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DOCTOR OF PHILOSOPHY

Distributive justice in international law:

can the CDM regime support an equitable geographic distribution of projects?

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Oluwatomilola Akanle

2011

University of Dundee

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**DISTRIBUTIVE JUSTICE IN INTERNATIONAL LAW:
CAN THE CDM REGIME SUPPORT AN EQUITABLE
GEOGRAPHIC DISTRIBUTION OF PROJECTS?**

by

Oluwatomilola Akanle

**A thesis submitted in fulfilment of the requirements for the
Degree of Doctor of Philosophy in the School of Law of the
University of Dundee**

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Declaration

I hereby declare that this thesis has been compiled by me, that it is a record of work completed by me, and that it has not previously been accepted for a higher degree at this University or any other institution of learning.

Oluwatomilola Akanle

Certificate

This is to certify that Oluwatomilola Akanle has done this research under my supervision, and that she has fulfilled the conditions of Ordinance 14 of the University of Dundee, so that she is qualified to submit for the degree of Doctor of Philosophy.

Ms Elizabeth A. Kirk

Senior Lecturer, School of Law

Abbreviations

AWG-KP	<i>Ad Hoc</i> Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol
AWG-LCA	<i>Ad Hoc</i> Working Group on Long-term Cooperative Action under the Convention
CBDR	common but differentiated responsibilities
CDM	Clean Development Mechanism
CERs	certified emission reductions
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
COP	Conference of the Parties to the UNFCCC
COP/MOP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
EEZ	exclusive economic zone
GHG	greenhouse gas
HDI	Human Development Index
ICJ	International Court of Justice
ILM	International Legal Materials

IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
LDCs	least developed countries
NAMAs	nationally appropriate mitigation actions
PDD	project design document
SIDS	small island developing States
SRI	socially-responsible investing
TAC	total allowable catch
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly

Abstract

The first Clean Development Mechanism (CDM) project was registered in 2004 and, as of November 2010, there were over 2500 registered projects, expected to reduce about 397 million tonnes of carbon dioxide annually, as well as a total of more than 5000 projects in the CDM pipeline. Although on the face of it, this large number of projects makes the CDM appear to be a success story, a closer look at these figures tells a different story. These 2500 registered projects (and the over 5000 in the pipeline) are concentrated in just a few developing countries, with the vast majority of countries hosting just 1 or 2 projects or even no project at all - the distribution of projects among developing countries ranges from one country hosting more than 1000 projects, to some countries hosting several hundred projects and many countries hosting none. The unevenness of this distribution is a problem within the CDM regime in which, even before the first project was registered, countries have been seeking to ensure an “equitable distribution” of projects. Contrary to countries’ desire, this distribution appears to be anything but “equitable.” Although various solutions have been proposed and initiatives launched, all aimed at addressing this apparent problem and promoting a more equitable distribution of projects, it has persisted and a solution or range of solutions that would effectively address it has so far proved elusive.

This research is aimed at determining whether and how an equitable geographic distribution of CDM projects can be achieved. In particular, it examines whether the CDM legal regime can achieve an equitable geographic distribution of projects, or whether the issues that contribute to the inequitable distribution are fundamental to

the design of the regime. Because so far, the CDM regime does not provide the meaning of equitable geographic distribution or identify the ideal geographic distribution of projects, this research starts by providing such a definition, in order to determine whether or not a problem actually exists. It also makes recommendations on how to achieve a distribution of CDM projects among countries that can be regarded as more equitable than the current distribution.

This thesis answers two main questions: how should CDM projects be distributed among countries, that is, what is the meaning of equitable geographic distribution of CDM projects; and can the CDM regime achieve this distribution? The answer to the first question defines equitable geographic distribution and outlines the factors that should be considered to help achieve this distribution, which are: greenhouse gas emission reduction potential, need (or sustainable development potential) and preferential treatment. In searching for a definition of equitable geographic distribution, this research examined distributive justice in international law to see if there is a guiding principle that can be applied to the CDM, and also to see if the CDM matched the definition/application of distributive justice in international law. As a product of this, this thesis provides an answer to the question, “what is distributive justice in international law?” The answer to the second main question is that although the CDM regime can achieve a slightly more equitable geographic distribution than is currently the case, a truly equitable geographic distribution cannot be achieved under the regime, primarily because of the market nature of the CDM.

CHAPTER ONE

Introduction

*Climate change is “the world’s priority” and “the greatest threat hanging over humanity.”*¹

1.1 Background

Climate change refers to changes in the earth’s climate that occur as a result of various factors including traditionally natural processes such as changes in the output of the sun or slow changes in ocean circulation. As used in this research and in the United Nations Framework Convention on Climate Change² and its Kyoto Protocol,³ climate change refers to a change in the earth’s climate which is anthropogenic, or man-made, directly or indirectly caused by human activities, such as fossil fuel combustion and land use changes.⁴

Rising greenhouse gas (GHG) concentrations in the atmosphere are changing the climate and causing global temperature increases beyond levels that can comfortably sustain life on earth.⁵ For example, carbon dioxide (CO₂) levels in the atmosphere

¹ Statement by former Executive Secretary Yvo de Boer at the high-level segment of the Fourteenth session of the Conference of the Parties (COP 14) and the fourth session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP 4), 11 December 2008, http://unfccc.int/files/press/news_room/statements/application/pdf/cop_14_hls_statement_de_boer.pdf, www.unfccc.int (23/02/2010).

² United Nations Framework Convention on Climate Change (New York) 9 May 1992, in force 21 March 1994; (1992) 31 ILM 851 (UNFCCC).

³ Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto) 11 December 1997, in force 16 February 2005; (1998) 37 ILM 32 (Kyoto Protocol).

⁴ See UNFCCC, Article 1.

⁵ See generally on the science and effects of climate change, S. Solomon *et al.* (eds.), *Climate Change 2007: The Physical Science Basis* (Cambridge and New York: Cambridge University Press, 2007); M.L. Parry *et al.* (eds.), *Climate Change 2007: Impacts, Adaptation and Vulnerability* (Cambridge and New York: Cambridge University Press, 2007); A.B. Pittock, *Climate Change: Turning up the Heat*

have increased by about 30% since pre-industrial times, and are increasing at a rate of approximately 0.4% per year.⁶ According to the Intergovernmental Panel on Climate Change (IPCC),⁷ this rate of increase is unprecedented in at least the last 20,000 years. This problem of the changing climate has become one of the key issues in the international arena. It is seen as one of the greatest dangers faced by this generation, and, in fact, by future generations as well.⁸ It is a global problem that affects all countries and people, and is thereby regarded as a “common concern of all mankind.”⁹ Consequently, it needs a global solution and a system that encourages the participation of countries, in order to ensure “...the widest possible cooperation by all countries...”¹⁰

In 1988, the Government of Malta made a proposal to the UN General Assembly for consideration of an item titled “Conservation of climate as part of the common heritage of mankind.”¹¹ Following this proposal the General Assembly, for the first time, considered the issue of climate change, and determined and decided, *inter alia*,

(London: Earthscan, 2005); J. Houghton, *Global Warming: The Complete Briefing* 3rd ed. (Cambridge: Cambridge University Press, 2004); and M. Munasinghe and R. Swart, *Primer on Climate Change and Sustainable Development* (Cambridge: Cambridge University Press, 2005).

⁶ J.T. Houghton *et al.* (eds.), *Climate Change 2001: The Scientific Basis* (Cambridge: Cambridge University Press, 2001), 92.

⁷ The IPCC was established in 1988 by the World Meteorological Organisation and the United Nations Environment Programme to *inter alia* assess available scientific and socio-economic information on climate change and its impacts and to provide the relevant advice. It is recognised as the global authority on climate change.

⁸ See for example, the statement by former UNFCCC Executive Secretary Yvo de Boer, *supra* note 1.

⁹ See UN General Assembly (UNGA) Resolution 44/207, Preamble, paragraph 1; UNGA Resolution 45/212, Preamble, paragraph 1; UNFCCC, Preamble, paragraph 1; and Plan of Implementation of the World Summit on Sustainable Development, 4 September 2002 (Report of the World Summit on Sustainable Development, UN Doc. A/CONF.199/20, Resolution 2, Annex) (Johannesburg Plan of Implementation), Paragraph 38.

¹⁰ UNFCCC, Preamble, paragraph 6.

¹¹ UN Doc. A/43/241 (12 September, 1988).

that necessary and timely action should be taken to deal with climate change within a global framework.¹²

By Resolution 44/207, the General Assembly called for collaborative efforts to prepare, as a matter of urgency, a framework convention on climate and associated protocols containing concrete commitments.¹³ This led to the establishment of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change¹⁴ which adopted the UN Framework Convention on Climate Change in May 1992.¹⁵ The objective of the Convention is to stabilise GHG concentrations in the atmosphere at a level that would prevent dangerous human interference with the climate system.¹⁶

The Convention however does not set binding quantitative targets. Instead, it contains general reduction and reporting commitments, and, *inter alia*, provides that developed countries should take appropriate measures to mitigate climate change by limiting their GHG emissions and aim to return to their 1990 emission levels by 2000.¹⁷ In recognition of the inadequacy of these commitments, the Kyoto Protocol was adopted

¹² UNGA Resolution 43/53 (A/RES/43/53, 6 December 1988), Paragraphs 1 and 2. See generally F.L. Kirgis, 'Standing to challenge human endeavors that could change the climate' (1990) 84 *AJIL* 525.

¹³ UNGA Resolution 44/207 (A/RES/44/207, 22 December 1989), Paragraph 12.

¹⁴ UNGA Resolution 45/212 (A/RES/45/212, 21 December 1990), Preamble, paragraph 8 and Paragraph 1.

¹⁵ UN Document A/AC.237/18. See generally B. Dawson and M. Spannagle, *The Complete Guide to Climate Change* (London and New York: Routledge, 2009); P. Birnie *et al.*, *International Law and the Environment* 3rd ed. (Oxford: Oxford University Press, 2009), Chapter 6; F. Yamin and J. Depledge, *The International Climate Change Regime: A Guide to Rules, Institutions and Procedures* (Cambridge: Cambridge University Press, 2004); and Pittock, *supra* note 5.

¹⁶ UNFCCC, Article 2. As explained above, naturally occurring GHGs in the atmosphere help keep the earth warm. Scientific evidence shows that due largely to human interference, the concentrations of these GHGs in the atmosphere have increased to such a level that they are no longer beneficial, but constitute a threat to the survival of the humans and other life forms of the earth.

¹⁷ See UNFCCC, Article 4(2)(a).

in 1997.¹⁸ The Protocol sets legally-binding emission reduction targets for developed countries and a timetable for achieving these targets.¹⁹ It also established the Clean Development Mechanism (CDM), together with other flexibility mechanisms, to help in the achievement of its objectives and the objectives of the Convention.²⁰

There were several reasons for the establishment of the CDM. Climate change is historically attributable to the developed world²¹ and the responsibility of developed countries to take the lead in addressing climate change was recognised from the start of the climate change process.²² At the same time, the General Assembly recognised the need for international cooperation and for addressing climate change within a

¹⁸ See Decision 1/CP.1, 'The Berlin Mandate: Review of the adequacy of Article 4, paragraph 2 (a) and (b), of the Convention, including proposals related to a protocol and decisions on follow-up' (FCCC/CP/1995/7/Add.1, 6 June 1995), Preamble, paragraphs 2 and 3.

¹⁹ See Kyoto Protocol, Article 3 and Annex B. See generally, M. Grubb, *The Kyoto Protocol: A Guide and Assessment* (London: Earthscan, 1999); and Dawson and Spannagle, note 15 above. By setting targets for developed countries alone, the Protocol was reflecting the principle of common but differentiated responsibilities. This principle is discussed in detail in Chapter 3, Sections 3.2.2 and 3.3.

²⁰ See below for a brief discussion of these mechanisms.

²¹ See UNFCCC, Preamble, paragraph 3 and UNGA Resolution 44/207, Preamble, paragraph 8.

²² Paragraph 8 of the Preambles to UNGA Resolutions 44/207 and 45/212. However, although developed countries are historically responsible for the climate change problem, several developing countries are now catching up with developed countries in terms of their GHG emissions. For example, China, categorised as a developing country (non-Annex I party) by the UNFCCC, is now the largest GHG emitter, although its *per capita* emissions are still well below those of developed countries. Other developing countries such as India and Brazil are also rapidly developing, and the levels of their GHG emissions too are fast increasing. For the GHG emissions of countries, see the World Resources Institute's Climate Analysis Indicators Tool (CAIT) Version 7.0. (Washington, DC: World Resources Institute, 2010). See also Dawson and Spannagle, note 15 above, 390-392; and Birnie *et al.*, note 15 above, 372. There is now therefore a strong push for such developing countries to take on some form of mitigation actions. At the 16th Conference of the Parties in December 2010, countries agreed that developing countries will take nationally appropriate mitigation actions (NAMAs) aimed at achieving a deviation in emissions relative to business-as-usual emissions in 2020, and also took note of the NAMAs to be implemented by these countries as communicated by them. See Decision 1/CP.16, 'The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention' (FCCC/CP/2010/7/Add.1, 15 March 2011), Paragraphs 48 and 49. See also K. Kulovesi and M. Gutiérrez, 'Climate change negotiations update: process and prospects for a Copenhagen agreed outcome in December 2009' (2009) 18 *RECIEL* 229, 236-237.

global framework, taking account of the needs and development priorities of developing countries.²³

Secondly, developing countries have growing energy needs and their GHG emissions are expected to increase over the years.²⁴ The climate change regime recognises that developing countries need access to resources required to achieve sustainable social and economic development and that, in order for them to progress towards this goal, their energy consumption will need to grow.²⁵ It also acknowledges that the achievement of sustained economic growth and the eradication of poverty are priority needs of developing countries.²⁶ Yet clearly, their actions will impact on future progress. Consequently there was a need for a mechanism that would serve the two purposes of involving developing countries in climate change mitigation efforts and also ensuring that they could continue to satisfy their growing energy and other sustainable development needs. Moreover, given the expected cost of the emission reduction commitments required to be taken on by developed countries, a system was also needed that would both provide some flexibility in how these countries would meet their commitments and help reduce the costs of meeting the commitments. The Clean Development Mechanism (CDM) was established to fulfil these objectives.²⁷

²³ UNGA Resolution 44/207, Preamble, paragraph 9 and Paragraph 12, and UNGA Resolution 45/212, Preamble, paragraph 1 and Paragraph 8.

²⁴ According to the International Energy Agency, in the absence of new government action (that is, following a business as usual pattern), global primary energy demand is set to increase at an annual rate of 1.6% between now and 2030, with over 70% of this increase coming from developing countries. Fossil fuels (one of the main sources of GHG emissions) will remain the dominant source of energy up to 2030, accounting for 83% of this increased demand. See OECD/IEA *World Energy Outlook 2007* (Paris: International Energy Agency, 2007), 37 and 38. See also S. Silveira, 'Promoting bioenergy through the clean development mechanism' (2005) 28 *Biomass and Bioenergy* 107.

²⁵ UNFCCC, Preamble, paragraph 22.

²⁶ *Ibid*, paragraph 21.

²⁷ Kyoto Protocol, Article 12. See generally J. Wersksman, 'The clean development mechanism: unwrapping the "Kyoto surprise"' (1998) 7 *RECIEL* 147.

