Again, similar to the EB's procedures, the A6SC's members must have 'recognized competence relating to climate change issues and in relevant technical and policy fields'.

The A6SC is to meet 'at least two times a year, whenever possible in conjunction with the … subsidiary bodies'. As with the EB, two-thirds of members must be present to constitute a quorum, including a majority of Annex I and non-Annex I Parties, and meetings are 'open to attendance, as observers, by all Parties and UNFCCC accredited observers and stakeholders', unless the A6SC decides otherwise. Decisions are to be taken by consensus unless all such efforts have been exhausted, in which case they may, as a last

resort, be taken by a three-fourths majority vote. The full text of all decisions is made publicly available in all six UN languages. As noted above, the A6SC is expected to develop its additional rules of procedure, which are likely to draw heavily on those agreed for the EB.

JI lacks a 'share of the proceeds' provision to fund administrative costs. The issue of who should pay the administrative costs arising from the procedures contained in the Article 6 Guidelines proved too complex to negotiate in detail in the last days of Marrakesh. Accordingly, the Article 6 Guidelines reflect all that could be agreed in terms of principle which is that such costs 'shall be borne by both the Parties included in Annex I and the project participants according to specifications set out in a decision by the COP/MOP at its first session.'[164]

Independent entities

IE functions are not spelled out in a specific section as for the CDM but have to be gleaned instead from the Article 6 Guidelines, from Section E concerning the verification procedure set out in paragraphs 30–45 and from Appendix A which sets out standards and procedures for the accreditation of IEs.

Granting accreditation status to a potential IE rests with the A6SC, in contrast to the CDM (where the COP/MOP designates on the basis of EB recommendations and provisional designation). The standards and procedures set out in Appendix A are almost identical to those used for the CDM, in part, because the actual tasks the IEs will undertake under Track 2 JI are functionally equivalent to those under the CDM.

The provisions for the suspension and withdrawal of accreditation status of an IE who does not meet the accreditation standards set out in paragraphs 42 and 43 are also very similar to the CDM. They give any IE the opportunity for a hearing, provide for the immediate effect of the A6SC's decision and state that the suspension or withdrawal of an IE will not affect verified projects unless 'significant deficiencies' are found, in which case the IE concerned shall acquire an 'equivalent amount of AAUs and ERUs and place them in the holding account of the Party hosting the project within 30 days.'

Participation/eligibility

Participation and eligibility requirements are discussed in detail in section I.3 on cross-cutting issues. For ease of reference, the differences between the eligibility criteria for Track 1 and Track 2 are summarized in Table I.3.

Article 6.4 provides that if a question of implementation of the provisions of Article 6 is identified by the expert review process (Article 8), transfers and acquisition of ERUs may continue to be made after the question has been identified but these units may not be used by a Party to meets its commitments

'until any issue of compliance is resolved'. The Article 6 Guidelines adopted state at paragraph 25 that 'the provisions in Article 6.4 of the Protocol shall pertain, *inter alia*, to the requirements of paragraph 21 above', i.e. the paragraph defining the eligibility conditions for JI. Inclusion of this provision is intended to limit the kinds of questions that can give rise to the restriction of the use of ERUs to questions related to the specified eligibility requirements.

Table I.3 *Difference between Track 1 and Track 2*

	JI Track 1	*JI Track 2*
Participation requirement to be met by the host country	1. Party to the Kyoto Protocol 2. Has submitted a report for determining their initial assigned amounts (AAUs) 3. Has a national system of evaluation of greenhouse gas emissions from sources and storage using sinks 4. Has a computerised national registry compliant with the international requirements 5. Annually submits a current inventory protocol fully compliant with the Kyoto Protocol requirements	1. Party to the Kyoto Protocol 2. Has submitted a report for determining their initial assigned amounts (AAUs) 3. Has a computerised national registry compliant with the international requirements
Verification	Host country performs the verification of greenhouse gas emissions	An independent entity performs the verification
Transfer of ERUs	Host country transfers the agreed amount of ERUs	Host country can transfer ERUs only after verification by an independent entity

Source: Wollansky and Freidrich (2003).

Paragraph 41 of the Article 6 Guidelines states that 'any provisions relating to the commitment period, reserve or other limitation to transfer under Article 17 shall not apply to transfers by a Party of ERUs issued into its national registry that were verified in accordance with the verification procedure under the Article 6 supervisory committee.'

Track 1 procedure

Although paragraph 23 of the Article 6 Guidelines does not use the term 'Track 1' its contents create a streamlined procedure that has become popularly known by this name. The procedure stipulates that where the *host* Party is considered to

meet the eligibility requirements in paragraph 21 of the Article 6 Guidelines it may verify reductions in anthropogenic emissions and removals by sinks from an Article 6 project 'as being additional to any that would otherwise occur, in accordance with Article 6.1(b)'. Upon such verification, the host Party may issue the appropriate quantity of ERUs in accordance with Decision 19/CP.7. This is done by converting AAU into ERUs and transferring them through the system of national registries.

Track 1 does not entail international scrutiny in respect of the JI project by the A6SC and IEs and appears to give discretion to the host Party to choose baseline and monitoring methodologies. Because the reference to Article 6.1(b) of the Protocol refers to the additonality test which also applies in the CDM, it may be that choice of methodologies may, in practice, be influenced by international developments as to what is/is not a reasonable methodology.

A Party which can undertake Track 1 JI projects may at any time elect to use the Track 2 procedure instead. This might be done, for example, to provide greater credibility to the project and the Party than might be possible under Track 1.

Track 2 verification procedure

Track 2 applies when not all the eligibility criteria can be met by a host Party. As Table I.3 makes clear, at a minimum, the host Party must have established its assigned amount and have in place a national registry which meets the requirements under Articles 5 and 7. Such a host Party can then transfer ERUs, provided that an IE validates the project and it is subsequently verified by an IE according to the procedures set out below.

The validation part of the procedure is based on the validation/registration requirements of the CDM. For Article 6 projects, PPs must prepare a PDD (to be tailor-made by the A6SC on the basis of Appendix A) containing information to allow the IE to assess the following:

- approval by the Parties involved;
- whether the project would result in the reduction of anthropogenic emissions by sources or enhancement by sinks additional to any that would otherwise occur;
- has an appropriate baseline and monitoring plan in accordance with Appendix B; and
- has submitted documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts in accordance with host Party procedures, and if the environmental impacts of the project are considered by the PPs or the host Party to be significant, the PPs have undertaken an environmental impact assessment in accordance with host Party procedures.

The PPD and supporting documentation submitted to the IE by PPs must be made publicly available for 30 days to enable the IE to received public comments. The IE then makes its determination as to whether to validate a project and in so doing makes its decision, an explanation of its reasons and how the comments it received were taken into account publicly available. This determination becomes final unless a review is requested by a Party involved in the project or three members of A6SC request it in accordance with paragraph 35 of the Article 6 Guidelines.[165] The A6SC has a maximum of six months from the date of the request to conclude the reviews and its decision is final.

Once the project has commenced, PPs shall submit to 'an' accredited IE a report in accordance with the monitoring plan. The reference to 'an' (rather than to 'the' IE) would appear to suggest that the IE undertaking verification must be different to 'the' IE that determined the project's validation, as would normally be the case under the CDM.[166]

Upon receipt of the report (which is functionally comparable to the monitoring report in the CDM project cycle), the IE shall make a determination of the reductions/enhancements reported by PPs and make its determination publicly available through the Secretariat, together with an explanation of its reasons. This determination shall be deemed final 15 days after the date of it being made public unless a Party involved or three members of the A6SC request a review in accordance with the procedure specified in paragraph 39 of the Article 6 Guidelines.[167] When the final decision is made, the host Party is entitled to issue and transfer the ERUs but only if it is in compliance with its minimum JI eligibility criteria set out above.

LULUCF projects

Article 6 covers projects relating to sink activities which are covered by the Kyoto Protocol as only specific categories may count towards an Annex I Party's Article 3.1 commitments. Article 6 projects aimed at enhancing anthropogenic removals by sinks shall conform to definitions, accounting rules, modalities and guidelines under Articles 3.3 and 3.4.[168] Decision 19/CP.7 on accounting modalities explains how an Annex I Party may issue RMUs in relation to its (domestic) sinks which are being counted towards compliance under Articles 3.3 and 3.4.

Small-scale and nuclear projects

The JI Guidelines allow all types of projects to be JI projects. There are no specific provisions to encourage small-scale projects under JI as is currently the case for the CDM. The Article 6 Guidelines stipulate that Annex I Parties are to refrain from using ERUs from nuclear facilities to meet their commitments under Article 3, as is the case for CERs under the CDM.

I.8 Compliance procedures and mechanisms under the Protocol

Overview

The inclusion of binding targets for Annex I Parties in the Protocol focused attention on how compliance with these can be assured. Because the Kyoto mechanisms provide economic incentives for Parties to engage in trading which would not otherwise exist, the inclusion of the mechanisms creates an additional compliance problem: the possibility that a Party could find itself in a situation of non- compliance caused by its own excessive transfers. This might be caused by lack of administrative capacity to track mechanism transmissions or failure to forecast emission trends or through cases of overselling by a rogue Party. All of these scenarios would undermine the environmental integrity of the Protocol and also damage confidence in the carbon markets as legal certainty about who could or could not undertake valid transactions might dampen trade and erode the value of Kyoto units. This section provides an overview of the provisions adopted pursuant to the Kyoto Protocol that facilitate compliance by Parties with their international commitments and, where necessary, to correct cases of non-compliance, focusing on mechanism-related issues.[169]

Article 18 provides that the COP/MOP-1 shall 'approve appropriate and effective procedures and mechanisms to determine and to address cases of non-compliance with the provisions of this Protocol, including through the development of an indicative list of consequences, taking into account the cause, type, degree and frequency of non-compliance. Any procedures and mechanisms under this Article entailing binding consequences shall be adopted by means of an amendment to this Protocol.' Shortly after the adoption of the Protocol, and acting on the leadership of the US, Parties began to realize that binding targets would require robust systems to ensure compliance. COP-4, held in Argentina in 1998, agreed to establish a joint working group (JWG) to prepare procedures and mechanisms relating to compliance under the Protocol.[170] These negotiations were highly technical in nature but as the final days of negotiations at COP-6 Part II in Bonn and at COP-7 in Marrakesh demonstrated, high political stakes were involved such that on both occasions compliance issues came to be deal breakers. After intense negotiations, COP-7 agreed the adoption of procedures and mechanisms relating to compliance under the Kyoto Protocol[171] which many observers regard as the most advanced compliance system in international environmental law.[172]

The Kyoto Compliance Procedures aim to prevent non-compliance through the development of an early warning system that can lead to the deployment of facilitative approaches but also to procedures that deal with cases of

non-compliance through a quasi-judicial process that is focused on correcting cases of non-compliance and restoring the environment. To ensure that there was as little delay as possible to transactions taking place in the Kyoto carbon markets, fast-track procedures were included to expedite consideration of mechanism eligibility issues, and to reinstate eligibility to use the mechanisms for Parties that had been suspended from using them. This section provides a brief explanation of the key features of the Kyoto Compliance Procedures.

The Compliance Committee

The Compliance Committee will be established pursuant to the procedures and mechanisms relating to compliance under the Kyoto Protocol adopted under the Marrakesh Accords.[173] Establishment of the Compliance Committee will take place at COP/MOP-1. The Committee is a standing body which is likely to meet at least twice each year, probably together with the subsidiary bodies. The Committee itself is composed of four bodies: Plenary, Bureau, Facilitative Branch and Enforcement Branch. The Plenary's functions include reporting to the COP/MOP on the Committee's activities, applying the general policy guidance received from the COP/MOP, submitting administrative and budgetary matters to the COP/MOP and developing any further rules of procedure that may be needed, including rules on confidentiality, conflict of interest, submission of information by IGOs and NGOs and translation. The Plenary of the Compliance Committee is made up of 20 members, ten from each Branch (accompanied by their alternates), with the Chair of each Branch serving as Co-Chairs of the Plenary. The Bureau comprises four persons: the Chair and Vice-Chair of each of the two Branches. The tasks of the Bureau are likely to be akin to those of the COP and subsidiary body bureaux in terms of being restricted to organizational and procedural matters, the most important being deciding to which of the two Branches to allocate questions of implementation upon their receipt by the Committee.

The members of the Compliance Committee are to be formally elected by the COP/MOP. As with the other two Kyoto Protocol bodies, each member can be accompanied by an alternate, elected from the same group. To ensure the independence and quasi-judicial character of the Committee, all members are required to serve in their 'individual capacities' and have 'recognized competence relating to climate change and in relevant fields such as the scientific, technical, socio-economic or legal fields'. The two Branches are each made up of ten members, using the same membership formula as the Executive Board of the CDM-EB (that is, one member from each of the regional groups plus the small island developing states, plus two each from Annex I and non-Annex I Parties). This means a majority of non-Annex I Parties, which was a cause of deep concern for Annex I Parties, given that the work of the Enforcement Branch of the Compliance Committee will be focused on their commitments and not those of non-Annex I Parties.

The basic procedures of the Compliance Committee are set out in the Kyoto compliance procedures and include rules concerning a quorum, the adoption of decisions and the frequency of meetings. A quorum of three-fourths is required, specifically for the 'adoption of decisions'; the rules are silent on whether such a quorum also applies to the convening of meetings. Decisions can be taken by majority voting if necessary. The voting rule for the Compliance Committee incorporates the concept of a double majority. If all efforts at reaching consensus have been exhausted, decisions may be adopted by a three-fourths majority of members present and voting, but decisions of the Enforcement Branch require, in addition, a majority of Annex I and non-Annex I Parties. The safeguard of double majority voting for the Enforcement Branch was included to allay concerns of some Annex I Parties that they might be subject to unfair or politically motivated decisions by that branch given that its membership is based on equitable geographic representation which provides a simple majority for developing countries (Wang and Wiser, 2002, p190).

The Facilitative Branch

The Facilitative Branch is responsible for providing advice and facilitation to Parties in implementing the Protocol and acts as an early warning system for potential non-compliance. The mandate of the Facilitative Branch basically covers everything that is not expressly assigned to the Enforcement Branch. As part of its 'early warning function' the Facilitative Branch will be responsible for providing advice and facilitation for compliance with:

- commitments under Article 3, paragraph 1, of the Protocol, prior to the beginning of the relevant commitment period and during that commitment period;
- commitments under Article 5, paragraphs 1 and 2, of the Protocol, prior to the beginning of the first commitment period; and
- commitments under Article 7, paragraphs 1 and 4, of the Protocol prior to the beginning of the first commitment period.

The Facilitative Branch can apply one or more of the following consequences:

- provision of advice and facilitation of assistance to individual Parties regarding the implementation of the Protocol;
- facilitation of financial and technical assistance to any Party concerned, including technology transfer and capacity building from sources other than those established under the Convention and the Protocol for the developing countries – this is important for EITs as they are not entitled to funding under the Convention's financial mechanism;

- facilitation of financial and technical assistance, including technology transfer and capacity building, taking into account Article 4, paragraphs 3, 4 and 5, of the Convention; and
- formulation of recommendations to the Party concerned, taking into account Article 4, paragraph 7, of the Convention.

In the early years of the regime it is very likely that much of the Facilitative Branch's work will focus on ensuring that Annex I Parties that are EITs are able to meet their reporting and review requirements. This may mean the Facilitative Branch having to consider how to arrange 'facilitation' of financial resources 'outside' the financial mechanism of the climate regime.

The Enforcement Branch

The Enforcement Branch is responsible for determining whether Annex I Parties are in compliance with:

- their quantified emission limitation or reduction commitment under Article 3;
- the methodological and reporting requirements under Articles 5.1, 7.1 and 7.4; and
- the eligibility requirements for the flexible mechanisms under Articles 6, 12 and 17.

It is also responsible for authorizing the application of adjustments to Annex I inventories in the event of a dispute between a Party and the ERT. The compilation and accounting databases for accounting of assigned amounts, which is to be maintained by the secretariat according to Decision 19/CP.7, will take into account any corrections to be made as a resolution of questions of implementation raised by ERTs once these have been determined by the Enforcement Branch.