Under the CDM, project activities can be implemented in developing countries that result in fewer GHG emissions than would otherwise have been produced (in the absence of the activities). Developing countries profit from the sustainable development benefits of these activities and the resulting emission reductions can be used by developed countries to contribute to meeting their Protocol commitments, which are the twin objectives of the CDM.²⁸ The CDM is one of the three flexibility mechanisms established by the Protocol to assist developed countries to meet their reduction targets, but it is the only one that involves the participation of developing countries.²⁹ The CDM is discussed in greater detail in Chapter 2.

The first CDM project was registered in 2004, and there are now more than 5000 projects in the CDM pipeline, including over 2500 registered projects.³⁰ Although there are currently 123 developing countries that are eligible³¹ to participate in the CDM, only 69 countries do. Of this number, 4 countries (China, India, Brazil and Mexico) account for about 75% of the projects in the CDM pipeline. China and India alone account for 66% of this number. Looking at this at the regional level, the Asia

²⁸ See Kyoto Protocol, Article 12. On the CDM, see generally Wersksman, note 27 above; UNDP, *The Clean Development: A User's Guide* (New York: UNDP, 2003); and UNEP, *Clean Development Mechanism* (Roskilde: UNEP, 2003).

²⁹ The other flexibility mechanisms are Joint Implementation, established by Article 6 of the Protocol and Emissions Trading, established by Article 17. Participation in both these mechanisms is restricted to developed countries. See generally E.J. Bush and L.D.D. Harvey, 'Joint implementation and the ultimate objective of the United Nations Framework Convention on Climate Change (1997) 7 *Global Environmental Change* 265; and S. Soleille, 'Greenhouse gas emission trading schemes: a new tool for the environmental regulator's kit' (2006) 3 *Energy Policy* 1473.

³⁰ Statistics correct as of October 2010. See 'Registered projects by host parties' <http://cdm.unfccc.int/Statistics/Registration/NumOfRegisteredProjByHostPartiesPieChart.html> www.unfccc.int (UNFCCC, 24/11/2010); and the CDM/JI Pipeline Analysis and Database, UNEP Risoe (CDM Pipeline), 1 November 2010.

These statistics are constantly changing, as every month, many new CDM projects are registered. It was therefore necessary to pick a cut-off date for project statistics and the selected cut-off date was October 2010. Consequently, generally, the statistics cited are as of October 2010.

³¹ This refers to those countries that have fulfilled the CDM participation requirements. This is discussed in Chapter 2.

and the Pacific region hosts 78% of projects, Latin America and the Caribbean hosts 19%, and Africa hosts less than 2%.³²

In 2001, countries highlighted the need to promote equitable geographic distribution of CDM projects, at both the regional and sub-regional levels.³³ At the first Meeting of the Parties to the Protocol in 2005, countries again identified addressing the issue of equitable distribution of projects as one of their roles.³⁴ Most of the subsequent meetings of the Parties to the Protocol have dealt with the need to ensure an equitable distribution of CDM projects, and various actions have been taken, all aimed at achieving this goal.³⁵ However, the goal remains elusive, and the distribution of CDM projects, as described above both between countries and between regions, still appears to be inequitable. Although the number of registered CDM projects has multiplied, the distribution of projects among countries has not changed much and the same four countries (India, China, Brazil and Mexico) have been consistently dominating the CDM.³⁶

³² Statistics as of October 2010, obtained from the CDM Pipeline, 1 November 2010.

³³ See Decision 17/CP.7, 'Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol' (FCCC/CP/2001/13/Add.2, 21 January 2002), Preamble, paragraph 6.

³⁴ Decision 3/CMP.1, 'Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol' (FCCC/KP/CMP/2005/8/Add.1, 30 March 2006), Annex, Paragraph 4(c).

³⁵ See for example Decision 7/CMP.1, 'Further guidance relating to the clean development mechanism' (FCCC/KP/CMP/2005/8/Add.1, 30 March 2006), Paragraph 32, where countries were requested to submit their views on the barriers to equitable distribution of CDM projects and options to address these barriers, for consideration by the COP. See also for example, Decision 2/CMP.5, 'Further guidance relating to the clean development mechanism' (FCCC/KP/CMP/2009/21/Add.1, 30 March 2010), Paragraphs 47-50. See Chapter 5 for a discussion of the various actions taken within the CDM regime to promote equitable distribution, such as the Nairobi Framework and the CDM Bazaar.

³⁶ As of March 2007, the distribution of projects among the top 4 CDM hosts was: India (33%), China (8%), Brazil - 16% and Mexico - 13%. As of January 2008, the distribution was as follows: India: 33%; China: 16%; Brazil: 12% and Mexico: 11%. As of July 2010, it was China (40%), India (22%), Brazil (7%) and Mexico (5%). As of April 2011, the distribution was: China (44%), India (21%), Brazil (6%) and Mexico (4%) (all statistics obtained by the author from the CDM website at the relevant times). The significance of these statistics is not so much that it is the same four countries that are the top CDM hosts. Much more significant is that although there has been some fluctuation in their percentage

1.2 Purpose of the Research

The purpose of this research is to determine whether an equitable geographic distribution of CDM projects can be achieved within the current CDM regime. This is particularly important at this time because the current developed country emission reduction commitments will expire in 2012 and the post-2012 regime is now being negotiated.³⁷ This affects the CDM because the emission reduction credits generated from CDM projects, referred to as Certified Emission Reductions (CERs), are used by developed countries to contribute to meeting these emission reduction commitments.³⁸

The new developed country commitments for the post-2012 period are now being negotiated and countries have agreed that the flexibility mechanisms, which include the CDM, should continue to be available to developed countries as means to achieve these commitments.³⁹

Further to this, countries are now considering ways to improve the operation of the flexibility mechanisms during the post-2012 period. One of the issues being considered under the CDM is how to improve the geographic distribution of the

shares, they still host by far the majority of all CDM projects – the distribution has not levelled out. These four countries were hosting 70% of the 516 registered CDM projects as of March 2007, 72% of the 850 projects as of January 2008, 75% of the 2312 registered projects as of August 2010 and 76% of the 2970 registered projects as of April 2011. The growth in the number of CDM projects has not led to a percentage increase in the number of projects hosted by other countries or a significant increase in the number of countries participating in the CDM. Instead, the status quo has mostly been maintained.

³⁷ The GHG emissions reduction commitments contained in the Kyoto Protocol (in Annex B) must be achieved by the end of the first commitment period which runs from 2008 to 2012 (Protocol, Article 3(1)). The Protocol does not contain the commitments for subsequent periods, but provides in Article 3(9) that consideration of these commitments shall be initiated by 2005. During COP 11 in December 2005, the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP) was established. Its aim is to determine what commitments developed countries will take on post-2012, and how they will meet those commitments.

³⁸ See Chapter 2 for a further discussion of this.

³⁹ See Decision 1/CMP.6, 'The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its fifteenth session' (FCCC/KP/CMP/2010/12/Add.1, 15 March 2011), Paragraph 6(b). See also Report of the sixth meeting of the AWG-KP (FCCC/KP/AWG/2008/8, 4 February 2009), Paragraph 22.

CDM, and various options have been proposed and are being discussed in the ongoing post-2012 negotiations.⁴⁰ In addition to efforts to improve the current mechanisms, countries are also currently considering the establishment of new market-based mechanisms to enhance the cost-effectiveness of, and to promote, mitigation actions, taking account of, *inter alia*, ensuring voluntary participation of countries, supported by the promotion of fair and equitable access for all countries.⁴¹ Learning from past and current mistakes would be useful in designing a future regime, so as to ensure that the regime is properly placed to ensure an equitable distribution of CDM projects.

This thesis will focus on determining the main reasons for the apparent inequitable geographic distribution of projects in the current CDM regime. In order to do this, there is first a need to ascertain what an equitable distribution should be. Although countries have been addressing the problem of the inequitable geographic distribution of projects for many years and have established several initiatives to address the problem, the exact nature of the problem has never been defined. There is no description of what an equitable distribution should be, so efforts to achieve this goal essentially amount to efforts to achieve an uncertain goal. This thesis fills this gap by providing a definition of equitable geographic distribution of CDM projects and identifying how projects should be distributed among developing countries. It also undertakes a critique of the CDM regime to determine if, and identify why, the distribution of projects does not fit with this ideal distribution, and then makes

⁴⁰ See 'Draft decision -/CMP.6 Emissions trading and the project-based mechanisms,' in Draft proposal by the Chair to facilitate preparations for Negotiations (FCCC/KP/AWG/2010/17, 5 November 2010), Chapter III. Paragraphs 8-15 are aimed at achieving equitable distribution of the CDM and improving access to it. Some of the other proposed options may also have the effect of helping to broaden the distribution of CDM projects, such as the inclusion of co-benefits as criteria for the registration of project activities (paragraphs 16-17) and the introduction of discount factors to decrease the CERs issued for specific project activity types (paragraphs 18-20).

⁴¹ See Decision 1/CP.16, Paragraph 80.

recommendations on how these problems can be addressed so that a more equitable geographic distribution of projects can be achieved.

As noted above, the focus of this thesis is on ascertaining whether the CDM regime can support an equitable distribution of CDM projects among countries. The focus is therefore on equitable *geographic* distribution, not on other types of distribution, such as distribution across sectors within individual countries. Consequently, all references in this thesis to “equitable distribution” are references to “equitable geographic distribution.”

1.3 Research Question

The main question this research aims to answer is “can the CDM regime support an equitable geographic distribution of projects?”

To answer this question, some sub-questions are also asked and answered, as follows:

- What is the meaning of equitable geographic distribution of CDM projects?
- What criteria should be applied to determine if a geographic distribution is equitable and what factors should be considered in efforts to achieve equitable geographic distribution of CDM projects?
- What should an ideal distribution of projects among countries be?
- Does the current distribution of CDM projects meet this ideal geographic distribution of projects?
- If the distribution of projects among countries is deemed inequitable, what are the main reasons for the inequitable distribution?

- Are there any barriers to equitable geographic distribution being addressed within the CDM regime, and if so, how?
- What steps can be taken within the CDM regime to address any inequitable geographic distribution of projects? and
- Can the CDM regime achieve an equitable geographic distribution of projects?

1.3 Justification of the Research

As highlighted above, the current distribution of CDM projects among countries appears to be inequitable. It is however difficult to state conclusively that this is the case because the CDM regime does not provide a definition of equitable geographic distribution nor does it identify the ideal geographic distribution of projects. The lack of a definition makes it difficult for targeted action to be taken within the regime to address the problem, if one exists. It also makes it difficult to measure progress in addressing the problem. Therefore, the first main contribution of this thesis is providing a definition of equitable geographic distribution and identifying what such a distribution should look like.

Secondly, within the CDM regime, many efforts have been made to address the apparent problem of the inequitable distribution of projects among countries. Such efforts include capacity building initiatives such as the Nairobi Framework and financial initiatives such as fee exemptions.⁴² To date, these initiatives do not appear to have been particularly successful. Although there has been a rapid growth in the number of CDM projects, it appears that this growth continues to be experienced only

⁴² See Chapter 5 for a full discussion of these initiatives.

by a few countries and the geographic distribution of projects, as described above, is still skewed.⁴³ One of the reasons for this could be that the initiatives are not addressing the main barriers to equitable distribution. Consequently, the second main contribution of this thesis is identifying the key reasons for the apparently inequitable geographic distribution of CDM projects.

Finally, this thesis makes recommendations regarding what can be done within the CDM regime to achieve a more equitable distribution of projects among countries. Specifically, it reaches a conclusion regarding whether or not the CDM, in the way it is set up or operates, can achieve a more equitable geographic distribution of CDM projects, and if so, how.

1.4 Methodology and Structure

To answer the research question and conduct this research, grounded theory is used.⁴⁴ Applying this methodology, the research begins with a problem area⁴⁵ and a question requiring to be answered,⁴⁶ which determine the investigations to be carried out, in this case, the materials and literature to be reviewed. In addition, as the research progresses, the questions asked and the materials to be reviewed are revised,

⁴³ See note 36 above.

⁴⁴ Grounded theory is the generation “of theory from data systematically obtained from social research.” B.G. Glaser and A.L. Strauss, *The Discovery of Grounded Theory: Strategies for Qualitative Research* (New York: Aldine de Gruyter, 1967), 2. It is theory based on, or derived from, data. Strauss and Corbin explained that in grounded theory, the “researcher does not begin a project with preconceived theory in mind...rather, the researcher begins with an area of study and allows the theory to emerge from the data.” See A. Strauss and J. Corbin, *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* 2nd ed. (Thousand Oaks: Sage Publications, 1998), 12. See also B.G. Glaser, *Doing Grounded Theory: Issues and Discussions* (Mill Valley, California: Sociology Press, 1998).

⁴⁵ That is, the apparently inequitable geographic distribution of CDM projects, as evidenced by the statistics already described above.

⁴⁶ Can the CDM regime support an equitable geographic distribution of projects?

depending on the results of the investigations carried out.⁴⁷ The main methods used to carry out the thesis are literature review and legal analysis.

The steps taken to carry out this research can be divided into three major parts, along which the thesis is structured. The first part, consisting of Chapters 1 and 2, contains the foundation of the study. Chapter 1 contains the Introduction, including the background of the study, the purpose of the research, the research question, research justification, methodology and structure. Chapter 2 provides a brief introduction to the CDM, explaining what it is, as well as its objectives, operation and structure. This chapter also explains why there is a need to achieve equitable distribution of CDM projects.

The second part comprises Chapters 3 and 4. Chapter 3 provides a definition of equitable geographic distribution, including the criteria for geographic distribution and the factors for achieving such a distribution. To do this, it investigates relevant aspects of theory and international law, with the aim of determining whether, and the extent to which, any of these can contribute to providing a definition of equitable geographic distribution of CDM projects. Firstly, the chapter examines the meaning of equity in international law generally. It then examines theories of distributive justice, which are philosophical theories that aim to determine how scarce resources should be allocated in society in a way that is “just” or “fair.”⁴⁸ The goal of equitable

⁴⁷ As data is being collected and analysed, it reveals issues that need to be addressed for the research to fulfil its aim (for example, in the case of this research, the need to investigate the meaning and application of distributive justice in international law), and points the research in the direction of more data that needs to be collected or further investigations that need to be made. The process of doing grounded theory therefore enables the data to produce the answer to the research problem, rather than having a preconceived answer and looking for data to support it.

⁴⁸ See J. Roemer, *Theories of Distributive Justice* (Cambridge/London: Harvard University Press, 1996).

geographic distribution is similar – distribution of CDM projects among developing countries in a manner that is considered equitable.⁴⁹ Consequently, these theories are also investigated to ascertain the extent to which they can be applied to the CDM regime to help achieve an equitable distribution of projects. This chapter also includes an analysis of relevant international regimes which aim at achieving equity in the distribution of a resource, benefit or burden. This is done through a review of relevant primary and secondary sources of international law, including treaties and decisions of international courts and tribunals. The purpose of these investigations is to identify the legal characteristics of equitable distribution or distributive justice (both have similar goals, but the term “equitable distribution” appears, in this context, to be unique to the CDM), in order to establish what equitable distribution in the CDM should look like.