The degree of discretion given to the Enforcement Branch to impose consequences has been limited to ensure legal certainty and decrease the chance of political interference. Thus the consequences to be 'automatically' applied by the Enforcement Branch are defined tightly to suit the type of commitment that has not been fulfilled. Thus failure to meet Article 5.1, 5.2 and 7.1 requirements will lead to a declaration of non-compliance and a requirement to submit an action plan indicating how and by when a party intends to remedy the failing.

Failure to meet mechanism eligibility requirements means a general suspension from mechanism eligibility but the precise limitation on what kinds of transactions are not allowed depends on the eligibility requirement for particu-

lar mechanisms (discussed below). Non-compliance with Article 3.1 will require the following: deduction of 1.3 tonnes for every tonne over-emitted from a Party's assigned amount for the next commitment period, plus a detailed compliance plan indicating how the Party will meet its new target and inability to transfer under Article 17 emissions trading. The application of all such consequences must be aimed at the restoration of compliance to ensure environmental integrity and to provide an incentive to comply.

Mechanism-relevant procedures

The most significant trigger source for the Enforcement Branch is likely to be reports containing questions of implementation raised by ERTs. The ERTs have the right to send these to the Compliance Committee without political intervention from a Party. The procedures provide that the Committee shall receive through the secretariat questions of implementation indicated in the reports of ERTs under Article 8 of the Protocol, together with any written comments by the Party which is subject to the report. Additionally, questions of implementation can also be submitted by any Party with respect to itself or any Party with respect to another Party, supported by corroborating information. The Committee shall also receive all other final ERT reports.

The general procedures of the Compliance Committee are designed to secure due process, transparency and legal certainty, including by defining, *inter alia*, upon what basis a Branch may make a determination, allow a Party to be represented, give it opportunities to comment, allow competent NGOs/IGOs with relevant information to make factual and technical information available, and make information available to it publicly available, bearing in mind any confidentiality rules. Because of the gravity of the commitments it is dealing with, and the consequential need for efficiency and timeliness, time-bound general procedures have been developed for the Enforcement Branch.

A determination of non-eligibility with participation/eligibility conditions (explained in section I.4 above) by the Enforcement Branch leads automatically to the suspension of eligibility to use the flexibility mechanisms by the Party concerned.[174] Such a determination cannot be appealed to the COP/MOP in any circumstance.

The consequence of ineligibility is that the ineligible Annex I Party (and any legal entities it had authorized to participate in the mechanisms under its own authority) cannot undertake transactions dealing with Kyoto units. The range of transactions that an ineligible Party is barred from undertaking is mechanism-specific because Decision 24/CP.7 states that the suspension 'is to be in accordance with the relevant provisions' under Articles 6, 12 and 17. Thus an Annex I Party that does not meet the eligibility criteria for JI is still able to issue and transfer ERUs using the Track 2 procedure provided it meets

some of the eligibility criteria set forth in Decision 16/CP.7. For IET, a suspension of eligibility appears to mean that no transactions relating to any Kyoto units can be undertaken until eligibility is reinstated.[175]

Because the effects of being barred from the use of the mechanisms could be very significant for Parties that place high reliance on the use of the mechanisms to achieve their Kyoto commitments, special expedited procedures were included to speed up the overall assessment of eligibility by the Enforcement Branch to enable it to make positive determinations of mechanism eligibility as speedily as possible.

Section X of the Annex to Decision 24/CP.7 itself defines expedited procedures for the consideration of mechanism eligibility by the Enforcement Branch. It should be noted that the initial eligibility requirements for all three mechanisms (rather than the reinstatement requirements) state that an Annex I Party will be deemed to be eligible once 16 months have elapsed from the date on which it submitted the information needed to establish its assigned amount and demonstrated its capacity to account for its emissions and assigned amount under Article 7.4 unless the Enforcement Branch finds that it does not meet eligibility conditions, or alternatively there is earlier confirmation by the Enforcement Branch that it does not meet these conditions or that it is not proceeding with any question of implementation with respect to that Party, and has informed the Secretariat accordingly.[176] The rules further provide that an Annex I Party will continue to meet the eligibility criteria specified for each of the mechanisms 'unless and until the Enforcement Branch … decides that the Party does not meet one or more of the eligibility requirements, has suspended the Party's eligibility, and has transmitted this information to the Secretariat.'[177] The 16-month period was chosen to take into account the timeframe for the completion of the annual review of inventories and supplementary information due under Kyoto – a process which is supposed to take approximately 12–13 months, if everything proceeds according to schedule. The availability of adequate funding and resources for the ERTs to complete their work to schedule is thus of critical importance.

Agreement that eligibility is to be presumed unless rebutted by an actual decision of the Enforcement Branch was a contentious issue in the mechanism negotiations. The approach that the 'green light is on unless switched red' by the Enforcement Branch was included because some JUSCANNZ countries were concerned that bureaucratic delays in the Article 8 review processes might unduly limit their (and hence their legal entities') participation in the mechanisms. Other Parties, such as the EU and AOSIS, were concerned that presumed eligibility potentially could allow participation in the mechanisms to proceed without any of the environmental integrity eligibility criteria being met, even when fundamental 'questions of implementation' have been raised by ERTs. The integrity of Enforcement Branch procedures and the ability of its

member to act as independent experts will thus be critical to the environmental integrity of the Protocol. Additionally, depending on resources and workload, the tight timetables for assessment of mechanism eligibility may set difficult challenges for the Enforcement Branch, although it is likely in practice that many cases of potential non-eligibility will already have been referred to the Facilitative Branch as part of its early warning functions.

Since the adoption of the Marrakesh Accords, the expedited procedures for assessing mechanism eligibility have been supplemented by additional procedures to deal with cases of suspension. These procedures were elaborated because some JUSCANNZ countries, notably Japan, considered the existing procedures might be unnecessarily time-consuming for Parties that wanted to reinstate their eligibility. The additional expedited review procedures are found in the guidelines on the annual review of inventories and other information requirements due under Article 8 of the Protocol which were adopted by COP-8 to deal specifically with cases concerning reinstatement of mechanism eligibility.[178] The expedited reinstatement procedures can be triggered at any time by the concerned Party and will take no longer than 21 weeks. They allow the suspended Party to reapply directly to the Committee or to an ERT. The COP-8 guidelines provide that such a review should be expedited only by restricting it to the issue that caused the suspension and not by adopting a less rigorous approach.

Notes

1. The CDM is in a different legal position: it is already in legal existence because it is being implemented under the authority of the FCCC and is further discussed below.
2. JUSCANNZ is a loose negotiating coalition comprising Japan, the US, Canada, Australia, Norway and New Zealand.
3. See Lefevere, Part II, and Anderson and Bradley, Part III, Chapter 4, in this volume for an extended discussion of these concerns.
4. See Lefevere Part II, on the evolution of market-based approaches in EU environmental policy.
5. See Wilder et al, Part III, Chapter 5, in this volume on the development of the Chinese trading scheme addressing SO_2 which demonstrates that while developing countries are learning they are also dealing with environmental problems more developed countries have long legislated for. The capacity-related needs of developing countries are also important and discussed by Michaelowa, Part III, Chapter 8.
6. FCCC/AGBM/1997/MISC.1. See also Oberthur and Ott (1999, p188).
7. See Anderson and Bradley, Part III, Chapter 4, in this volume on EITs and their approach to the mechanisms.
8. Ibid.
9. See Haites in the Conclusion to this book who discusses the role of the mechanisms in the context of future commitments by developed and developing countries.

10. By early 1999, proposals for the UK and Danish trading schemes were advanced and the EU Commission had decided to investigate the policy framework for the design of a GHG trading scheme for the EU, work on which was coordinated by the author as part of a multi-partner consortium headed by FIELD. For details, see Lefevere, Part II, on the evolution of the EU ETS. The final report and background papers are available from FIELD at www.field.org.uk.
11. See Blanchard, Part III, Chapter 2, for economic analysis of who trades what with whom in different kinds of carbon markets.
12. For details, see Anderson and Bradley, Part III, Chapter 4, and Haites in the Conclusion to this volume.
13. See Michaelowa, Part III, Chapter 7, on the issues raised by CDM baselines and additionality.
14. See, for example, the report for the Pentagon on the national security implications of climate change on the US, summarized in *Fortune* magazine in February 2004.
15. *Faking It*, Climate Action Network Report on the US climate policy under the Bush Administration, December 2003, available from Climate Action Network US (CAN-US), Washington, DC.
16. See Lefevere, Part II.
17. See Michaelowa, Part III, Chapter 7, for a discussion of these.
18. Decision 10/CP.3.
19. Decision 20/CP.8.
20. UNFCCC website: www.unfccc.org.
21. *JI Quarterly*, available http://www.northsea.nl/jiq/.
22. Decision 17/CP.7, paragraph 13.
23. Decision 18/CP.9, paragraph 1.
24. Decision 16/CP.7, Draft Decision -/CMP.1 (Article 6), paragraph 5.
25. Decision 16/CP.7, Draft Decision -/CMP.1 (Article 6), paragraph 8. Decision 17/CP.7, Draft decision -/CMP.1 (Article 12) paragraph 4 and Decision 18/CP.7, paragraph 2.
26. Decision 15/CP.7, preamble, paragraph 5 and Draft Decision -/CMP.1 (mechanisms), Principles, nature and scope of the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol, preamble paragraph 5.
27. Decision 15/CP.7, preamble, paragraph 6 and Draft Decision -/CMP.1 (mechanisms), preamble paragraph 6. See also Decision 5/CP.6, Section VI.I, paragraph 4.
28. Decision 22/CP.7, Draft Decision -/CMP.1, Guidelines for the preparation of information under Article 7 of the Protocol, paragraph 4.
29. Decision 15/CP.7, paragraph 4 and Decision 24/CP.7, annex, paragraph 5(b).
30. Decision 11/CP.7, annex, paragraph 14.
31. Decision 15/CP.7, paragraph 6.
32. Decision 19/CP.7, annex, section F.
33. Decision 19/CP.7, Draft Decision -/CMP.1 (modalities for accounting of assigned amounts), paragraph 2 and Annex, paragraph 9.
34. Decision 16/CP.7, Annex, paragraph 1(e) and Decision 17/CP.7, Annex, paragraph 1(e).
35. See, for example, CDM Watch, which is monitoring all CDM projects to see if these conform with the Marrakesh Accords and is also monitoring broader trends useful for policy-makers such as what types of CDM projects are being favoured as well their geographic location and whether relevant affected communities are being consulted (available at http://www.cdmwatch.org/).
36. Decision 19/CP.7, annex, paragraph 44 and Decision 24/CP.8.

37. Decision 24/CP.8. See also FCCC/TP/2002/3, Registries under the Kyoto Protocol and FCCC/TP/2002/2, Treatment of Confidential Information by International Treaty Bodies and Organizations and Decision 21/CP.9 concerning issues relating to the implementation of Article 8 of the Kyoto Protocol.
38. Decision 16/CP.7, Annex, paragraph 29, Decision 17/CP.7, Annex, paragraph 33 and Decision 18/CP.7, Annex, paragraph 5.
39. For emissions trading, a Party must maintain an up-to-date list of such entities and make it available to the Secretariat.
40. The policy rationale for linking such schemes and concrete proposals for how these linkages might be implemented are discussed by Haites in the Conclusion to this volume.
41. Decision 17/CP.7, paragraph 3.
42. Decision 17/CP.7, Annex, paragraph 30.
43. Decision 16/CP.7, Annex, paragraph 20. Decision 17/CP.7, Annex, paragraph 29.
44. CDM Monitor, Point Carbon, 12 February 2004. For a more detailed discussion of some DNAs see Wilder in this volume.
45. Decision 20/CP.7, Guidelines for national systems under Article 5.1 of the Kyoto Protocol and draft decision -/CMP.1 of the same title (KP national system guidelines).
46. For a discussion of the national systems and their place in the Protocol's system of reporting and review see Chapter 11 in Yamin and Depledge (2004).
47. Decision 24/CP.8, Technical standards for data exchange between registry systems under the Kyoto Protocol and FCCC/SBSTA/2003/L.20, SBSTA conclusions on issues relating to national registries under Article 74 of the Protocol.
48. Decision 19/CP.7, Modalities for the accounting of assigned amount and draft decision -/CMP.1 of the same title.
49. See Chapter 11 Yamin and Depledge (2004) for a detailed explanation of when inventories under the Protocol are due and how these will be reviewed.
50. Decision 22/CP.7, Draft Decision -/CMP.1 (Article 7), paragraph 3(a)–(f).
51. The reference to assistance from the Facilitative Branch is part of its 'early warning' and proactive assistance functions designed to ensure the FB helps Parties fix problems to stop non-compliance issues from arising. See section I.8.
52. Decision 20/CP.9 Technical guidance on methodologies for adjustments under Article 5.2 KP.
53. Decision 21/CP.7, paragraphs 2–4.
54. See Anderson and Bradley, Part III, Chapter 4, who discuss the problems EITs may face in meeting the mechanisms eligibility conditions.
55. Decision 19/CP.7, Annex, paragraph 26.
56. These provisions were included at the insistence of OPEC countries. The use of the mechanisms as a whole will reduce these potential impacts as they will lower Annex I Parties compliance costs.
57. Decision 15/CP.7, paragraph 8 and Draft Decision -/CMP.1 (mechanisms), paragraph 7.
58. Chapter 5 explains the difference between the term 'Annex I Parties' and Annex B Parties.
59. Decision 18/CP.7, Annex, paragraph 2.
60. See section I.1 above and also the contributions by Lefevere, Part II, and Anderson and Bradley, Part III, Chapter 4.
61. Decision 5/CP.6.
62. Decision 18/CP.7, Annex, paragraph 8.

63. Decision 19/CP.7, Annex, section II.D.
64. Chapter 11, Yamin and Depledge (2004).
65. On CERs and ERUs generated by nuclear facilities see validation and registration section below. See also discussions of the Linking Directive Proposal to the EU ETS in Part II which will exclude certain kinds of projects such as CDM sinks and nuclear credits.
66. On linking national and international trading schemes, see Haites in this volume.
67. Article 12 and Decision 17/CP.7 setting out the modalities and procedures of the CDM ('CDM Modalities and Procedures') refer to CDM 'project activities' rather than to 'projects'. The former term is conceptually broader as 'activities' could cover policies and measures unrelated to physical projects. For convenience this part uses the two terms interchangeably as, presently, current proposals for the CDM seem only to involve physical projects.
68. See section I.4 on participation above.
69. Decision 17/CP.7, Annex, paragraphs 64–66, and Appendix D.
70. Decision 21/CP.8, Annex II, Simplified modalities and procedures for small-scale CDM project activities.
71. CDM-PDD, Version 01, in effect 29 August 2002, available at: http://cdm.unfccc.int/Reference/Documents/cdmpdd/English/cdmpdd.doc.
72. Decision 17/CP.7, Annex, paragraph 35.
73. Decision 17/CP.7, Annex, paragraphs 35–52.
74. For an extended discussion of baselines see Michaelowa, Part III, Chapter 7.
75. Decision 17/CP.7, Annex, paragraphs 53–60.
76. Decision 17/CP.7, Annex, paragraphs 61–63.
77. Decision 17/CP.7, Annex, paragraph 64–66.
78. Decision 17/CP.7, Annex, paragraphs 2–4.
79. Decision 21/CP.8, paragraph 1.
80. Decision 21/CP.8, Annex I, Rules of Procedure of the EB, hereafter 'CDM Rules'.
81. Decision 17/CP.7, Annex, paragraph 6.
82. Decision 36/CP.7.
83. To enhance continuity, Decision 18/CP.9 adopted by COP-9 amended rules 4 and 12 of the CDM Rules to allow the Chair and Vice-Chair being in office between the election of new members and alternates and the first meeting of the EB in a calendar year.
84. Service as an alternate does not count, however, towards the term of office of a member. An alternate may, therefore, serve two consecutive terms and then be elected as a full member for a further two consecutive terms, and vice versa. This allows alternates to 'train up' as well as providing an important measure of continuity, although it does mean Parties not represented on the Board may have to wait a longer time to get a chance to be elected to the Board.
85. CDM Rules, Rule 10.2 for the text of the oath of service.
86. This provision aims to ensure the effective functioning and full representation of the Board and to ensure that Board members know what is expected to them and are fully committed to their role from the start. It reflects problems encountered in other intergovernmental arenas (e.g. the IPCC), where Bureau/committee members have routinely failed to attend meetings.
87. Decision 17/CP.7, paragraph 8(c).
88. CDM modalities and procedures, paragraph 14, and CDM rule 28.