Although there is an abundance of literature on the theories of distributive justice and equity in international law, there is very little literature on equitable distribution of CDM projects. This author was only able to identify one article whose specific purpose was to identify how CDM projects should be distributed among developing countries. This article however did not propose a definition of equitable geographic distribution.⁵⁰ In addition, there is also very little literature that sets out to examine how distributive justice is achieved in practice (rather than in theory). Most of the available literature on distributive justice focuses on the theories of distributive justice, but does not examine how distributive justice is attempted or achieved in

⁴⁹ As shown below, justice, fairness and equity are often used as synonyms. See the discussion of equity in Section 3.2 below.

⁵⁰ See A. Silayan ‘Equitable distribution of CDM projects among developing countries’ (2005) 255 *Hamburg Institute of International Economics Report* 1.

practice, specifically in international law. Nevertheless, there is literature focusing on various international regimes, identifying how they have tried to achieve equity in the distribution of a resource or benefit. This literature is reviewed and a conclusion is drawn about the definition and practice of distributive justice in international law. This conclusion, it is hoped, proves a valuable contribution to the general body of knowledge on the meaning of equitable distribution or distributive justice in international law. Following on from this conclusion, this thesis then ascertains whether the definition and practice of distributive justice in international law should also be applied to equitable geographic distribution within the CDM regime.

Because of the abundance of literature on the theories of distributive justice and equity in international law, it could be tempting, when trying to determine the meaning of equitable distribution of CDM projects, to simply borrow from the approaches or principles of equity or distributive justice in other regimes and apply these to the CDM regime. However, as is shown in Chapter 3, doing this without assessing the appropriateness of such approaches or principles for the CDM would not help the CDM to achieve its objectives, and in some cases, would actually limit the ability of the CDM to do this. Consequently, before concluding that any particular approach or principle should be applied to the CDM, this thesis, in Chapter 3, first determines its appropriateness for the CDM.

In addition to determining the meaning of equitable geographic distribution of CDM projects, this part of the thesis also sets up the analytical framework that is used to undertake the rest of the research. This analytical framework is made up of the criteria for equitable geographic distribution (that is, the elements that determine whether a

distribution of projects among countries is equitable) and the factors for achieving equitable geographic distribution (that is, those factors that should be used in efforts to achieve equitable distribution of projects among countries). These elements and factors make up the analytical framework used in undertaking the rest of the research. Chapter 4 uses this analytical framework to determine how CDM projects should be distributed among developing countries, and to ascertain whether the current distribution fits with this ideal distribution.

The third part of the thesis comprises Chapters 5-7. In Chapter 5, a critique of the legal regime governing the CDM is carried out to determine whether the regime promotes, inhibits or is neutral towards an equitable geographic distribution of CDM investment. Specifically, this chapter aims to answer the question whether an equitable geographic distribution of CDM projects can be achieved within the current CDM regime. Here, the barriers to equitable geographic distribution are examined, together with the various initiatives that have been adopted to overcome these barriers. One particular issue this critique determines is whether the market nature of the CDM is a factor affecting the equitable distribution of CDM projects. This critique is conducted mainly through a review of the abundant literature identifying the barriers to CDM participation and equitable geographic distribution of CDM projects, in order to determine the main obstacles to equitable distribution found within the CDM regime as implemented.

Lastly, Chapters 6 and 7 contain the recommendations and conclusions. Chapter 6 provides some recommendations about how the CDM regime can achieve a more equitable distribution of projects among countries, and also concludes on whether or

not the regime can achieve a truly equitable geographic distribution of projects. Finally, Chapter 7 summarizes the thesis, including the various conclusions reached in the previous chapters.

Overall, two principal methods are used by this research: an analysis of primary materials and a review of legal literature. The research question is answered through a review of relevant primary sources including treaties, other international documents, cases and literature relating to the issues of equity, distributive justice and equitable geographic distribution, as well as relating to the various international regimes examined.

CHAPTER TWO

The Clean Development Mechanism

“The clean development mechanism (CDM) is a unique mechanism for global collaboration that seeks to mitigate climate change while delivering sustainable development to the developing countries that host CDM projects.”¹

2.1 Introduction

The primary aim of this Chapter is to present an overview of the clean development mechanism (CDM), so as to provide the background for this research. A description of the CDM and its operation is provided, together with an explanation of the need to have an equitable distribution of projects. The overall aim of the chapter is to facilitate understanding of the issues discussed in this research, and of the relevant institutions and entities referred to throughout the research.

As explained in Chapter 1, the UNFCCC was adopted in 1992 with the ultimate objective of stabilising greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous human interference with the climate system.² To achieve this objective, the Convention requires all countries, *inter alia*, to: formulate and implement national and regional programmes containing measures to address climate change; and promote and cooperate in the development and transfer of technologies

¹ Comment made by Mr. Kivutha Kibwana, Minister for the Environment and Natural Resources of Kenya and President of the CMP at its second session when introducing the agenda item on issues relating to the CDM. See Report of COP/MOP 2 (FCCC/KP/CMP/2006/10, 26 January 2007), Paragraph 31.

² See UNFCCC, Article 2.

that control, reduce or prevent greenhouse gas emissions.³ In addition, developed countries, to demonstrate that they are taking the lead in addressing climate change, are required to adopt policies and measures on climate change mitigation, with the aim of returning to their 1990 GHG emission levels.⁴ However, due to the general nature of these commitments, it was recognised that they are inadequate to achieve the objective of the Convention, and the process to adopt a protocol containing more adequate commitments was launched at the first Conference of the Parties (COP 1)⁵ in 1995.⁶ Pursuant to this, the Kyoto Protocol was adopted in 1997 and contains binding, quantitative emission reduction commitments for developed countries, but no additional commitments for developing countries.⁷

Under the Kyoto Protocol, developed countries must ensure that their total emissions of the greenhouse gases listed in Annex A of the Protocol do not exceed their allowed emission levels.⁸ The aim is to reduce their overall emissions of these gases by at least 5% below 1990 levels in the Kyoto Protocol first commitment period (2008 to 2012). To help developed countries fulfil these commitments, three “flexibility” mechanisms were established, to give these countries some flexibility in how they meet their commitments and also to reduce the costs of relevant actions.⁹ The mechanisms are Joint Implementation, emissions trading and the CDM. Participation in Joint

³ Ibid, Article 4.

⁴ Ibid, Article 4(2).

⁵ The Conference of the Parties (COP) is the supreme and ultimate decision-making body of the Convention, responsible for the governance of the Convention. It is in charge of making decisions necessary for the effective implementation of the Convention. See UNFCCC, Article 7. See generally Dawson and Spannagle, *supra* Chapter 1, note 15, at 382-384.

⁶ See Decision 1/CP.1, Preamble, paragraphs 2 and 3.

⁷ See Kyoto Protocol, Articles 3 and 10.

⁸ Ibid, Article 3(1) and Annex A. The gases in Annex A are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride.

⁹ Ibid, Articles 6, 12 and 17. See also Grubb, *supra* note 19; and Yamin and Depledge, *supra* note 15.

Implementation and emissions trading is restricted to developed countries, while participation in the CDM is open to developed and developing countries.¹⁰

Countries that qualify as “developed” and “developing” are Annex I and non-Annex I country parties to the UNFCCC, respectively. Annex I countries are those countries listed in Annex I of the UNFCCC, and comprise industrialised countries and those with economies in transition to a market economy. The countries not identified in Annex I (non-Annex I countries), are regarded as “developing” countries.¹¹

2.2 The Clean Development Mechanism

The CDM is a project-based mechanism established by Article 12 of the Protocol.¹² Under the CDM, project activities can generate emission reduction credits through activities implemented in developing countries that result in less GHG emissions than would otherwise have been produced. To be registered as a CDM project, a project must show that it would result in emission reductions that are additional to any that would occur in the absence of the project.¹³ This is referred to as the additionality test.

¹⁰ Participation in Joint Implementation and emissions trading is restricted to developed countries that have emission reduction targets under the Protocol. See generally on Joint Implementation, K. Illum and N.I. Meyer, ‘Joint implementation: methodology and policy considerations’ (2004) 32 *Energy Policy* 1013; and S. Fankhauser, ‘The Investment climate for climate investment: joint implementation in transition countries’ (2003) 3 *Climate Policy* 417. On emissions trading, see M. Evans, ‘Emissions trading in transition economies: the link between international and domestic policy’ (2003) 31 *Energy Policy* 879; and J. Robinson *et al.*, *Climate Change Law: Emissions Trading in the EU and the UK* (London: Cameron May, 2007). See also Chapter 1, note 29.

¹¹ See http://unfccc.int/parties_and_observers/items/2704.php ‘Parties and observers’ (UNFCCC, 11/02/2011). See http://unfccc.int/parties_and_observers/parties/annex_i/items/2774.php ‘List of Annex I Parties to the Convention’ and http://unfccc.int/parties_and_observers/parties/non_annex_i/items/2833.php ‘List of non-Annex I Parties to the Convention’ (UNFCCC, 11/02/2011), for the lists of Annex I and non-Annex I country parties to the UNFCCC.

¹² On the CDM generally, see Wersksman, *supra* Chapter 1, note 27; J. Goldemberg (ed), *Issues and Options – The Clean Development Mechanism* (New York: UNDP, 1998); UNDP, *supra* Chapter 1, note 28; UNEP, *supra* Chapter 1, note 28; and M. Lee (ed) *CDM Information and Guidebook*, 2nd ed. (Roskilde: UNEP, 2004).

¹³ See Kyoto Protocol, Article 12(5)(c); and Decision 3/CMP.1, Annex, Paragraph 37(d) and 43.

In order to prove additionality, it is necessary to establish a baseline, which is the scenario that reasonably represents the GHG emissions that would occur (that is, the level of emissions that would ordinarily be produced) in the absence of the proposed project activity.¹⁴ Reductions below this baseline as a result of the CDM project are the additional reductions and it is for these additional reductions that emission reduction credits are issued.¹⁵ The emission reduction credits generated, known as Certified Emission Reductions (CERs),¹⁶ can then be used by developed countries in part-compliance¹⁷ with their emission reduction or limitation targets under the Protocol.¹⁸

The two main objectives of the CDM are to contribute to sustainable development in developing countries and to contribute to climate change mitigation through the GHG emission reductions achieved by CDM projects. Generally, in relation to developing countries, the CDM aims to assist developing countries to achieve sustainable development¹⁹ and also to contribute to the ultimate objective of the Convention²⁰

¹⁴ Decision 3/CMP.1, Annex, Paragraph 44.

¹⁵ Ibid, Paragraph 59. See generally Lee, *supra* note 12.

¹⁶ The resulting emission reductions have to first be certified by a body known as the Designated Operational Entity, and once certified, are issued as Certified Emission Reductions (CERs). One CER is equal to one tonne of carbon dioxide equivalent reduced (such as through an energy efficiency project) or removed from the atmosphere (such as through an afforestation project). See Decision 3/CMP.1, Annex, Paragraph 1.

¹⁷ Developed countries are not permitted to use the Protocol's flexibility mechanisms to meet all their emission reduction or limitation targets. They must also implement domestic measures to reduce their GHG emissions. This is known as the 'supplementarity' rule. See Kyoto Protocol, Articles 6(1)(d), 12(3)(b) and 17.

¹⁸ Ibid, Article 12(3)(b). These emission reduction or limitation targets are set out in Protocol Annex B.

¹⁹ Sustainable development has been defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." See Report of the World Commission on Environment and Development: Our Common Future (UN Document A/42/427, 4 August 1987, Annex). This is the most commonly applied definition. See G. Loibl, 'The evolving regime on climate change and sustainable development' in N. Schrijver and F. Weiss (eds.), *International Law and Sustainable Development: Principles and Practice* (Leiden/Boston: Martinus Nijhoff Publishers, 2004), at 97. See also P. Sands, *Principles of International Environmental Law* 2nd ed. (Cambridge: Cambridge University Press, 2003), 10; and M.C. Segger and A. Khalfan, *Sustainable Development Law: Principles, Practices & Prospects* (Oxford: Oxford University Press, 2004), 2.

through the reduction in their GHG emissions achieved by the CDM projects.²¹ In relation to developed countries, the CDM aims to provide them with cost-effective opportunities to comply with their emission reduction commitments.²²

As noted above, the Kyoto Protocol does not contain binding emission reduction commitments for developing countries, and so for these countries, the CDM is one way for them to contribute to the climate change mitigation objective of the Convention. In addition to the benefits to the climate change mitigation process, the CDM should benefit developing countries by creating a “green” investment flow to host developing countries. CDM project activities implemented in developing countries represent funding and investment that are additional to the official development assistance received by these countries and are also additional to the

The concept suggests that economic development should be achieved in an integrated manner with environmental protection and has been described as an attempt to reconcile these two (environmental protection and human development), recognising that the environment provides the resources needed for economic development. See D. French, *International Law and Policy of Sustainable Development* (Manchester: Manchester University Press, 2005), 2, 3 and 10; and X. Fuentes, ‘International law-making in the field of sustainable development: the unequal competition between development and the environment’ in Schrijver and Weiss, 7. Therefore, key ideas included in the concept of sustainable development are: economic development, including meeting the needs of present and future generations; and environmental protection. See for example, Report of the Fourth World Conference on Women, 17 October 1995 (UN Doc. A/CONF. 177/20), Annex, Paragraph 36 (Beijing Declaration), which states that “...economic development, social development and environmental protection are interdependent and mutually reinforcing components of sustainable development, which is the framework for our efforts to achieve a higher quality of life for all people...” See also Rio Declaration on Environment and Development, in Report of the United Nations Conference on Environment and Development (A/CONF.151/26, Vol. I, 12 August 1992), reprinted in (1992) 31 ILM 876 (Rio Declaration), Principle 4. The general objective of the CDM is therefore to promote sustainable development as defined under international law. However, under the CDM, it is the prerogative of developing countries to ascertain or confirm that specific projects contribute to their sustainable development (Decision 3/CMP.1, Annex, Paragraph 40(a)). Therefore, for individual CDM projects, the objective is to promote sustainable development as defined by individual host countries, as there is no standard definition of sustainable development under the CDM.

²⁰ The ultimate objective of the Convention is to stabilise GHG concentrations in the atmosphere at a level that would prevent dangerous human interference with the climate system. See UNFCCC, Article 2.

²¹ Kyoto Protocol, Article 12(2).

²² Ibid.

financial obligations of developed countries contained in the Convention.²³ The investment received by these developing countries for CDM projects should assist them in achieving some of their sustainable development objectives, including economic and environmental goals, by providing, among other things, clean technology, greater access to energy, such as through renewable energy projects, energy efficiency systems,²⁴ more jobs, capacity building, cleaner air and water,²⁵ and more sustainable use of land and other natural resources. The benefit to developed countries is the lower marginal abatement cost of reducing emissions in developing countries compared to reducing them in developed countries.²⁶

The CDM is therefore a way of involving both developed and developing countries in the global efforts to mitigate climate change, while at the same time, contributing to the sustainable development of developing countries. The kinds of projects that are eligible for CDM registration are not prescribed by the legal regime, but the CDM Accreditation Panel has published a list of 15 sectoral scopes from which CDM projects can emerge.²⁷ The only type of projects that appears to be completely prohibited is nuclear energy projects.²⁸

²³ See Decision 17/CP.7, Preamble, paragraph 7; and Decision 3/CMP.1, Appendix B, paragraph 2(f).

²⁴ Which result in lower energy costs, thereby making energy more affordable and accessible, resulting in a better standard of living.

²⁵ Giving rise to better health, greater life expectancy and a stronger and larger work force.