89. CDM modalities and procedures, paragraph 17, CDM rule 31.
90. FCCC/CP/2003/2 and Add.1, Annual Report of the EB to COP (2001–2002) ('First CDM Report'). FCCC/CP/2003/2, Annual Report of the EB to COP (2002–2003).
91. Decision 18/CP.9 and Decision 19/CP.9.
92. CDM Rule 2.14 and Rules 26 and 27. The draft rules of procedure originally proposed by the EB to COP-8 were amended by the COP to add this point. This is, of course, of particular concern to the US.
93. CDM modalities and procedures, paragraph 15, and CDM Rule 29, paragraphs 1.
94. CDM Rule 29, paragraph 3.
95. CDM Rule 29, paragraph 4.
96. CDM Rule 29, paragraph 2.
97. CDM Rule 30.
98. CDM Modalities and Procedures, paragraph 18, CDM Rule 32.
99. CDM Rule 32, paragraph 2.
100. See First CDM Report, paragraphs 29(c), 23(a) and 21(b).
101. See First CDM Report, section III.D.
102. Decision 17/CP.7, paragraph 6(e). See First CDM Report, section III.D and Second CDM Report, section III.F.
103. Decision 17/CP, 7, Annex, paragraph 40(a).
104. Decision 17/CP.7, Annex, paragraphs 27.
105. Decision 17/CP.7, Annex, paragraph 27(e).
106. Decision 17/CP.7, Annex, paragraphs 20–25.
107. Report of the Seventh Meeting of the EB, Annex 2, Procedures for accrediting operational entities by the EB, Version 03, January 2003, as clarified by the EB at its eleventh meeting which issued additional clarification regarding cost implications of changes to an application made by an applicant entity, set out in Annex 1, of the Report of the Eleventh Meeting of the EB/CMD, and clarification agreed by the Board regarding witnessing opportunities, set out in Annex II of the same Report.
108. Decision 17/CP.7, Annex, Appendix A.
109. The PP has to observe all relevant domestic laws and other international laws that may generate such a requirement. Paragraph 27(c) states it is the responsibility of the DOE to check a CMD project meets these legal requirements.
110. Decision 17/CP.7, Annex, Appendix B.
111. Decision 17/CP.7, Annex, paragraph 6, paragraph 27(h), and paragraph 40.
112. Decision 17/CP.7, Annex, paragraphs 62–63.
113. Decision 18/CP.9 contains a draft recommendation to COP/MOP setting out procedures for the reviews under paragraph 41. See also Second Annual Report of the EB, FCCC/CP/2003/2, Annex.
114. Similar language is found in JI modalities and procedures.
115. See Part II for a discussion of the Linking Directive proposal which will restrict ERUs and CERs from certain kinds of projects from entering the EU ETS.
116. CDM Modalities and Procedures, paragraph 37.
117. Baseline and additionality CDM issues are discussed by Michaelowa, Part III, Chapter 7.
118. See below on the funding of CDM.
119. Eleventh Meeting of the EB, Annex I, Further clarifications on methodological issues, Ninth Meeting of the EB, Annex 3, Further clarifications on methodological issues, Eighth Meeting of the EB, Annex I, Clarifications on issues relating to

baseline and monitoring methodologies and Fifth Meeting of the EB, Annex 3, Guidance by EB to the Panel on guidelines for methodologies for baseline and monitoring plans.

120. Eleventh Report of the EB, Annex Version 04.
121. Second Annual Report of the EB, FCCC/CP/2003/2, paragraphs 31–39.
122. Decision 17/CP.7, Annex, paragraph 40.
123. Decision 21/CP.8, Annex II, Simplified modalities and procedures for small-scale CDM project activities (hereinafter 'SCC M&P').
124. Second Annual Report of the EB, FCCC/CP/2003/2, paragraphs 27–30).
125. The author is grateful to Erik Haites for clarifying the rules on CDM sinks.
126. For a summary of these see Greenpeace (n.d.).
127. See below.
128. So project proponents may choose to exclude a pool that is a small sink that is costly to measure.
129. This yields a conservative estimate of the reductions achieved. It also avoids the possibility of earning credits for reducing the emissions associated with displacing activities on the land prior to it being planted with trees. For example, if the land was used for cattle grazing prior to being planted, credits cannot be earned for reducing those emissions.
130. Decision 17/CP.7, Annex, paragraphs 53–60.
131. Decision 17/CP.7, Annex, paragraphs 61–63.
132. Decision 17/CP.7, Annex, paragraph 64–66.
133. Decision 17.CP.7, Annex, paragraph 5(l) and 66.
134. Decision 17/CP.7, Annex, Appendix D, paragraph 8.
135. Second Annual Report of the EB, FCCC/CP/203/2, paragraph 46.
136. Decision 5/CP.1 on AIJ contains similar wording but the issue was nuanced because no credits could be gained in the pilot phase.
137. Decision 17/CP/7, Annex, paragraph 3.
138. Decisions 17/CP.7, Annex, paragraph 4. See also Second Annual Report of the EB, FCCC/CP/2003/2.
139. Second Annual Report of the EB, FCCC/CP/2003/2.
140. Decision 18/CP.9, paragraph 1.
141. Decision 15/CP.7, paragraph 15.
142. For details of the Adaptation Fund and other funding issues under the climate regime see Yamin and Depledge (2004).
143. Decision 15/CP.7, paragraph 15.
144. Second Annual Report of the EB.
145. Decision 38/CP.7, paragraph 14.
146. First CDM report, paragraph 34.
147. Second CDM Report, paragraph 74.
148. First CDM report, paragraphs 19(c) and 35.
149. Second Annual Report of the EB, FCCC/CP/2003/2, paragraph 69.
150. Second EB Report, FCCC/CP/2003/2, paragraph 69.
151. For convenience, the terms 'JI' and 'Article 6 projects' are used interchangeably in the main body of the text because the mechanism defined by Article 6 continues to be popularly known as 'joint implementation'.
152. European Commission, 1998.
153. Decision 5/CP.6, section 2.
154. The reporting and review requirements for Annex I Parties mean that expert review teams will already have provided one layer of external scrutiny (see Yamin and Depledge, 2004, Chapter 11).

155. The reference to 'Article 6 Guidelines' refers here to the Annex to Draft decision -/CMP.1 (Article 6) Guidelines for the Implementation of Article 6 of the Kyoto Protocol which is appended to Decision 16/CP.7.
156. Decision 16/CP.7, Article 6 Guidelines. Unless otherwise specified, references to rules of the supervisory committee are taken from the Annex to draft decision -/CMP.1, which sets out the guidelines (section C).
157. Article 6 Guidelines, Annex, paragraphs 2 and 3(a).
158. Article 6 Guidelines, Annex, paragraph 3.
159. These include not only the Annex II Parties, but also Annex I Parties that are neither EIT nor included in Annex II (namely, Liechtenstein, Monaco and Turkey).
160. Article 6 Guidelines, Annex, paragraph 4.
161. Article 6 Guidelines, Annex, paragraph 5.
162. Decision 36/CP.7.
163. Ibid., paragraph 10(a).
164. Draft Decision -/CMP.1 (Article 6), paragraph 7.
165. The comparable CDM procedure under paragraph 40 of the CDM modalities (see Box I.3).
166. CDM Modalities, paragraph 27(e).
167. This corresponds to the review at post-certification/pre-issuance stage of the CDM under paragraph 64 of the CDM Modalities.
168. Decisions 16/CP.7, Draft Decision, paragraph 4.
169. For a more detailed account of the Kyoto compliance procedures see Chapter 12 in Yamin and Depledge (2004).
170. Decision 8/CP.4.
171. Decision 24/CP.7, Procedures and mechanisms relating to compliance under the Kyoto Protocol containing an Annex of the same title (Kyoto Compliance Procedures). The word mechanisms in the title of Decision 24/CP.7 does not refer to the Kyoto flexibility mechanisms but refers to institutions referred to in Decision 24/CP.7.
172. On the non-compliance with MEAs and the Kyoto Protocol, see Werksman (2004), Wang and Wiser (2002) and Lefeber (2001).
173. Decision 24/CP.7, Procedures and mechanisms relating to compliance under the Kyoto Protocol. Unless otherwise stated, all references relate to the Annex to this decision, which sets out the procedures and mechanisms.
174. Decision 24/CP.7, Annex, Section XV, paragraph 4.
175. Decision 18/CP.7, Annex, paragraph 2.
176. Decision 16/CP.7, Annex, paragraph 22(a), Decision 17/CP.7, Annex, paragraph 32(a) and Decision 18/CP.7, Annex, paragraph 3(a).
177. Decision 16/CP.7, Annex, paragraph 22(b), Decision 17/CP.7, Annex, paragraph 32(b) and Decision 18/CP.7, Annex, paragraph 3(b).
178. Decision 22/CP.8, Additional sections to be incorporated in the guidelines for the preparation of the information required under Article 7 and in the guidelines for the review of information under Article 8 of the Kyoto Protocol.

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Part II:

The EU Greenhouse Gas Emission Allowance Trading Scheme

Jürgen Lefevere

II.1 Introduction

On 4 March 2002, the 15 Members of the European Union decided to ratify the Kyoto Protocol before 1 June 2002, in line with their previous commitment to allow its entry into force at the World Summit on Sustainable Development in Johannesburg in August/September 2002. Accordingly, the EU adopted its ratification decision on 31 May 2002 and the European Community and its Member States jointly submitted the ratification instrument to the UN.[1]

The Kyoto Protocol will require the European Union to reduce its aggregate emissions of a 'basket' of six greenhouse gases[2] (GHGs) by 8 per cent over the period 2008–2012 compared to its 1990 emissions. Although in the year 2000 community-wide greenhouse gas emissions stabilized in relation to 1990 emissions, recent inventories have shown a rise in emissions to 2.1 per cent above the Kyoto target by the end of 2001 (see Figure II.1 below). Member States' projections furthermore suggest that existing policies and measures, both at national and EU levels, will not be sufficient to continue the EU-wide reductions of total EU greenhouse gas emissions.[3] Instead, progress made so far will be outweighed by further increases unless further measures are taken. The 'business-as-usual' scenario, with existing measures, suggests that in 2010 EC-wide emissions will have decreased by only 0.5 per cent, which leaves a significant gap of 7.5 per cent to be achieved through new measures.[4]

In 1998 the need to reinvigorate the debate on the development and adoption of effective policies and measures to reduce the EU's GHG emissions led the Commission to focus on the introduction of an innovative instrument to tackle the EU's greenhouse gas emissions: emissions trading. This discussion was in particular inspired by the inclusion of emissions trading as one of the flexible mechanisms under the Kyoto Protocol. As explained in Part I, Article 17 of the Kyoto Protocol lays the foundation for international emissions trading (IET) among Parties, who can, if they so wish, establish domestic trading schemes and/or authorize legal entities to participate in IET under Article 17 itself. The development of an EU-wide emissions trading scheme can be seen as a domestic (regional) trading scheme which links in with IET under the Protocol and with the two Kyoto project-based mechanisms. The EU ETS will be operational before the start of Kyoto trading and could function independently of the Kyoto Protocol's entry into force.

Since the start of the discussions on EU-wide emissions trading, the instrument has rapidly gained support across a broad range of stakeholders within the European Union, representing a variety of interests. Together with the Commission's eagerness to establish a trading regime that could serve as the 'flagship' of the Community's strategy to implement the Kyoto Protocol, this momentum led to the adoption in October 2001 of the Proposal for a Directive establishing a scheme for greenhouse gas emission allowance trading within the Community.[5] After an unusually short decision-making process, the final text of the Directive establishing a scheme for greenhouse gas emission allowance trading within the Community (henceforth the 'ET Directive') was adopted by the European Parliament and the Council in July 2003.[6] Shortly after agreement was reached on the Directive by the European Parliament and Council in July 2003, the Commission proposed the first amendment to the ET Directive.[7] This Proposal for a Directive of the European Parliament and of the Council amending the Directive establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms (henceforth 'the Linking Directive'), expand the EU ETS by allowing the use of credits from the Kyoto Protocol's project-based mechanisms, JI and CDM, for compliance with the targets set under the ET Directive. Both the ET Directive and Linking Directive are set out in Appendices 2 and 3 of this book.

This section discusses the EU ETS and describes the background and negotiations of the ET Directive. It starts by giving an overview of the EU's greenhouse gas emission reduction objectives as set out in the EU burden-sharing agreement. The development of the ET Directive took place against the background of existing EU policy instruments concerning climate change and other environmental policy problems, and because the ET Directive has had to 'fit' into the existing framework, this section describes this background. It also

addresses certain ethical issues raised by the ET Directive in the EU context. The bulk of Part II then continues with an explanation of the evolution of the EU ETS setting out some of its key design issues and ends with a discussion of the key components of the Commission's Linking Directive.

II.2 The EU burden-sharing agreement

The EU's burden-sharing agreement is the backbone of the EU's implementation of the Kyoto Protocol and the EU climate change target for the years 2008 to 2012. The burden-sharing agreement divides up the EU's overall reduction target of 8 per cent of 1990 emissions between the years 2008 and 2012 by setting individual emission targets, in percentages of 1990 emissions, for each of the 15 Member States that jointly ratified the Kyoto Protocol in May 2002. The burden-sharing agreement was made legally binding under Community law through its inclusion in Annex II to the Council Decision concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder, adopted on 25 April 2002.[8]

The origins of the idea of burden-sharing can be traced back to the elaboration of the EU negotiating position in preparation for the third Conference of the Parties (COP-3) in December 1997 in Kyoto, Japan, at which the Kyoto Protocol was adopted.[9] The EU Bubble was found necessary to allow the Community to adopt a strong common negotiating position for a challenging target under the Kyoto Protocol. Identical targets for each Member State were not seen as feasible, in view of the widely different energy-generation infrastructure, economic development and energy consumption patterns in each Member State. Coming up with a differentiated set of targets at the international level would have significantly complicated and even jeopardized the success of the international negotiations. Rather than negotiate an individual target for each Member State under the Kyoto Protocol, the EU sought to negotiate a target for the EU as a whole, and subsequently redistribute this target internally among the EU Member States through a burden-sharing agreement.

By December 1995, the Environment Council had already decided that:

> *The equitable sharing of the objective within the Community should be discussed and agreed in parallel; in this respect, account should be taken of cost-effectiveness and the aspects included in the Berlin Mandate, such as differences in starting-points, approaches, economic structures and resources, capital, the need to maintain strong and sustainable economic growth, available technologies and other features specific to each case with each Member State having, moreover, to contribute substantially to the fulfilment of the obligations in the protocol.*[10]

This decision followed calls from the EU's less developed Member States, Greece, Ireland, Portugal and Spain (the so-called 'cohesion countries', thus named because of the support they receive for development from the EU's cohesion fund), who were concerned that the EC's climate policy could negatively affect their development. While other Member States insisted on improving energy efficiency in the cohesion countries, more advanced Member States acknowledged that these countries had fewer resources and a legitimate need for economic development. The difficulty was, however, to translate this agreement into concrete differentiated targets.

Although the EU's ability to agree upon internally differentiated targets was initially viewed with scepticism, the Environment Council, under Dutch leadership, managed to reach agreement on an internal EU burden-sharing agreement at its meeting on 2 March 1997.[11] The environment ministers agreed to propose a 15 per cent cut in emissions of a basket of three greenhouse gases (carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O)) by 2010, as the EC negotiation position in the talks under the UNFCCC.