²⁶ See D. Diakoulaki, 'A multicriteria approach to identify investment opportunities for the exploitation of the clean development mechanism' (2007) 35 *Energy Policy* 1088, 1088; and T. Brechet and B. Lussis 'The contribution of the clean development mechanism to national climate policies' (2006) 28 *J. Policy Modeling* 981, 982.

²⁷ See CDM-ACCR-06 'List of sectoral scopes', available online at <http://cdm.unfccc.int/DOE/scopelst.pdf> (UNFCCC, 06/08/2010). The scopes are: energy industries, distribution and demand, manufacturing industries, chemical industry, construction, transport, mining/mineral and metal production, fugitive emissions from fuels and production and consumption of halocarbons and sulphur hexafluoride, solvents use, waste handling and disposal, afforestation and reforestation, and agriculture.

²⁸ Decision 17/CP. 7, Preamble, paragraph 5 "recognises" that Annex I Parties are to refrain from using CERs generated from nuclear facilities to meet their Kyoto Protocol commitments. However, the only

2.2.1 CDM Participation Requirements

The legal regime governing the CDM lays down certain participation requirements and only those countries that fulfil these requirements can participate in the CDM. There are 3 basic requirements that must be fulfilled by both developed and developing countries to make them eligible to participate in the CDM. These requirements are: ratification of the Kyoto Protocol; establishment of a Designated National Authority; and (confirmation of) voluntary participation. In addition to these three basic requirements, developed countries have additional requirements to fulfil. These requirements include: calculation of their assigned amounts under Protocol Articles 3(7) and 3(8); establishment of national systems for the estimation of greenhouse gases; establishment of national registries in accordance with Protocol Article 7(4); submission of annual inventories; and submission of supplementary information in accordance with Protocol Articles 7(1) and 7(4).²⁹ These will however not be examined here, as they do not apply to developing countries. Developing countries are only required to fulfil the three basic requirements which are common to developed and developing countries, and are as follows:

a) Ratification of the Kyoto Protocol: participation in the CDM is only open to those countries that have ratified the Protocol, and therefore countries may only

eligible land use, land use change and forestry projects are afforestation and reforestation projects. See Paragraph 7(a) of Decision 17/CP.7. In addition, the eligibility of certain other project types has also been subject to negotiation. For example, countries debated the eligibility of projects that involve carbon dioxide capture and storage in geological formations and agreed that such projects would be eligible as CDM projects if certain issues are resolved. See Decision 7/CMP.6, Carbon dioxide capture and storage in geological formations as clean development mechanism project activities (FCCC/KP/CMP/2010/12/Add.2, 15 March 2011) and T. Akanle *et al.*, 'Summary of the Cancun Climate Change Conference' (December 2010) <http://www.iisd.ca/download/pdf/enb12498e.pdf>, www.iisd.ca (IISD, 01/03/2011), 26.

²⁹ See Decision 3/CMP.1, Annex, Paragraph 31. See also Lee, *supra* note 12, at 13.

participate in the CDM once they become Parties to the Protocol.³⁰ Both private entities, such as companies, and public entities, such as governments or government agencies, are allowed to participate in the CDM.³¹ However, before private entities can participate in the CDM, they must be authorised to do so by countries that are eligible to participate in the CDM.³²

As of November 2010, there are 152 developing country Parties to the Kyoto Protocol. The only developing country that has not ratified the Protocol is Afghanistan.³³

b) Establishment of a Designated National Authority: to participate in the CDM process, countries must establish a Designated National Authority (DNA) for the CDM,³⁴ which will serve as a point of contact within that country for information on the CDM.³⁵ The DNAs of Parties are identified on the Convention website.³⁶

The functions of the DNA are primarily to communicate voluntary participation in the CDM to the Designated Operational Entity (DOE)³⁷ and, in the case of the host country DNA, to confirm that the CDM project activity will assist the host country in

³⁰ Decision 3/CMP.1, Annex, Paragraphs 30 and 31(a).

³¹ Kyoto Protocol, Article 12(9).

³² See Decision 3/CMP.1, Annex, Paragraph 33. The Designated National Authority (DNA) of each country usually issues a letter of authorisation to the private entity, confirming that it, the country, is a Party to the Kyoto Protocol, and authorising the private entity's participation in the CDM project. The letters of authorisation issued by DNAs are available on the CDM website <http://cdm.unfccc.int> under the description of each CDM project.

³³ See http://unfccc.int/parties_and_observers/parties/items/2352.php 'Parties to the Convention and Observer States' and http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php 'Status of ratification of the Kyoto Protocol' (UNFCCC, 09/11/2010).

³⁴ Decision 3/CMP.1, Annex, Paragraph 29.

³⁵ See generally UNDP, *supra* Chapter 1, note 28, at 60-62.

³⁶ See <http://cdm.unfccc.int/DNA/index.html> 'Designated National Authorities' (UNFCCC, 24/11/2010).

³⁷ DOEs are legal entities accredited to *inter alia* validate CDM project activities, and verify and certify emission reductions generated by CDM project activities. See Decision 3/CMP.1, Annex, Paragraphs 26-27. See also UNDP, *supra* Chapter 1, note 28, at 20-22.

achieving its sustainable development goals.³⁸ The role of the DNA therefore includes evaluating and approving proposed projects, ensuring that they conform to national CDM rules and modalities, and that they are in line with the country's sustainable development agenda. In addition to these basic functions of the DNA, DNAs usually perform a variety of other functions relating to actively promoting the CDM in their countries.³⁹

As of November 2010, 123 developing countries have established DNAs – 46 in the African region, 40 in Asia and the Pacific, 28 in Latin America and the Caribbean, and 9 in the “others” category (which includes developing countries in Europe such as Georgia).⁴⁰ This means 123 developing countries are eligible to participate in the CDM.⁴¹

c) Voluntary Participation: participation in the CDM is voluntary and hence countries must approve their participation in each project activity.⁴² The project participants involved in each project must provide written notice to the DOE confirming that they are participating voluntarily in the project, before the DOE submits its validation report to the CDM Executive Board.⁴³ As mentioned above, it is

³⁸ Decision 3/CMP.1, Annex, Paragraph 40(a).

³⁹ For more information on DNAs, see Baker and McKenzie, *Legal Issues Guidebook to the CDM* (Roskilde: UNEP, 2004), 24–28; and C. Figueres (ed), ‘Establishing national authorities for the CDM: a guide for developing countries’ (2002) http://www.iisd.org/ckn/pdf/cdm_national_authorities.pdf, www.iisd.org (24/11/2010), 60-68.

⁴⁰ See <http://cdm.unfccc.int/Statistics/Registration/RegisteredDNAPieChart.html> ‘Designated National Authorities’ (UNFCCC, 24/11/2010) and <http://cdm.unfccc.int/DNA/index.html> ‘Designated National Authorities’ (UNFCCC, 24/11/2010).

⁴¹ See Appendix A below for a list of all developing countries that are eligible to participate in the CDM. Although there are three requirements – ratification of the Protocol, establishment of a DNA and voluntary participation, in practical terms, eligibility is determined by the first two. Countries must then approve their participation in each project activity, to signify their voluntary participation.

⁴² Kyoto Protocol, Article 12(5)(a) and Decision 3/CMP.1, Annex, Paragraph 28.

⁴³ See Decision 3/CMP.1, Annex, Paragraph 40(a). The CDM Executive Board (the Executive Board) is the CDM supervisory body and is responsible for the operation of the CDM. It is under the authority

the responsibility of country DNAs to provide this notice of voluntary participation. Therefore project participants, both public and private entities, obtain this written notice from their country DNAs and submit to the DOE.⁴⁴

2.2.2 Structure of the CDM

Article 12 of the Kyoto Protocol defines the CDM as a mechanism under which developing countries benefit from project activities resulting in CERs, and developed countries can use the CERs generated from such project activities to comply with part of their emission reduction targets. This definition of the CDM is somewhat vague, and does not specify its exact structure, other than that it is to be project-based. However, as the rules and practice have been established and/or developed, the structure of the CDM has emerged, and this research can identify three elements of the structure: it is project-based, market-based and has an “open architecture.”

The CDM is project-based in that under the mechanism, project activities are implemented in the host developing country, and these project activities generate CERs which developed countries can use for the purpose of meeting their Protocol targets.⁴⁵ In addition to the registration of individual project activities as separate CDM projects, several project activities can be registered as a single CDM project under the CDM Programme of Activities (CDM PoA).⁴⁶ The CDM Executive Board has defined a CDM PoA as a voluntary coordinated action by a public or private

and guidance of, and fully accountable to, the COP/MOP. See Paragraph 5. See generally on the Executive Board, UNDP, *supra* Chapter 1, note 28, at 22; and Figueres, *supra* note 39, at 22-23.

⁴⁴ See Decision 3/CMP.1, Annex, Paragraph 40(a).

⁴⁵ See Kyoto Protocol, Article 12(3). See also F. Lecocq and P. Ambrosi, ‘The clean development mechanism: history, status, and prospects’ (2007) 1 *REEP* 134, 139; and J. Ellis *et al.*, ‘CDM: taking stock and looking forward’ (2007) 35 *Energy Policy* 15.

⁴⁶ On the CDM PoA generally, see UNEP, *Primer on CDM Programme of Activities* (Roskilde: UNEP, 2009); and J. Ellis, ‘Issues related to a programme of activities under the CDM’ (May 2006) <http://www.iea.org/papers/2006/CDMissues.pdf>, www.iea.org (12/01/2011).

entity which coordinates and implements any policy/measure or stated goal, such as incentive schemes. Such a policy/measure or goal can be implemented via an unlimited number of project activities (referred to as CDM programme activities or CPAs) which must result in GHG emission reductions or removals that are additional to any that would occur in the absence of the activities.⁴⁷ CDM programme activities can be included in the PoA at the time of registration and an unlimited number can be added to the PoA at any time in the duration of the PoA. These activities can take place in a single or multiple locations and can involve a single measure or inter-related measures to reduce GHG emissions.⁴⁸

The CDM is also a market-based⁴⁹ instrument under which developed country entities can either invest in GHG emission reduction projects in developing countries and benefit from the CERs generated, or buy CERs directly from the host developing country or entity, or other developed country entities.⁵⁰

⁴⁷ See 'Procedures for registration of a programme of activities as a single CDM project activity and issuance of certified emission reductions for a programme of activities' (version 03) Report of the 47th Meeting of the Executive Board, Annex 29 (May 2009) http://cdm.unfccc.int/EB/047/eb47_repan29.pdf (UNFCCC, 12/01/2011), 1.

⁴⁸ See UNEP, *supra* note 46, at 11. An example of a CDM PoA is the Masca Small Hydro Programme which aims at developing a series of small hydroelectric projects in Honduras. There is currently one registered programme activity under this PoA and at least three others seeking inclusion in the PoA. See the PoA design document at <http://cdm.unfccc.int/filestorage/RX67DVBETWMS049YAZ18FPU3NJKI25/PoA-DD%20Masca.pdf?t=TFh8MTI5NDg0MzQyOS43Mw==|14f8ZbBj3yDOu9CcrdD5sGjoMuQ=> (UNFCCC, 12/01/2011) and the CDM programme activity design document at http://cdm.unfccc.int/filestorage/R853T1QP69NEMY4HBJXA20CWLIKSUZ/CPA-DD%20Masca%20PoA%20Matarras%20I.pdf?t=dTZ8MTI5NDg0MzYyNC43MQ==|yu1cHd6xWb4IB9p65AGWiYPVV_k= (UNFCCC, 12/01/2011).

⁴⁹ A market has been defined as "a decentralised collection of buyers and sellers whose interactions determine the allocation of a good or set of goods through exchange." See S. Olmstead and N. Keohane, *Markets and the Environment* (Washington: Island Press, 2007), 56.

⁵⁰ See UNDP, *supra* Chapter 1, note 28, at 11, where the authors note that "CDM investments will be market driven." See also A.E. Prouty, 'The clean development mechanism and its implications for climate justice' (2009) 34 *Colum. J. Env't'l L.* 513, 522; and J. Ellis and S. Kamel, 'Overcoming barriers to clean development mechanism projects' (2007), <http://www.oecd.org/dataoecd/51/14/38684304.pdf>, www.oecd.org (20/01/2010), 8.

Thirdly, the CDM can be described as having an “open architecture” in which unilateral, bilateral and multilateral CDM projects are allowed.⁵¹ Unilateral projects are projects developed, financed and implemented by host developing country entities, which then sell on the CERs generated by the projects. In this case, there is no foreign investment involved, and developed country entities would simply buy CERs from the host developing country entities.⁵² Bilateral projects involve developed country entities in the development, financing and implementation of the projects.⁵³ These projects involve foreign investment in the actual CDM projects, beyond mere purchase of the CERs generated by the projects.⁵⁴ Multilateral projects involve several developed country public or private entities, which usually act through [multilateral] funds. The developed country entities, which are interested in obtaining CERs, contribute money to these funds, which then invest in projects or purchase CERs on behalf of the contributing public or private entities.⁵⁵ Examples include the various carbon funds administered by the World Bank, such as the Prototype Carbon Fund, which is a partnership of 17 companies and 6 governments.⁵⁶ In this scenario the funds either invest directly in the underlying project, as with bilateral projects, or

⁵¹ Baumert *et al* outline the different possible structures the CDM could take – unilateral, bilateral and multilateral – and advocate what they termed an “open architecture” under which all three structures would be allowed. See K.A. Baumert *et al.*, ‘Designing the clean development mechanism to meet the needs of a broad range of interests’ (August 2000) http://pdf.wri.org/cdm_design_note.pdf www.wri.org (23/02/2010).

⁵² See M. Krey, ‘Transaction costs of unilateral CDM projects in India—results from an empirical survey’ (2005) 33 *Energy Policy* 2385, 2387; and Baumert *et al*, *supra* note 51, at 6.

⁵³ See Baumert *et al*, *supra* note 51, at 3.

⁵⁴ See Lecocq and Ambrosi, *supra* note 45, at 143.

⁵⁵ See ‘Promoting sustainable energy technology transfers through the CDM: converting from a theoretical concept to practical action’ (February 2008) <http://www.jiqweb.org/images/stories/articles/ENTTRANSd2.pdf>, www.jiqweb.org (23/07/2010), 34.

⁵⁶ See <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANC/E/0,,contentMDK:21630008~menuPK:5216148~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html> ‘Prototype Carbon Fund’ (World Bank, 08/02/2010).

merely purchase the CERs generated, as with unilateral projects. The difference is that in the multilateral structure, the fund acts on behalf of several developed country entities, the funding provided by the developed country entities are channelled through this fund, and the CERs generated are for the benefit of these entities.⁵⁷ All three models currently operate in the CDM market.

2.3 The Need for Equitable Geographic Distribution

As the aim of this research is to identify the reasons why the distribution of CDM projects among countries is inequitable and suggest ways of addressing this problem, one issue that needs to be addressed is the importance of having an equitable geographic distribution of CDM projects. The first CDM project was registered in 2004, and there are now more than 5000 projects in the CDM pipeline at different stages of the registration process, including over 2500 registered projects.⁵⁸ However, the distribution of these projects among developing countries varies considerably, from many countries hosting no project at all, to a few hosting several hundred projects and one country (China) hosting over a thousand projects.⁵⁹

Because it does not actually matter to the atmosphere where emission reductions take place, it could be suggested that it does not matter where CDM projects are hosted, provided CDM projects are being registered and climate change mitigation is being achieved. However, one of the main reasons for seeking equitable geographic distribution of projects lies in the CDM objective of promoting sustainable development. According to Article 12 of the Kyoto Protocol, the CDM should, *inter*

⁵⁷ Baumert *et al.*, *supra* note 51, at 4.

⁵⁸ Statistics correct as of November 2010. See the CDM Pipeline, 1 November 2010.

⁵⁹ See Chapter 4 for the current distribution of projects among developing countries.

alia, contribute to sustainable development in developing countries. The CDM is not intended to promote sustainable development in just a few developing countries, but in as many countries as possible.⁶⁰

A key driver of developing countries' acceptance of the CDM during the Kyoto Protocol negotiations was the explicit mention of sustainable development as a goal of the CDM.⁶¹ They accepted the mechanism with the expectation that it would help them achieve sustainable development - it was never the intention that it would only help a select few achieve sustainable development, but that all countries should have the opportunity to derive this benefit from the CDM.⁶² According to the Convention, countries have a right to promote sustainable development.⁶³ One of the central principles of sustainable development is equity, including in the distribution of resources, in order to eradicate poverty and ensure the meeting of [basic] needs.⁶⁴ In

⁶⁰ See H. Oppenoorth *et al.*, 'The Bali guide on CDM: towards a sustainable CDM' (November 2007) http://www.snm.nl/pdf/klimaattopbali_brochure_bali_guide_def_webversie_copy.pdf <http://www.snm.nl/> (19/07/2010), 17, where the authors quoted the Chairman of the African Group to COP12 as saying that, "If we knew then what we know now, we would not have agreed to the CDM," referring to the fact that the CDM is not working for Africa.

⁶¹ See A.P. Sari and S. Meyers, 'Clean development mechanism: perspectives from developing countries' (June, 1999), <http://ies.lbl.gov/iespubs/43418.pdf>, <http://ies.lbl.gov/> (05/08/2010), 2, 5 and 11; and Prouty, *supra* note 50, at 522 and 536.

⁶² See A. Michaelowa, 'CDM: current status and possibilities for reform' (November 2005) http://www.hwwi.org/uploads/tx_wilpubdb/HWWI_Research_Paper_3.pdf, www.hwwi.org (23/02/2010), where the author points out that, "if the CDM really aims to promote sustainable development in the developing countries, all developing countries would have to participate in the CDM." In relation to this thesis, the point is that all developing countries should *have the opportunity* to participate in the CDM (not that they *must* participate in the CDM, given that as discussed above under participation requirements, participation in the CDM is voluntary). See also S. Huq, 'Applying sustainable development criteria to CDM projects: PCF experience' (April 2002), <http://www.iied.org/pubs/pdfs/G00083.pdf>, www.iied.org (04/08/2010), 22, where the author notes that, "Projects need to be equitably spread across the developing countries, otherwise only a handful of developing countries will be able to participate effectively in this market."

⁶³ See UNFCCC, Article 3(4). Sustainable development is one of the key themes of the UNFCCC. See French, *supra* note 19, at 80-81. See also D.B. Magraw and L.D. Hawke, 'Sustainable development' in D. Bodansky *et al.*, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007), 614, 618. See note 19 above for more on sustainable development.

⁶⁴ See French, *supra*, note 19, at 28-30, 59-62, 65-66; ILA New Delhi Declaration of Principles of International Law Relating to Sustainable Development (2002) 2 *International Environmental Agreements: Politics, Law and Economics* 211, 213 (principle 2.1); S. Beder, 'Costing the earth:

addition to ensuring the meeting of needs and eradication of poverty, the other key component of sustainable development is the protection of the environment – sustainable development aims at ensuring that economic development and environmental protection are achieved in an integrated manner.⁶⁵ Equitable geographic distribution of CDM projects will provide all developing countries with the opportunity to do both – to enjoy the social and economic benefits of CDM projects, and also to protect the environment through the GHG emission reductions achieved by the projects.⁶⁶ Therefore, because the CDM is a mechanism for achieving GHG emission reductions and for promoting sustainable development, the location and distribution of projects are important, in order to ensure that all developing countries are able to take advantage of CDM projects and the benefits they provide.

In addition, the UNFCCC and its Kyoto Protocol have equity as one of the key principles of the climate change regime.⁶⁷ As an instrument of this regime, the CDM firstly must follow these principles and rules,⁶⁸ and secondly, was established, among

equity, sustainable development and environmental economics' (2000) 4 *NZ J. Env't'l Law* 227, 227; and Segger and Khalfan, *supra* note 19, at 122-132.

⁶⁵ See French, *supra* note 19, at 2, 3 and 10; and Fuentes, *supra* note 19, at 7. See also A. Ross, 'Modern interpretations of sustainable development' (2009) 36 *J. L. & Society* 32.

⁶⁶ Article 12 of the Protocol provides that in relation to developing countries, the objectives of the CDM are to help these countries achieve sustainable development and also to contribute to the Convention's ultimate objective of stabilising GHG concentrations in the atmosphere.

⁶⁷ Equity is factored into every aspect of the climate change regime, from the ultimate objective of the regime, to the activities to achieve this objective (such as in the distribution of the responsibilities for addressing the climate change problem), and the financing of these activities. The issue of equity in the climate change regime is discussed more extensively in Section 3.3. See generally, J.C. Wood, 'Intergenerational equity and climate change' (1996) 8 *GIELR* 293; J. Ashton and X. Wang, 'Equity and climate: in principle and practice' in *Beyond Kyoto: Advancing the International Effort against Climate Change* (Pew Center on Global Climate Change, 2003); and E. Claussen and L. McNeilly, 'Equity & global climate change: the complex elements of global fairness' http://www.pewclimate.org/docUploads/pol_equity.pdf, www.pewclimate.org (1998).

⁶⁸ See P. Cullet, 'Equity and flexibility mechanisms in the climate change regime: conceptual and practical issues' (1999) 8 *RECIEL* 168, 178.

other things, to contribute to the fulfilment of the objective of the regime.⁶⁹ It is therefore important that the CDM, like the Convention and Protocol, should promote equity in its implementation, including in the way CDM projects, which are the main products of the CDM, are distributed.

Furthermore, countries have repeatedly called for equitable distribution of projects, making it apparent that equitable distribution of projects *is*, in fact, important to them. In 2001, when establishing the rules to govern the CDM, COP 7 recognised the need to promote equitable distribution of projects.⁷⁰ Subsequently, at its first meeting in December 2005, the Conference of the Parties serving as the Meeting of the Parties to the Protocol⁷¹ (COP/MOP 1) identified addressing the issue of equitable distribution of CDM projects as one of its roles, with a focus on the regional and sub-regional distribution of projects.⁷² At COP/MOP 2, the CDM Executive Board reported on its efforts to promote equitable distribution, such as the adoption of simplified modalities for small-scale projects and establishment of the DNA Forum.⁷³ All subsequent decisions in relation to the CDM acknowledge the need to ensure an equitable distribution of CDM projects among countries and regions, and various actions have been taken, all aimed at achieving this goal.⁷⁴ However, the goal has proven elusive,

⁶⁹ Protocol Article 12(2) provides *inter alia* that the purpose of the CDM is to assist developing countries to contribute to the ultimate objective of the Convention and to assist developed countries to achieve compliance with their emission reduction commitments under the Protocol.

⁷⁰ Decision 17/CP.7, Preamble, paragraph 6.

⁷¹ The Conference of the Parties serving as the Meeting of the Parties to the Protocol (COP/MOP) is the supreme body of the Kyoto Protocol. See Kyoto Protocol, Article 13.

⁷² Paragraph 4(c) of the Annex to Decision 3/CMP.1 provides that the COP/MOP shall “review the regional and subregional distribution of CDM project activities 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 Executive Board.”

⁷³ See the 2005-2006 Annual Report of the Executive Board to the COP/MOP, Addendum (FCCC/KP/CMP/2006/4/Add.1 (Part I), 7 November 2006), Paragraph 9.

⁷⁴ See the following, which are examples taken from all the meetings of the COP/MOP so far, from COP/MOP 1 in 2005 to COP/MOP 6 in 2010: Decision 7/CMP.1, Paragraphs 32-35 (COP/MOP 1,

and the distribution of CDM projects, both nationally and regionally, is still inequitable, and it is important to determine why, in order to help fulfil both objectives of the mechanism, as well as to ensure equity among developing countries. Huq points out that “experience so far has shown that it is likely that a small number of developing countries (e.g. China, India, South Africa, Brazil and few Latin American countries) could effectively account for almost all CDM projects if there is no concerted effort to enable other (smaller and poorer) developing countries to access the CDM market.”⁷⁵

December 2005); Decision 1/CMP.2, Paragraphs 31 – 42 (COP/MOP 2, December 2006); Decision 2/CMP.3, ‘Further guidance relating to the clean development mechanism’ (FCCC/KP/CMP/2007/9/Add.1, 14 March 2008), Paragraphs 26 – 42 (COP/MOP 3, December 2007); Decision 2/CMP.4, ‘Further guidance relating to the clean development mechanism’ (FCCC/KP/CMP/2008/11/Add.1, 19 March 2009), Paragraphs 48 – 63 (COP/MOP 4, December 2008); Decision 2/CMP.5, ‘Further guidance relating to the clean development mechanism’ (FCCC/KP/CMP/2009/21/Add.1, 30 March 2010), Paragraphs 44 – 55 (COP/MOP 5, December 2009); and Decision 3/CMP.6, ‘Further guidance relating to the clean development mechanism’ (FCCC/KP/CMP/2010/12/Add.2, 15 March 2011), Paragraphs 61 – 69 (COP/MOP 6, December 2010).

⁷⁵ Huq, *supra* note 62, at 10.

CHAPTER THREE

Defining Equitable Distribution

3.1 Introduction

As outlined in Chapter 1, the aim of this thesis is to determine whether the CDM regime can support an equitable geographic distribution of CDM projects. One of the stated objectives of the CDM is to promote sustainable development in host developing countries. Equity and distributive justice are key aspects of sustainable development, and as highlighted in Chapter 2, to be truly promoting sustainable development and to give all developing countries the opportunity to contribute to the ultimate objective of the Convention, there ought to be an equitable distribution of CDM projects.¹ A key objective of this thesis therefore is to determine whether the current distribution of CDM projects among countries is equitable, and to identify the reasons for the inequitable geographic distribution, if the distribution is deemed to be inequitable.

In order to determine whether the current distribution of projects is equitable, it is necessary first to ascertain the meaning of “equitable geographic distribution.” Even before COP/MOP 1 in 2005, countries have been calling for efforts to ensure an equitable distribution of projects.² Most COP/MOP decisions relating to the CDM deal with the need to ensure an equitable distribution of CDM projects, and various

¹ See the discussion of the need for equitable distribution in Section 2.3.

² In 2001, when establishing the rules to govern the CDM, countries recognised the need to promote equitable distribution of projects. See Decision 17/CP.7, Preamble, paragraph 6. At COP/MOP 1, countries requested the Executive Board to report on barriers to equitable distribution and options to address these barriers. This report was made by the Executive Board at COP/MOP 2. See Decision 7/CMP.1, Paragraph 33 and the 2005-2006 Annual Report of the Executive Board to the COP/MOP, Addendum (FCCC/KP/CMP/2006/4/Add.1 (Part I), 7 November 2006), Paragraph 9.

actions have been taken, all aimed at achieving this goal.³ Despite these repeated calls however, the actual meaning of the term “equitable geographic distribution” has not been defined or described by any of these bodies or in any of these documents, neither has the ideal distribution of projects among countries been identified. This chapter focuses on providing such a definition, and therefore fills the gap of the lack of a definition of equitable distribution under the CDM.

As highlighted in Chapter 1, this thesis investigates relevant aspects of international law and theory, with the aim of determining whether, and the extent to which, any of these can contribute to providing a definition of equitable distribution of CDM projects. It resists the temptation to simply select an equitable approach without determining its suitability to the CDM, specifically, to achieving the objectives of the CDM.

This chapter begins by examining the meaning and application of equity in international law. This is because the basis of the search for equitable geographic distribution is the desire to achieve equity in the distribution of CDM projects among developing countries.⁴ How equity is applied under international law could therefore provide some input into how equity should be applied by the CDM, which is an international mechanism.

³ See for example paragraph 32 of Decision 7/CMP.1 (in December 2005), where countries were requested to submit their views on the barriers to equitable distribution of CDM projects and options to address these barriers, for consideration by the COP. Paragraph 38 of Decision 1/CMP.2 (December 2006) also emphasizes that, “...further efforts are necessary to promote equitable regional distribution of clean development mechanism project activities.” See Chapter 1, note 74, for a list of decisions on equitable distribution from all COP/MOP meetings to date. See the discussion in Chapter 5 for the various initiatives within the CDM regime to promote equitable geographic distribution.

⁴ See UNFCCC, Article 3(1). See also Ashton and Wang, *supra* Chapter 2, note 67; and Wood, *supra* Chapter 2, note 67.

Next, the chapter reviews the climate change regime to determine its framework of equity. This regime is reviewed because: it provides the context for the operation of the CDM; and the Convention and Protocol contain certain guiding principles and rules which are relevant to the interpretation and implementation of the Convention and the Protocol, and which the CDM, as an instrument of this regime, must follow.⁵

Because the research on equity in international law, including in the international climate change regime, does not produce a concrete definition of equity (although it does provide ideas regarding what should be considered in efforts to ensure equity), this research turns to theory to provide further guidance as to what equitable geographic distribution might mean.

Consequently, the theories of distributive justice are examined. These are philosophical theories that aim to determine how to achieve a just or fair distribution of resources in society. These theories are examined because the goal of equitable geographic distribution within the CDM is the same – to determine how CDM projects should be distributed in a way that is equitable (justice and fairness are used as synonyms for equity, as highlighted in the section on equity below).

This chapter then determines how distributive justice is achieved in practice, by examining various international regimes that aim at achieving a just or fair

⁵ See UNFCCC, Article 3 and Kyoto Protocol, Preamble, paragraph 4. On the interpretation of treaties and the need to interpret and implement a treaty in accordance to its object and purpose, see Convention on the Law of Treaties (Vienna) 23 May 1969, in force 27 January 1980; 8 ILM 679 (1969); V. Crnic-Grotic, 'Object and Purpose of Treaties in the Vienna Convention on the Law of Treaties' (1997) 7 *Asian YBIL* 141; and T. Akanle, 'Impact of ozone layer protection on the avoidance of climate change: legal issues and proposals to address the problem' (2010) 19 *RECIEL* 239, 244. See also Cullet, *supra* Chapter 2, note 68, at 173; and Birnie *et al.*, *supra* Chapter 1, note 15, at 359, where the authors state that Article 3 of the Convention (which contains the guiding principles for the regime), provides the parameters within which the parties are required to work towards the objective of the Convention. See also Protocol Article 12(2).

distribution of resources. Finally, using these reviews and analyses, this chapter defines equitable distribution of CDM projects and outlines the analytical framework to be used to undertake a critique of the CDM regime.⁶

As stated in Chapter 1, the methodology used by this research is grounded theory. Consequently, the problem area and research question determine the investigations to be carried out in the course of the research. In the search for a definition of equitable geographic distribution, some of the investigations carried out in this chapter turned out not to be particularly useful or relevant. As will be seen later in the chapter, such investigations include the examination of the theories of distributive justice and some of the international regimes, such as the fisheries and moon regimes. Some of the investigations did turn out to be relevant and very useful, such as the examination of equity in international law and in the climate change regime, as well as distributive justice in some of the international regimes, such as the international watercourses regime.