The EU burden-sharing agreement was the result of a series of discussions among Member States, concluded under the Dutch presidency. The basis for the agreement was a 30-page report on the so-called 'Triptych Approach' which was presented for the first time at an informal workshop of the EU's Ad Hoc Group on Climate on 16 and 17 January 1997 in Zeist, the Netherlands.[12] The Triptych Approach, developed by experts from the University of Utrecht in the Netherlands, separated the national economy into three sectors: the domestic sector, the energy-intensive, export-oriented sector, and the electricity generation sector. CO_2 emissions per capita from the domestic sector did not vary significantly across Member States, although the cohesion countries in general emitted less. In the case of the heavy industry and in particular the power generation sectors, however, considerable differences existed across the EC. Sweden and France for example depended greatly on carbon-free nuclear and hydro-power, whereas Danish and German electricity production was heavily coal-based. By using this sectoral approach, the Triptych Approach clearly demonstrated and justified the need for distinguishing between various countries when setting targets. The Triptych Approach analysed emissions from the various sectors in each Member State, taking into account economic growth, population changes and climate-adjusted energy use (heating and cooling). On the basis of this analysis it set out four variants for Member State targets, depending on reductions to be achieved in the domestic sector and energy efficiency improvements in the energy-intensive sector.

The Triptych variants played a central role in the agreement on the burden-sharing in the March 1997 Environment Council by providing a technical justification for differentiating targets between Member States and demarcating the boundaries for the ensuing political discussions. The Triptych Approach also

formed the basis for the Dutch proposal for a burden-sharing agreement. This proposal, setting the stage for the formal negotiations leading to the agreement in March 1997, was put forward in a letter from the Dutch minister for the environment at the end of January 1997.[13] While the ensuing negotiations had a more political character, the burden-sharing agreement that was reached in March 1997 is still firmly rooted in the Triptych Approach.

The EU's initial burden-sharing agreement set specific emission targets for the year 2010, as a percentage of 1990 emissions, for each of the 15 Member States (see Table II.1).[14] The success of this victory was somewhat overshadowed by the fact that the total emissions on the basis of the agreed burden-sharing amounted to only two-thirds of the 15 per cent reduction agreed for the Community as a whole. Also, the agreement was conditional on what countries would agree upon at the meeting in Kyoto in December 1997, including whether the EU's negotiating partners recognized the 'joint fulfilment' proposed by its burden-sharing agreement. The conclusion of the EU burden-sharing agreement in anticipation of the negotiations at COP-3 in Kyoto, however, significantly strengthened the EU's negotiating position and challenged other developed countries to come up with proposals for targets.

Table II.1 *Member State targets under the initial EU burden-sharing agreement (before the finalisation of the Kyoto negotiations)*

Austria	–25%
Belgium	–10%
Denmark	–25%
Finland	0%
France	0%
Germany	–25%
Greece	+30%
Ireland	+15%
Italy	–7%
Luxembourg	–30%
The Netherlands	–10%
Portugal	+40%
Spain	+17%
Sweden	+5%
United Kingdom	–10%

During the negotiations in Kyoto, the EC succeeded in getting its proposal for 'joint fulfilment' into Article 4 of the Protocol, to allow a group of developed countries to agree on a common reduction target and subsequently redistribute this target among the different countries (see Part I). The burden-sharing agreement must be notified to the secretariat on the date of ratification and remains in place for the duration of the first Kyoto Protocol commitment

period. When the group of countries as a whole fails to meet its common target, each of its members will be held to their individual target under the burden-sharing agreement. Article 4 does not allow alterations in the burden-sharing agreement due to changes in the EU's membership. This means that the accession of 10 new EU Member States on 1 May 2004 leaves the EU burden-sharing agreement unaffected.

The outcome of the Kyoto negotiations was, however, different from the EU's assumptions for the agreement on the first burden-sharing agreement. The scope of gases was expanded from the three gases originally proposed by the Community to six gases. The reduction target that was finally agreed upon was only 8 per cent over the period 2008–2012 rather than 15 per cent by 2010. Therefore, to allow the Community to use its burden-sharing agreement, the initial agreement of 23 March 1997 had to be adapted to the results of the Kyoto negotiations. Following difficult political negotiations, Member States agreed at the Environment Council meeting on 16 and 17 June 1998 to divide the 8 per cent emission reduction for the European Community as a whole over the Member States as set out in Table II.2.

Table II.2 *Member State targets under the final EU burden-sharing agreement*

Austria	–13%
Belgium	–7.5%
Denmark	–21%
Finland	0%
France	0%
Germany	–21%
Greece	+25%
Ireland	+13%
Italy	–6.5%
Luxembourg	–28%
The Netherlands	–6%
Portugal	+27%
Spain	+15%
Sweden	+4%
United Kingdom	–12.5%

As already mentioned above, the burden-sharing agreement was made legally binding under Community law through its inclusion in Annex II to the Council's Decision of 25 April 2002. Article 2 of that Decision states that 'the European Community and its Member States shall take the necessary measures to comply with the emission levels set out in Annex II, as determined in accordance with Article 3 of this Decision'. The Council Decision is a self-standing and legally binding Decision, which applies irrespective of the entry into force of the Kyoto Protocol. While the calculation of the precise target is

based upon rules developed pursuant to the Kyoto Protocol, the obligation for Member States to meet these targets under the burden-sharing agreement is not made conditional upon the entry into force of the Kyoto Protocol. The burden-sharing agreement therefore binds the Member States to their targets irrespective of the timing of the entry into force of the Kyoto Protocol. As will be discussed below, each Member State's targets under the burden-sharing agreement plays an important role in the discussion on the allocation of emission rights in the form of EU 'allowances' under the ET Directive.

II.3 EU environmental policy: from command and control towards market-based mechanisms

EU environmental legislation is traditionally based on so-called 'command and control' legislation. Typical command and control legislation functions through a permitting regime, under which a regulated activity is prohibited unless the operator of the activity has a permit. The permit determines the conditions under which the activity is allowed to take place and includes, in particular, limit values for emissions into various aspects of the environment, as well as monitoring and reporting provisions. A modern example of a command and control instrument is the Community's Directive concerning integrated pollution prevention and control (henceforth 'the IPPC Directive'), described in more detail in Box II.1.[15]

Box II.1 Command and control legislation: the 1996 integrated pollution prevention and control directive

The IPPC Directive seeks to regulate emissions in the air, to water and land by requiring an integrated permit for the categories of industrial activities listed in its Annex I. Annex I lists a large number of industrial installations, including, *inter alia*, energy industries such as combustion installations with a rated thermal input exceeding 50 MW, mineral oils and gas refineries, coke ovens and coal gasification and liquefaction plants.

Each IPPC permit must contain emission limit values (ELVs) for pollutants that are emitted from the particular installation. ELVs are to be included in particular for the substances included in Annex II of the Directive, which do not explicitly list any of the greenhouse gases regulated under the KP, but also for other substances which are emitted in 'significant quantities' (Article 9(3) IPPC Directive). The ELVs may also be supplemented or replaced by equivalent parameters or technical measures.

IPPC permits are to be issued by Member State authorities. These authorities also decide on the ELVs to be included in the permits, except when these ELVs

have been harmonized at the Community level.[16] The Directive requires the ELVs and other parameters in the permit to be based on 'best available techniques' (BAT). The interpretation of what constitutes BAT for a particular installation is in principle left to Member State authorities, but these need to take into account a number of considerations listed in Annex IV of the IPPC Directive. Among these considerations are 'the consumption and nature of raw materials (including water) used in the process *and their energy efficiency*', 'the need to prevent or reduce to a minimum the overall impact of the emissions on the environment and the risks to it', 'comparable processes, facilities or methods of operation which have been tried with success on an industrial scale' as well as 'technological advances and changes in scientific knowledge and understanding'. Member State authorities must impose ELVs stricter than BAT if this is needed to comply with environmental quality standards.

Member State authorities must include ELVs on greenhouse gases in the IPPC permit when these are emitted 'in significant quantities'. When determining the BAT as the basis for the ELVs to be included in the IPPC permit, Member State authorities must also take into account the energy efficiency of the specific technology. Depending on the installation, IPPC permits can thus contain ELVs for greenhouse gases as well as energy efficiency measures.