Consequently, before concluding that any particular approach should be applied to the CDM, this chapter goes through a process of determining its appropriateness for the CDM. It does this by first examining the relevant approach (for example, the theories of distributive justice) and then assessing whether applying that particular approach to the CDM would help or hinder it (the CDM) in the achievement of its objectives of contributing to GHG emission reduction and sustainable development.

⁶ The critique is undertaken in Chapters 4 and 5.

3.2 *Equity in International Law*

This section starts by considering the meaning of equity generally and then focuses on equity in international law. It examines the principles of intra-generational equity, inter-generational equity and common but differentiated responsibilities, which are the main equitable principles applied generally in international law (although not the only ones).⁷ The purpose of this section is to determine how equity is applied in international law generally so as to provide some input into how equity should be applied within the CDM regime, which is also an international regime.

The ordinary dictionary meaning of equity includes definitions like “justice according to natural law or right, freedom from bias or favouritism, or something that is equitable,”⁸ “a situation in which all people are treated equally and no one has an unfair advantage,”⁹ “the quality of being fair and impartial,”¹⁰ “fairness,”¹¹ “justice,”¹² “the quality of being equal or fair,”¹³ and “that which is just or right.”¹⁴ Harold and Martin describe it as “that which is fair and just, moral and ethical.”¹⁵ These can be used interchangeably with “equity” when being used in the ordinary, lay, sense.

⁷ See generally, E. Louka, *International Environmental Law: Fairness, Effectiveness, and World Order* (Cambridge: Cambridge University Press, 2006); A. Boyle and D. Freestone, *International Law and Sustainable Development: Past Achievements and Future Challenges* (Oxford: Oxford University Press, 1999); Schrijver and Weiss, *supra* Chapter 2, note 19; and T. Honkonen, *The Common but Differentiated Responsibility Principle in Multilateral Environmental Agreements: Regulatory and Policy Aspects* (Alphen aan den Rijn: Kluwer Law International, 2009).

⁸ The Merriam-Webster Dictionary, <http://www.merriam-webster.com/> (Merriam-Webster, 02/01/2010).

⁹ The Longman Dictionary of Contemporary English, (London: Longman, 1978).

¹⁰ The Concise Oxford English Dictionary 11th ed. (Oxford: Oxford University Press, 2008).

¹¹ S.J. Hepburn, *Principles of Equity and Trusts* 2nd ed. (Sydney/London: Cavendish Publishing (Australia) Pty Limited, 2001), 3.

¹² *Ibid.*

¹³ L.B. Curzon, *Equity & Trusts* 2nd ed. (London: Cavendish Publishing, 1996), 1

¹⁴ *Ibid.*

¹⁵ G.H. Harold and J. Martin, *Modern Equity* 17th ed. (London: Sweet and Maxwell, 2005), 3. See also page 4, where the authors state that “principles of justice and conscience are the basis of equity jurisdiction.”

However, in law, specifically under English law, “equity” refers to the body of rules or principles developed to mitigate the harshness or sometimes unfair effect of the English common law.¹⁶ Equity in this sense aims for justice and fairness, and recognises that the strict application of the law does not always achieve these goals.¹⁷

The focus of this thesis is on equity within an international regime (the CDM regime). Consequently, this section will focus specifically on equity in international law. Authors have variously defined equity in international law as meaning justice, fairness or some similar term.¹⁸ For example, according to Shelton, equity is often used in international law to mean fairness or justice.¹⁹ Sands states that equity allows the international community to consider justice and fairness in the establishment, operation or application of a rule of international law.²⁰ This is similar to the ordinary dictionary meaning of equity as discussed above. However, saying that equity means justice, fairness or such other term does not provide a clear understanding of what equity actually means in practice,²¹ as an examination of the meaning of these other terms (such as justice, reasonableness, fairness and so on) would then be required.²²

¹⁶ J. Duddington, *Essentials of Equity and Trusts Law* (Harlow: Pearson Education, 2006), 5 – 7. See also G.W. Keeton and L.A. Sheridan, *Equity*, 3rd ed. (Kluwer Law Publishers, 1987); and Curzon, note 13 above. Also one of the definitions given by the Merriam-Webster Dictionary, the Longman Dictionary of Contemporary English and the Concise Oxford English Dictionary.

¹⁷ See generally on equity, R. Edwards, *Trusts and Equity* (Harlow: Pearson Education, 2007); and R.A. Pearce, *The Law of Trusts and Equitable Obligations* 3rd ed. (London, Edinburgh: Butterworths, 2002).

¹⁸ See Cullet, *supra* Chapter 2, note 68, at 168; and O. Schachter, *International Law in Theory and Practice* (Dordrecht/Boston/London: Martinus Nijhoff Publishers, 1991), 55.

¹⁹ See D. Shelton, ‘Equity’ in Bodansky *et al.*, *supra* Chapter 2, note 63, at 640.

²⁰ Sands, *supra* Chapter 2, note 19, at 152.

²¹ Schachter, *supra* note 18, at 55. See also Shelton, *supra* note 19, at 640, where the author states that “the precise nature of the concept [of equity] is obscure.”

²² See the discussion of equity above. For example, equity is taken to mean justice, and the definitions of justice include “the treatment of people that is fair and morally right” (the Macmillan Dictionary), “the quality of being just, impartial or fair” (the Merriam-Webster Dictionary) and “fairness” or “the quality of being right and deserving fair treatment” (the Longman Dictionary of Contemporary English). To determine the meaning of justice in order to determine the meaning of equity would then

This section attempts to address this issue by examining the principles applied in efforts to achieve equity in international law, in order to contribute to the understanding of what equity means in international law.

In addition to being applied to ensure considerations of justice and fairness in the establishment, operation or application of a rule of international law or in the establishment of an international agreement or treaty, equity is also applied in international law to settle disputes between nations.²³ In international dispute settlement, equity is considered as part of the general principles of law which the International Court of Justice (ICJ) can apply under Article 38.1 of the Statute of the ICJ.²⁴ These principles are often applied by international courts and tribunals as part of international law, with the aim of arriving at a more just outcome than would otherwise be achieved.²⁵ In these situations, the Court applies equitable principles which it deems relevant to the given case being considered, rather than “equity” in the abstract.²⁶ Similarly, the aim of this chapter is to identify how equity should be applied to the distribution of CDM projects.

require determination of the meaning of “fairness,” “rightness” and so on. Such an exercise could potentially be endless.

²³ See V. Lowe, ‘The role of equity in international law’ (1988-1989) 12 *Aust. YBIL* 54, 55; and M.W. Janis, ‘The ambiguity of equity in international law’ (1983) 9 *Brooklyn J. Int’l L.* 7.

²⁴ See Lowe, *Ibid.*, at 55; and Janis, *Ibid.*, at 7. See also the Individual Opinion of Judge Hudson in the *Diversion of the Waters from the Meuse* case (1937) PCIJ Series A/B No. 70, 76-77, where he recognises the principles of equity as part of international law, and as such often applied by international tribunals. On international dispute settlement generally, see M.E. O’Connell (ed.), *International Dispute Settlement* (Aldershot: Dartmouth Publishing, 2003); J. Collier and V. Lowe, *The Settlement of Disputes in International Law: Institutions and Procedures* (Oxford: Oxford University Press, 1999); and J.G. Merrills, 4th ed., *International Dispute Settlement* (Cambridge: Cambridge University Press, 2005).

²⁵ See *North Sea Continental Shelf* cases (1969) ICJ Reports 3, 48; and *The Diversion of Water from the Meuse* (1925) PCIJ, Series A./B., No. 70, page 77. See generally, Janis, *supra* note 23.

²⁶ R. Lapidoth, ‘Equity in international law’ (1987) 81 *American Society of International Law Proceedings* 138, 144. Such principles include maxims of equity such as “he who seeks equity must do equity.” See *The Diversion of Water from the Meuse*, 76-77; and Janis, *supra* note 23, at 11. See generally on maxims of equity, G. Watt, *Trusts and Equity* 4th ed. (Oxford: Oxford University Press,

As explained above, to ascertain how equity is applied in practice in international law, the principles of intra-generational equity, inter-generational equity, and common but differentiated responsibilities are examined, as they are the principles of equity that are generally applied in international law.

3.2.1 Intra-generational and inter-generational equity

Under international law, the principles of inter-generational and intra-generational equity aim to ensure fairness among individuals and states in the present and future generations.²⁷ They are key principles of sustainable development, which is also one of the stated aims of the CDM.²⁸ Intra-generational equity aims at justice among members of the present generation.²⁹ It has been defined as “the right of all peoples within the current generation of fair access to the current generation’s entitlement to the Earth’s natural resources”³⁰ and requires fairness in the use of resources among members of the present generation, both nationally and internationally.³¹ It also includes considerations of distribution of resources and justice between and within nations.³² For example, international human rights laws set out the human rights of

2010), Chapter 2; and G. Moffat *et al.*, *Trusts Law: Texts and Materials* 4th ed. (Cambridge: Cambridge University Press), 114-115.

²⁷ See Shelton, *supra* note 19, at 642.

²⁸ See generally, French, *supra* Chapter 2, note 19; and ILA New Delhi Declaration of Principles of International Law Relating to Sustainable Development, (2002). See also Segger and Khalfan, *supra* Chapter 2, note 19, at 99; D. French, ‘The role of the state and international organisations’ in Schrijver and Weiss, *supra* Chapter 2, note 19, at 65; Loibl, *supra* Chapter 2, note 19, at 98; and S. Giorgetta, ‘The right to healthy environment’ in Schrijver and Weiss, *supra* Chapter 2, note 19, at 395.

²⁹ See Shelton, *supra* note 19, at 642-643.

³⁰ See ILA New Delhi Declaration of Principles of International Law Relating to Sustainable Development, (2002), Principle 2.

³¹ See G.F. Maggio, ‘Inter/intra-generational equity: current applications under international law for promoting sustainable development of natural resources’ (1996-1997) 4 *Buff. Envt’l L.J.* 161, 163-164.

³² See ‘What is equity’ <http://www.uow.edu.au/~sharonb/STS300/equity/meaning/intragen.html>, www.uow.edu.au, (University of Wollongong, 28/07/2010); and Segger and Khalfan, *supra* Chapter 2, note 19, at 125.

persons, as well as limitations to these rights.³³ The purpose of these limitations is to secure “due recognition and respect for the rights and freedoms of others,” and to meet “the just requirements of morality, public order and the general welfare in a democratic society.”³⁴

Inter-generational equity is based on the idea that the present generation holds the earth in trust for future generations,³⁵ and should therefore maintain the earth’s integrity in order to ensure the survival of the human species³⁶ and that natural resources remain available for the benefit of both present and future generations.³⁷ Here, the present generation has the obligation to utilise the earth’s resources “fairly” such that future generations receive these resources in a condition comparable to that enjoyed by the present generation.³⁸ It requires the present generation to strike a balance between meeting its own needs and ensuring that future generations have enough resources to also meet their own needs.³⁹ The Rio Declaration on Environment and Development provides that “the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present

³³ See M.N. Shaw, *International Law* (Cambridge: Cambridge University Press, 2003), 247-256.

³⁴ Universal Declaration of Human Rights (Paris) (UN Doc. A/810, 10 December 1948), Article 29.

³⁵ Sands, *supra* Chapter 2, note 19, at 256. See for example Convention on the Conservation of Migratory Species of Wild Animals (Bonn) 23 June 1979, in force 1 November 1983; (1980) 19 ILM 15, Preamble, paragraph 2, which affirms that “each generation of man holds the resources of the earth for future generations and has an obligation to ensure that this legacy is conserved and, where utilized, is used wisely.”

³⁶ Shelton, *supra* note 19, at 643.

³⁷ See Sands, *supra* Chapter 2, note 19, at 256. See for example, the 1992 Convention on Biological Diversity; Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi), 21 June 1985, in force 30 May 1996; IELMT 985:46; and the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora.

³⁸ Shelton, *supra* note 19, at 643.

³⁹ See Maggio, *supra* note 31, at 163.

and future generations.”⁴⁰ Essentially, intra-generational equity will become much more difficult for future generations if the present generation does not leave them sufficient resources.

For both intra- and inter-generational equity, a major concern is the meeting of needs: equity requires generations to utilise resources in such a way as to ensure that others within that generation (intra-generational equity) or in future generations (inter-generational equity) are able to meet their own needs.⁴¹ In this regard, the needs of others, and meeting these needs, are of paramount importance, and equity requires due consideration to be paid to these needs. In relation to the CDM, this suggests that if applicable, consideration of the needs of countries should form part of efforts to ensure equitable geographic distribution of projects.

3.2.2 Common but differentiated responsibilities

The principle of common but differentiated responsibilities (CBDR) is one that is commonly applied under international environmental law. Many multilateral environmental agreements incorporate this principle with the aim of ensuring equity within the regimes.⁴² The CBDR principle is set out in the Rio Declaration as follows:

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth’s ecosystem. In

⁴⁰ Rio Declaration, Principle 4. See also similar provisions in: the International Convention for the Regulation of Whaling (Washington) 2 December 1946, in force 10 November 1948; 161 UN Treaty Series 72; the Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington) 3 March 1973, in force 1 July 1975; 993 UN Treaty Series 243; and the Convention on Biological Diversity (Rio de Janeiro) 5 June 1992, in force 29 December 1993; (1992) 31 ILM 822.

⁴¹ See Schachter, *supra* note 18, at 11-16.

⁴² See Sands, *supra* Chapter 2, note 19, at 285 – 289; ‘The principle of common but differentiated responsibilities: origins and scope’ (26 August 2002) http://www.cisd.org/pdf/brief_common.pdf, www.cisd.org (CISDL, 19/04/2010); and Cullet, *supra* Chapter 2, note 68, at 169.

view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.⁴³

The principle recognises that while countries have a common responsibility to protect the environment, there are differences in their contributions to global environmental degradation and in their financial and technical capacity to address the degradation, and there must therefore be differences in their responsibility to address the problem.⁴⁴ The principle therefore has two essential elements: countries' common responsibility to protect the climate; and countries' differentiated responsibilities based on responsibility for the problem and capacity to address it.⁴⁵ This principle is incorporated into several international agreements and instruments, and in general, is put in practice through differentiated commitments to address global environmental problems, together with preferential treatment for specific groups of countries.

For example, the Stockholm Declaration provides that resources should be made available to preserve and improve the environment, taking account of the circumstances and particular requirements of developing countries. It further highlights the need to make available to these countries, additional technical and

⁴³ Rio Declaration, Principle 7.

⁴⁴ See generally, L. Rajamani, *Differential Treatment in International Environmental Law* (Oxford: Oxford University Press, 2006), 9 and Chapter 5.

⁴⁵ See Y. Matsui, 'Some aspects of the principle of "common but differentiated responsibilities"' (2002) 2 *International Environmental Agreements: Politics, Law and Economics* 151, 153; Honkonen, *supra* note 7, at 1; and Sands, *supra* Chapter 2, note 19, at 286.

financial assistance to help them incorporate environmental safeguards into their development planning.⁴⁶ The Montreal Protocol on Substances that Deplete the Ozone Layer⁴⁷ contains different obligations for developed and developing countries, and, for instance, Article 5 recognises the “special situation” of developing countries and allows them 10 additional years to phase out the substances controlled by the Protocol. This is in consideration of the special needs and circumstances of developing countries and to enhance their ability to fulfil their obligations.