Since the beginning of the 1990s, there has, however, been a growing interest within the EU to start using more flexible, market-based mechanisms. A first indication of the EU's interest in the use of market-based mechanisms can be found in its 5th environmental action programme.[17] In this programme, under the heading 'Broadening the Range of Instruments', the EU proposed to use a broader mix of instruments, which would include 'Market-based instruments, designed to sensitize both producers and consumers towards responsible use of natural resources, avoidance of pollution and waste by internalising of external environmental costs (through the application of economic and fiscal incentives and disincentives, civil liability, etc.) and geared towards "getting the prices right" so that environmentally-friendly goods and services are not at a market disadvantage vis-à-vis polluting or wasteful competitors'.

Although emission allowance trading was not specifically mentioned in the 5th environmental action programme, it is often seen as one of the prime examples of a 'market-based mechanism'. The use of market-based mechanisms has for some time now been promoted by academics and critics of the current regulatory system as an alternative to the 'outdated' 'command and control' type legislation like the IPPC Directive. Proponents of market-based mechanisms argue that the current approach, which brings emissions under government control through permitting and stringent monitoring requirements, is too rigid, fragmented, costly and bureaucratic, is not transparent and fails to stimulate innovation.[18] Market-based mechanisms, they argue, would

achieve the same level of pollution reduction as traditional instruments, but do so at lower costs, reduce government intervention, provide incentives for technology development and in some cases even generate additional revenue for the government. (Johnson, 2001) This potential for cost-saving plays an important role in the growing interest in the instrument of emissions trading (see Box II.2).

Box II.2: Emissions trading: the ultimate market-based instrument?

There are various approaches to emissions trading, but all are based on the same concept: a target, which can be either fixed or performance-related, is given to each source. In most trading regimes these targets are set by the regulator, not the market. If a source does better than its target it can trade its overachievement, usually in the form of emission rights or 'allowances' with other sources. If it does worse, then it has to buy from other sources on the market. The source will base its decisions on whether to buy or to sell allowances on the market price of the allowances and its marginal costs of abatement. If the market price is higher than the marginal costs to reduce emissions at the source, the source will choose to reduce its emissions further and sell the allowances that are freed up by doing so. If the market price of allowances is lower than the marginal costs to reduce emissions at the source, then the source will choose not to reduce its emissions, but maintain its emissions or even buy allowances on the market to increase its emissions.

A well-functioning trading regime will level the marginal reduction costs across all sectors of industry, by allowing sources with high marginal reduction costs to invest in reductions in sources with lower marginal reduction costs through buying allowances freed up by these sources. By allowing sources to optimally use all cheap abatement options, emissions trading can significantly lower compliance costs and ease the achievement of targets. The potential benefit depends upondifferences in the marginal cost of reducing emissions among participating sources, due to the ability to use different control options, remaining life of the facility, or other reasons. To realise the potential savings, the trading programme must include enough buyers and sellers to create a competitive market.

A well-designed emission allowance trading programme shifts the location and the timing of the emission reductions, but, provided there is effective compliance and enforcement, ensures that the target is achieved. The programme design must ensure that such shifts do not create environmental problems, such as local pollution 'hot spots'.

Discussions on the introduction of market-based mechanisms in the EU have in large part been fuelled by the experiences in the United States.[19] In Europe, both Member States and the EU have, however, until recently, been slower in

introducing these mechanisms. Attempts to do so in the last few years have largely focused on an increasing use of environmental taxation as an instrument to reduce fossil fuel and energy consumption and reduce greenhouse gas emissions.[20] Proposals to introduce environmental taxation at the Community level have, however, for a long time been thwarted by the EC Treaty's requirement that these measures must be adopted on the basis of unanimity among the Member States.[21] This does not mean that no regulatory innovation has taken place. More popular 'second-generation' regulatory instruments have been the 'environmental', 'voluntary' or, better, 'negotiated agreements', which are increasingly used at both national and EU levels (see also Box II.3).[22] Negotiated agreements, however, cannot be classified as 'market-based instruments', but are rather attempts to build more flexibility into the current regulatory framework, in particular through more direct involvement of the regulated sector in the design of the instrument and its application and enforcement through contract law rather than through legislation. They could thus be labelled as 'negotiated command and control instruments' (Stewart, 2001, p60).

Box II.3 Negotiated agreements in the EU

In 1998 the European Commission and the European Automobile Manufacturers Association (ACEA) reached agreement on the reduction of CO_2 emissions from passenger cars, known as the 'ACEA Agreement'. Under this agreement car manufacturers have committed themselves to substantially reduce CO_2 emissions from new passenger cars through technological innovation. The agreement requires car manufacturers to reduce CO_2 emissions from new cars by 25 per cent by 2008. Cars produced in 2008 should emit an average of 140 g/km CO_2, equivalent to a fuel consumption of 5.71 l/100 km. In addition, ACEA has agreed to introduce some vehicles that emit 120 g/km by 2000. The agreement is currently being reviewed with the aim to propose further reductions in order to reach the target of 120 g/km by 2012. The Commission endorsed the agreement in a Communication to the Council and the European Parliament.[23] Following the agreement with ACEA, similar agreements have been concluded with the Japanese (JAMA) and Korean (KAMA) car manufacturers.[24]

The voluntary agreements were closed with the understanding that they would provide a 'complete and sufficient substitute' for other Community regulatory measures for the car manufacturers aimed at limiting fuel consumption or reducing CO_2 by cars. Should the car manufacturers fail to meet the targets set out in the agreement, the European Commission has undertaken to propose legislation to achieve the objective of 120 g/km by 2012.

Negotiated agreements are also used in the Member States. On 6 July 1999, the Dutch government concluded the Energy Efficiency Benchmarking Covenant with industry. In it, the energy-intensive industry pledged to be among the world leaders in terms of energy efficiency for processing installations by no later than 2012. In exchange for this undertaking, the government has agreed not to impose any extra specific national measures governing energy conservation or CO_2 reduction on the participating companies.[25]

Recent experience with the implementation of market-based mechanisms in both the US and Europe[26] has, however, shown that simply replacing existing 'old' regulatory instruments with new market-based instruments is often not an option, for a number of reasons. The investment in designing and implementing the 'old' instruments is often considerable; these regimes have been in place in most Member States since the early 1970s. These regimes have been considerably improved over the years, in particular through the introduction of the concept of integrated permitting in a number of Member States from the mid-1980s,[27] and the Community-wide consolidation of this concept in the IPPC Directive has made these regimes more sensitive to cross-sector pollution and introduced attention to a source's impact on the environment as a whole. The combination of permitting with general binding rules, allowed on the basis of Article 9(8) of the IPPC Directive, and the increased use of negotiated agreements[28] have introduced more flexibility and reduced the costs of achieving the targets. In many cases both the regulated sectors and the regulator are of the opinion that the system works and therefore do not see the benefit of a major overhaul of the rules.

It is thus not surprising that recently proposed and introduced market-based instruments can mostly be found in 'new' areas in which behaviour was previously either unregulated or in areas where the current set of regulatory tools has been found insufficient to reach the goals set by the regulator. Climate change is one of those 'new' areas. It is therefore in this area that, within the EU, the instrument of emissions trading has also found its broadest application. Before the adoption of the ET Directive emissions trading had already been implemented in Denmark and the United Kingdom, and trading regimes were in various stages of development in other Member States.[29]

But perhaps the most important argument that shows that simply replacing existing 'old' regulatory instruments with new market-based instruments is often not an option follows from recent experience with the design and implementation of emissions trading regimes. It is increasingly clear that market-based mechanisms are no substitute for legal controls on conduct, backed up by effective government enforcement and sanctions. Instead, these mechanisms are designed to complement, rather than substitute for, command and control measures. Most market-based mechanisms indeed rely for their success upon an underlying programme of government regulatory control (Johnson, 2001, p422; Schwarze and Zapfel, 2000, p293). Emissions allowance trading is a prime example of this, as will become clear from the rest of this chapter. To function well, emissions allowance trading is in practice often built on top of existing permitting regimes. Emissions trading may thus even be described as a 'command and control *plus*' instrument, with often even stronger government oversight, in particular in relation to the monitoring and reporting of emissions and high non-compliance sanctions. The true value