The International Tropical Timber Agreement allows developing country members whose interests are adversely affected by measures taken under the agreement to apply for differential and remedial measures.⁴⁸ The UNFCCC, which is also based on the CBDR principle,⁴⁹ contains far fewer obligations for developing countries than for developed countries. Article 4(1) contains general commitments for all parties, both developed and developing, and then in paragraph 2, outlines further commitments for developed countries alone. In addition, the Kyoto Protocol contains commitments regarding policies and measures, greenhouse gas emission reductions and reporting for developed countries, with no corresponding commitments for developing countries.⁵⁰ The CDM itself is also a key differentiation mechanism under the climate change regime, as it gives developing countries the opportunity to participate in

⁴⁶ See Principle 12 of the Declaration of the UN Conference on the Human Environment, in Report of the UN Conference on the Human Environment (UN Doc. A/CONF.48/14 and Corr. 1, Section I, 16 June 1972), reprinted in (1972) 11 ILM 1416 (Stockholm Declaration).

⁴⁷ Protocol on Substances that Deplete the Ozone Layer (Montreal) 16 September 1987, in force 1 January 1989; (1987) 26 ILM 154 (Montreal Protocol).

⁴⁸ International Tropical Timber Agreement (Geneva) 26 January 1994, in force 1 January 1997; (1994) 33 ILM 1016, Article 34.

⁴⁹ See UNFCCC, Articles 3(1), 3(2) and 4(1). The UNFCCC refers to “common but differentiated responsibilities and *respective capabilities*.” This does not differ in substance from the principle as generally applied, as the Rio Declaration refers to the “the technologies and financial resources” that developed countries command, which is a reference to their “respective capabilities.” See the text at footnote 43 above.

⁵⁰ Kyoto Protocol, Articles 2, 3, 5 and 7.

climate change mitigation, without taking on substantive commitments to do so, and provides them with sustainable development benefits at the same time.⁵¹

As seen from these examples, in allocating differentiated responsibilities, this principle achieves equity by granting preferential treatment to certain groups of countries. This preferential treatment is often expressed as a requirement to take account of the special circumstances, needs or requirements of specific groups. Agenda 21 provides that the objective of international environmental law is, *inter alia*, to promote international standards for the protection of the environment that “take into account the different situations and capabilities of countries.”⁵² The Convention on Biological Diversity notes the special conditions of least developed countries and small island States.⁵³ The Stockholm Declaration provides that resources should be made available to preserve and improve the environment, “taking into account the circumstances and particular requirements of developing countries...”⁵⁴

The principle is also applied through the requirement for international assistance, including financial aid and technology transfer, usually to developing countries.⁵⁵ An

⁵¹ See for instance, P. Cullet, *Differential Treatment in International Environmental Law* (Aldershot: Ashgate Publishing Limited, 2003), 118-119, where the author, among other things, notes that the CDM is the most important of the three Kyoto Protocol flexibility mechanisms in terms of differential treatment, adding that it is “closely linked” to the CBDR principle.

⁵² See Agenda 21 (UN Doc. A/Conf.151/26, June 1992), Paragraph 39.3(d).

⁵³ See Convention on Biological Diversity, Preamble, paragraph 17.

⁵⁴ Stockholm Declaration, Principle 12. See also Vienna Convention for the Protection of the Ozone Layer, (Vienna) 22 March 1985, in force 22 September 1988; (1985) 22 ILM 1529, Preamble, paragraph 3; and Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa (Paris) 17 June 1994, in force 26 December 1996; (1994) 33 ILM 1328, Article 7.

⁵⁵ See D. French, ‘Developing states and international environmental law: the importance of differentiated responsibilities’ (2000) 49 *ICLQ* 35, 42; Centre for International Sustainable Development Law, ‘The principle of common but differentiated responsibilities: origins and scope’ (August 2002) http://www.cisd.org/pdf/brief_common.pdf, www.cisd.org (19/04/2010), 2; and Rajamani, *supra* note 44, at 107-114.

example is the Multilateral Fund for the Implementation of the Montreal Protocol, which, among other things, was established to provide financial assistance to developing countries to enable them to comply with the control measures established by the Montreal Protocol, by meeting the agreed incremental costs incurred by these countries in complying with their obligations.⁵⁶

The principle therefore advocates different obligations to address a problem, based on responsibility for the problem, the capability to address the problem, and needs.⁵⁷ It also supports giving preferential treatment based on these elements. As noted above, this preferential treatment could be in the form of financial, capacity or technological support. In conclusion, as applied in the CBDR principle, equity requires consideration of responsibility, capability and needs.

3.2.3 Conclusion

The discussion above shows that equity in international law usually requires consideration of countries' needs. Specifically in relation to dealing with an environmental problem, it also requires consideration of countries' responsibility for the problem and capability to address the problem. In addition, consideration of countries' needs is often manifested by giving preferential treatment or support to

⁵⁶ Multilateral Fund for the Implementation of the Montreal Protocol in Report of the 2nd Meeting of the Parties to the Montreal Protocol, Decision II/8, Financial Mechanism (UNEP/OzL.Pro.2/3, 29 June 1990) (Multilateral Fund), Paragraph 1. Other examples include the UN Environment Programme Fund, the World Heritage Fund and the Wetland Conservation Fund. See French, *supra* note 55, at 42. The principle was also cited by the WTO dispute settlement Panel in the *Import Prohibition of Certain Shrimp and Shrimp Products* case. See United States – Import Prohibition of Certain Shrimp and Shrimp Products, Recourse to Article 21.5 by Malaysia WT/DS58/RW, 15 June 2001, Paragraph 7.2. For more examples, see Rajamani, *supra* note 44, at Chapter 2 and pages 96-114.

⁵⁷ See C.D. Stone, 'Common but differentiated responsibilities in international law' (2004) 98 *AJIL* 276, 290, where the author states that Principle 6 of the Rio Declaration, by referring to undeveloped and vulnerable countries, suggests differentiation in accordance with needs, the pressures each country places on the environment, and capabilities in terms of wealth and technology. See also Sands, *supra* Chapter 2, note 19, at 288-289.

specific groups of countries. If these factors are applicable to the CDM, it means CDM projects should be distributed among developing countries according to their needs, responsibility and capability.

The question to be answered is whether these factors are appropriate for the CDM, and if so, what they mean in the context of the CDM. Responsibility does not appear to be particularly appropriate for the CDM. This is because, as shown above, it is generally used when determining countries' duty to address an environmental problem, that is, when allocating the burden of addressing a problem. For example, under the UNFCCC, responsibility is used to determine how much countries should contribute to climate change mitigation efforts. Based on their responsibility for the problem, developed countries are required to take the lead in addressing climate change, and based on their limited responsibility, developing countries have fewer obligations than developed countries.⁵⁸ Responsibility cannot be used as a basis for determining the distribution of CDM projects because under the CDM, the issue is distribution of a benefit, not of a burden. In this sense, developing countries are not "responsible" for anything (or any problem) that could serve as the basis of distributing CDM projects.

However, there is a possible argument for using responsibility as a basis for determining the distribution of CDM projects. This would entail differentiating among developing countries on the basis of their "responsibility" for the climate change problem, that is, their contribution to global GHG emissions. In this scenario, certain developing countries would be excluded from participation in the CDM,

⁵⁸ UNFCCC, Preamble, paragraphs 3 and 18, and Article 3(1). This is discussed in greater detail in Section 3.3 below.

because of their responsibility for the climate change problem. The benefit of this to equitable distribution is that there would then be more projects for the participating countries, and hence, possibly (although not inevitably) a better distribution of projects. The most obvious countries that would be excluded in this scenario are those countries with the highest GHG emissions, such as China, Brazil, Indonesia and India.⁵⁹

Although this would doubtless increase the number of projects available to other countries (considering that China alone currently hosts almost half of the total number of registered projects), this will not necessarily help achieve the objectives of the CDM. This is because the CDM is meant to reduce GHG emissions and promote sustainable development. Excluding the countries with the highest GHG emissions would be counter-productive as it means these emissions cannot be reduced through the CDM, thereby reducing the overall emission reduction potential of the CDM.⁶⁰ It also would not contribute to the promotion of sustainable development, at least, not in these countries. Presumably, these countries will continue to develop, but without the sustainability the CDM can contribute to. Such exclusion would require that another avenue be found to involve these countries in climate change mitigation, considering that they account for such a large proportion of global GHG emissions. Bakker *et al* acknowledge this fact, highlighting that such exclusion would need to be

⁵⁹ See CAIT Version 7.0 (2005 data). See S.J.A. Bakker *et al.*, 'Differentiation in the CDM: options and impacts' (May 2009) <http://www.rivm.nl/bibliotheek/rapporten/500102023.pdf>, www.rivm.nl (16/07/2010), 32-35, where the authors propose differentiation among developing countries, but not based on responsibility. They propose differentiation based on *per capita* income and emissions.

⁶⁰ Under the current rules, developing countries have no emission reduction obligations and the CDM is currently the only means of involving developing countries in climate change mitigation efforts under the Kyoto Protocol. See the discussion on page 19 above. This is however changing, and there are concerted efforts to involve developing countries in climate change mitigation, outside the CDM. This includes by requiring them to undertake nationally-appropriate mitigation actions. See Chapter 1, note 22.

accompanied by other mitigation actions.⁶¹ However, this is probably not a discussion or decision that can effectively be undertaken in the context of the CDM, but under the climate change regime generally, due to its highly political nature.⁶² Countries are unlikely to take on emission reduction obligations outside of the CDM simply in order to improve the distribution of CDM projects among countries.

In any case, in the context of the CDM, the objective of equitable geographic distribution is to include as many developing countries as possible in the CDM and enable more countries to participate, rather than to exclude some countries from participation. Consequently, for these reasons, “responsibility” is not an appropriate basis for deciding distribution of CDM projects.

The element of “needs” on the other hand, particularly if this is taken to mean countries’ need for sustainable development, *is* relevant to the distribution of CDM projects.⁶³ One of the objectives of the CDM is to promote sustainable development, which has been defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” According to the Brundtland Report, one of the key concepts of sustainable development is needs, in particular the essential needs of the world’s poor.⁶⁴ Need, or the fulfilment of needs, is therefore a key element of sustainable development and is regarded as

⁶¹ Bakker *et al.*, *supra* note 59, at 9.

⁶² At COP 16 in November 2010, countries agreed that developing countries would take on nationally-appropriate mitigation actions (NAMAs) and recognised the NAMAs submitted by these countries. These provisions however do not mandate actions by developing countries. See Chapter 1, note 22. This decision is the outcome of a long, very political process that goes well beyond the issue of equitable distribution of CDM projects. See generally Akanle *et al.*, ‘Summary of the Cancun Climate Change Conference’ *supra* Chapter 2, note 28. See also C. Romano and E. Bursleson, ‘The Cancun Climate Conference’ 15 *ASIL Insight* 1.

⁶³ Silayan, *supra* Chapter 1, note 50, at 43.

⁶⁴ See Brundtland Report, Paragraph 1. See also Sands, *supra* Chapter 2, note 19, at 252; Birnie *et al.*, *supra* Chapter 1, note 15, at 53-54; and Magraw and Hawke, *supra* Chapter 2, note 63, at 614 and 618.

central to equity and distributive justice.⁶⁵ According to Chowdhury *et al.*, “the satisfaction of basic human needs and legitimate aspirations for an improved quality of life – both for the present and future generations – is of the essence of the principle of sustainable development.”⁶⁶ As one of the objectives of the CDM is to promote sustainable development, then the fulfilment of needs, which is an essential part of sustainable development, is relevant to ensuring equity under the CDM.

In the same way, capability or ability to address a problem appears to be relevant to the distribution of CDM project, particularly when capability is taken to include technical capacity to host CDM projects.⁶⁷ Such capability or ability should be a relevant factor in the distribution of projects, not in the sense of giving preference to countries that have greater capabilities, but rather, the opposite. One of the sustainable development benefits the CDM is supposed to produce is increased capacity, including capacity to develop and implement sustainable and environmentally-friendly projects and activities.⁶⁸ Ability, or rather, lack of it, should be regarded as a measure of sustainable development in developing countries. Hence, countries with less capacity should be regarded as having greater sustainable development potential in this regard, and enabling them to host projects and providing them with the associated increased capacity, should be regarded as contributing to the sustainable

⁶⁵ See Schachter, *supra* Chapter 2, note 18, at 16.

⁶⁶ See Chowdhury *et al.* (eds.), *The Right to Development in International Law* (Dordrecht: Martinus Nijhoff Publishers, 1992), 20.

⁶⁷ For example, in terms of project development and implementation experience, and local expertise.

⁶⁸ See Birnie *et al.*, *supra* Chapter 1, note 15, at 365; and Sari and Meyers, *supra* Chapter 2, note 61. See also the World Bank’s brochure for Community Development Carbon Fund Plus <http://wbcarbonfinance.org/Router.cfm?Page=CDCF&FID=9709&ItemID=9709&ft=Plus#Top> (World Bank, 25/01/2010), where the World Bank highlights the importance of experience gained from the first and second carbon finance transactions for building countries’ capacity to participate in the carbon market. Contrast M. Jung, ‘Host country attractiveness for CDM non-sink projects’ (2006) 34 *Energy Policy* 2173, 2174-2175, where the author uses institutional capacity, including previous project experience, as a measure of host country CDM attractiveness.

development objective of the CDM. If countries with greater capacity were given preference on the basis of this capacity, and lack of capacity counted against countries, this would amount to “putting the cart before the horse” – that is, expecting countries to already have the benefit (capability or capacity) that the CDM is meant to provide them with.

In conclusion therefore, although equity in international law generally requires consideration of countries’ responsibility, capability and needs, the element of responsibility is not relevant to the CDM, while the elements of needs and capability are. This is further discussed below (in Section 3.6.1), when identifying the elements of, and factors for achieving, equitable geographic distribution of CDM projects.

3.3 Equity in the International Climate Change Regime

Having analysed the application of equity in international law generally in the previous section, this section focuses on equity in the international climate change regime (comprising the Convention and the Kyoto Protocol), which is the regime under which the CDM operates. The aim of this section is to determine the climate change regime’s framework of equity, in order to provide the context for the application of equity under the CDM and also to provide some guidance on how the question of equity should be approached under the CDM. This is because, as already noted, the CDM, as an instrument of the climate change regime, must function within its framework of equity. The Convention contains the guiding principles for the implementation of the Convention and its instruments, including the Protocol.⁶⁹ In addition to the Convention and Protocol, relevant rules are also provided by decisions

⁶⁹ See UNFCCC, Article 3 and Protocol, Preamble, paragraph 4.

of the COP and COP/MOP. These instruments will be examined in order to determine the framework of equity of the climate change regime.

3.3.1 Climate Change

The problem of climate change itself raises issues of equity, particularly with regard to the causes and impacts of the problem.⁷⁰ This is because those that have contributed the least to climate change bear most of the burden or face most of its impacts.⁷¹ Climate change is historically attributable to the developed world⁷² but developing countries, which have historically contributed the least to climate change, are expected to be the most affected by it.⁷³

The impacts of climate change are expected to be quite severe. Such impacts include: increased incidence of dangerous, extreme weather conditions such as monsoons, floods, droughts and hurricanes; increased water scarcity, especially in regions that already suffer from water scarcity; expansion of the range of vector-borne diseases;

⁷⁰ See generally Cullet, *supra* Chapter 2, note 68, at 168; Ashton and Wang, *supra* Chapter 2, note 67; Claussen and McNeilly, *supra* Chapter 2, note 67; and Wood, *supra* Chapter 2, note 67, at 321.

⁷¹ See for example Pittock, *supra* Chapter 1, note 5, at 255, where the author concludes for example that the African region is the region most vulnerable to climate change and most likely to be worst affected by enhanced climate change. See Parry *et al.*, *supra* Chapter 1, note 5. The region however has the lowest standards of living and the lowest per capita GHG emissions. See Pittock, *Ibid*. See also Ashton and Wang, *supra* Chapter 2, note 67, at 61-62.

⁷² UNFCCC, Preamble, paragraph 3. See also Pittock, *supra* Chapter 1, note 5, at 216 and 223. Although this is still true, in terms of current emissions, some developing countries have overtaken or are overtaking developed countries and there is therefore a call for such developing countries to undertake appropriate mitigation actions. See the discussion in Chapter 1, note 22.

⁷³ See 'Summary for policymakers' in J.J. McCarthy *et al.* (eds.), *Climate change 2001: Impacts, Adaptation, and Vulnerability: Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2001), 8, where it is stated that "the effects of climate change are expected to be greatest in developing countries in terms of loss of life and relative effects on investment and the economy." The report states that those with the least resources have the least capacity to adapt and are the most vulnerable. See also 'Adaptation to climate change in the context of sustainable development and equity' in McCarthy *et al.*, *Ibid*; Pittock, *supra* Chapter 1, note 5, at 108-121; and Dawson and Spannagle, *supra* Chapter 1, note 15, at 97-99, 336-337.

and reduced crop yields.⁷⁴ These are predicted to impact negatively on human health, water availability, agriculture and marine systems, amongst others.⁷⁵ Regarding the distribution of these impacts, the IPCC notes that impacts would be greater in developing, than in developed, countries, concluding that:

The impacts of climate change will not be evenly distributed among the peoples of the world. There is high confidence that developing countries will be more vulnerable to climate change than developed countries, and there is medium confidence that climate change would exacerbate income inequalities between and within countries. There also is medium confidence that a small temperature increase would have net negative impacts on market sectors in many developing countries and net positive impacts on market sectors in many developed countries. However, there is high confidence that with medium to high increases in temperature, net positive impacts would start to decline and eventually would turn negative, and negative impacts would be exacerbated.⁷⁶

According to Munasinghe and Swart, developing countries have higher impacts and lower capacity to adapt.⁷⁷ This also goes to another issue of equity – the ability or capacity to address the problem of climate change. Developed countries, with their

⁷⁴ See generally on the impacts of climate change, Parry *et al.*, *supra* Chapter 1, note 5.

⁷⁵ See ‘Summary for policymakers’ in McCarthy *et al.*, *supra* note 73, at 5. See also Pittock, *supra* Chapter 1, note 5, at 230, where he states, *inter alia*, that a one metre rise in sea level would displace tens of millions of people in Bangladesh and Viet Nam, among others.

⁷⁶ S. Fankhauser *et al.*, ‘Vulnerability to climate change and reasons for concern: a synthesis’ in McCarthy *et al.*, *supra* note 73, at 916.

⁷⁷ See Munasinghe and Swart, *supra* Chapter 1, note 5, at 47, where the authors state that there is broad agreement that developing countries are more vulnerable to climate change than developed countries.

greater resources and technological advancement, are generally recognised as having a greater capacity to address climate change than developing countries, through for example, conservation of energy and development of low-carbon technologies.⁷⁸

The issue of historical responsibility for climate change also raises another point of equity. Developing countries argue that developed countries have had many years to develop, and in their development process, have caused the current climate change problem; and that they (developing countries) in turn need to increase their energy use in order to achieve development and alleviate poverty in their countries.⁷⁹ This is one of the reasons why developing countries have resisted attempts to cap their GHG emissions, as they fear this would likewise cap their development, sustainable or otherwise.⁸⁰ Responsible development however means that this should not be taken to mean unrestricted freedom to continue to produce GHG emissions. Any consumption that leads to GHG emissions should be done in light of the need for “sustainable” development⁸¹ – defined by the Brundtland report as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”⁸² Economic development, which for developing countries means increasing economic growth, should therefore be achieved sustainably, in a manner

⁷⁸ See *Ibid*, where developing countries’ capacity to address climate change is described as being limited by their lack of technological, institutional, financial and knowledge capacity. See also Pittock, *supra* Chapter 1, note 5, at 216.

⁷⁹ See Pittock, *supra* Chapter 1, note 5, at 216. See also UNFCCC, Preamble, paragraph 22, which recognises that developing countries need access to resources and that their energy consumption will grow, in order to achieve sustainable social and economic development, albeit taking account of the possibilities for achieving greater energy efficiency and for controlling GHG emissions.

⁸⁰ See M. Cazorla and M. Toman, ‘International Equity and Climate Change Policy’ (2000) 27 *Climate Issue Brief* 1, 1-2.

⁸¹ See UNFCCC, Preamble, paragraph 22. See also Article 2, which refers to the need to “enable economic development to proceed in a sustainable manner.”

⁸² See Brundtland Report, Paragraph 1.

that considers the need to protect the environment and to preserve the ability of others, both present and future, to meet their own needs.⁸³

3.3.2 The UNFCCC

The inequity described above is one of the main drivers of the design of the climate change regime. Pittock noted that although rich countries are becoming less well-adapted to climate change, global warming will increase the inequity between rich developed countries and poorer developing countries.⁸⁴ For this reason, when designing the climate change regime, several attempts have been made to redress this inequity and to ensure that those that contributed least to the problem do not take on disproportionate responsibilities to solve it.⁸⁵ The CBDR principle is applied throughout both the UNFCCC and the Kyoto Protocol,⁸⁶ and is the reason why developed countries have specific commitments to reduce their GHG emissions while developing countries do not.⁸⁷ That is also why equity is one of the basic principles of

⁸³ See UNFCCC, Preamble, paragraph 22, where it is recognised that developing countries in particular need access to resources to “achieve sustainable social and economic development.” It also refers to the need to take account of the possibilities for achieving greater energy efficiency and for controlling GHG emissions. See also Articles 2, 3(1) and 3(5), which refer respectively to the need to: enable economic development to proceed in a sustainable manner; protect the climate system for the benefit of present and future generations of humankind; and cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development. As stated in the World Energy Outlook, “the challenge for all countries is to put in motion a transition to a more secure, lower-carbon energy system, without undermining economic and social development.” See OECD/IEA, *World Energy Outlook 2007* (Paris: International Energy Agency, 2007), 41. See also pages 49-51, where it is stated that “unchecked growth in fossil fuel use will hasten climate change.”

⁸⁴ See Pittock, *supra* Chapter 1, note 5, at 121. See also Pittock’s discussion of equity at pages 223-226.

⁸⁵ UNFCCC, Preamble, paragraphs 3, 19 and 20; and Article 3(1).

⁸⁶ See the discussion of this principle above in Section 3.2.2 and below in Section 3.3.2.

⁸⁷ However, this situation is changing. During COP 16 in November 2010, countries agreed that developing countries will take nationally-appropriate mitigation actions in the context of sustainable development, with the aim of achieving a deviation in emissions relative to business-as-usual emissions in 2020. Countries also took note of the nationally appropriate mitigation actions to be implemented by non-Annex I Parties (developing countries), as communicated by them. See Decision 1/CP.16, Paragraphs 48-49. See also Chapter 1, note 22.

the UNFCCC, with developed countries expected to take the lead in mitigating climate change and its adverse effects.⁸⁸

In addition to the issues of intra-generational equity discussed above, climate change also raises issues of inter-generational equity.⁸⁹ The IPCC notes that the implementation of the ultimate objective of the Convention⁹⁰ raises issues of equity within and among communities, including future generations.⁹¹ One of the principles of the Convention is the protection of the climate system for the benefit of future generations.⁹² Inter-generational equity is an important reason for taking action now as, generally, the impacts of global warming are felt far into the future.⁹³ Hence to reduce the impact on future generations, it is important for the present generation to take action.⁹⁴

The Convention establishes the guiding principles for the implementation of the climate change regime.⁹⁵ These principles, together with the commitments contained in the Convention, will be analysed in order to determine their definition, treatment or

⁸⁸ See UNFCCC, Article 3(1). See also Pittock, *supra* Chapter 1, note 5, at 248; and Cullet, *supra* Chapter 2, note 68, at 170.

⁸⁹ Inter-generational equity aims at justice between the present and future generations. Here, the present generation has the obligation to utilise the earth's resources "fairly" such that future generations receive these resources in a condition comparable to that enjoyed by the present generation. See the discussion of this concept in Section 3.2.1 above.

⁹⁰ This is found in Article 2 of the Convention, and is to stabilise GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic (man-made) interference with the climate system.

⁹¹ See H.-H. Rogner et al., 'Introduction' in B. Metz *et al.* (eds.), *Climate Change 2007: Mitigation: Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2007), 100-102.

⁹² See UNFCCC, Article 3(1).

⁹³ See Wood, *supra* Chapter 2, note 67, at 298, where he states that, "current practices of energy production, industrial activity, agriculture, and forestry generate risks that potentially affect climatic change and impact future generations."

⁹⁴ See Claussen and McNeilly, *supra* Chapter 2, note 67, at 7; and Wood, *supra* Chapter 2, note 67, at 298.

⁹⁵ UNFCCC, Article 3. See also J. Peel, 'Climate change law: the emergence of a new legal discipline' (2008) 32 *Melbourne Univ L. Rev.* 922, 928.

application of equity. Article 3 of the Convention contains the principles that should guide countries in implementing the Convention.⁹⁶ Other principles are also contained in the Preamble to the Convention, and these and other principles are to guide countries in implementing the provisions of the Convention and its related instruments (including the CDM).⁹⁷ The principles of the Convention that are related to the issue of equity are as follows:⁹⁸

- a) Protection of the climate for the benefit of present and future generations of humankind on the basis of equity;
- b) The principle of common but differentiated responsibilities and respective capabilities;
- c) Climate change as a common concern of humankind;
- d) The requirement for developed country Parties to take the lead in combating climate change and its adverse effects;
- e) The requirement that the specific needs and special circumstances of developing country Parties should be given full consideration; and
- f) The importance of sustainable development and sustainable economic growth, and the right to promote sustainable development.

⁹⁶ Although the Protocol does not contain principles, the principles spelt out in the Convention also apply to the Protocol. See paragraph 4 of the Preamble to the Protocol, where the Parties to the Protocol agree to be guided by Article 3 (Principles) of the Convention.

⁹⁷ The use of the word "*inter alia*" in the chapeau of Article 3 means that the relevant principles are not restricted to those listed in Article 3. See also F. Yamin & J. Depledge, *supra* Chapter 1, note 15, at 66.

⁹⁸ The precautionary principle is one of the principles applied in the Convention. This principle is however not examined here as it is not a principle of equity.

*Protecting the climate for current and future generations on the basis of equity*⁹⁹

relates to the principles of intra- and inter-generational equity, which are discussed above.¹⁰⁰ As highlighted (in Section 3.2.1), equity in the context of intra- and inter-generational equity requires consideration of the needs of both current and future generations.

Under the climate change regime, application of the principle can be seen in provisions requiring countries to take necessary action to protect the climate in order to ensure that the needs of the present and future generations are met, and are not jeopardised. For example, consideration of the needs of future generations requires urgent action to be taken to prevent dangerous interference with the climate system; and consideration of the needs of the present generation requires that developed countries should take the lead in carrying out these actions, *inter alia* because the share of global emissions originating in developing countries will need to grow to meet their social and development needs.¹⁰¹ It is also recognised that climate change will have a greater negative impact on developing than developed countries,¹⁰² and consideration of the needs of the present generation, including of developing countries, requires climate protection in order to mitigate this impact.

This consideration of needs has already been highlighted, as equity in international law generally usually requires consideration of needs.¹⁰³ As it is a principle of the Convention that is directly relevant to the CDM, it is therefore applicable to the CDM.

⁹⁹ UNFCCC, Preamble, paragraph 23, and Article 3(1).

¹⁰⁰ These principles aim to ensure fairness among individuals and states, in the present and future generations. See the discussion in Section 3.2.1 above. See Sands, *supra* Chapter 2, note 19, at 253; and Maggio, *supra* note 31, at 163.

¹⁰¹ See UNFCCC, Article 3(1) and Preamble, paragraph 3.

¹⁰² See the discussion above, in Section 3.3.1.

¹⁰³ See the discussion in Section 3.2 above.

In order to ensure an equitable distribution of CDM projects among countries, the needs of all countries should be taken into consideration.¹⁰⁴

*The principle of common but differentiated responsibilities and respective capabilities (CBDR)*¹⁰⁵ is a key principle in the climate regime,¹⁰⁶ and one that is often evoked during negotiations.¹⁰⁷ As discussed, the principle has two elements: common responsibility; and differentiated responsibilities based on responsibility for the problem, capability to address it, and needs.¹⁰⁸ With regard to climate change, the first element recognises that climate change is the common concern of all countries and that all countries should participate in international efforts to address the problem.¹⁰⁹ According to the second element, differentiated standards are set for different countries or groups of countries, based on their contribution to, or responsibility for, the problem being addressed.¹¹⁰ This element also requires consideration of the capability of countries to address the problem when establishing

¹⁰⁴ This is discussed in full below in Section 3.6.

¹⁰⁵ See the discussion of this principle in Section 3.2.2 above. See generally, French, *supra* note 55; and Stone, *supra* note 57.

¹⁰⁶ See Peel, *supra* note 95, at 928-929; and A.M. Halvorssen, 'The Kyoto Protocol and developing countries – the clean development mechanism' (2005) 16 *CJIELP* 353, 359. For an extensive discussion of the CBDR under the climate change regime, see Rajamani, *supra* note 44, at Chapter 6.

¹⁰⁷ See Cazorla and Toman, *supra* note 80, at 1-3. See also the *Earth Negotiations Bulletin* reports of the climate change negotiations. See for example, T. Akanle *et al.*, 'SB 30 and AWG highlights' (June 2009) <http://www.iisd.ca/download/pdf/enb12415e.pdf> www.iisd.ca (25/11/2010), 1-2, where the principle was cited by the Philippines and China. See also T. Akanle *et al.*, 'Twenty-eighth sessions of the UNFCCC subsidiary bodies, second session of the Ad Hoc Working Group under the Convention, and fifth session of the Ad Hoc Working Group under the Kyoto Protocol' (June 2008) <http://www.iisd.ca/download/pdf/enb12375e.pdf> www.iisd.ca (25/11/2010), 4 and 10; T. Akanle *et al.*, 'Summary of the Bonn climate change talks' (June 2009) <http://www.iisd.ca/download/pdf/enb12421e.pdf>, www.iisd.ca (25/11/2010), 8 and 9; and T. Akanle *et al.*, 'Summary of the Bangkok climate change talks' (October 2009) <http://www.iisd.ca/download/pdf/enb12439e.pdf>, www.iisd.ca (25/11/2010), 13, 14 and 18, where the principle was cited several times by various countries.

¹⁰⁸ See the discussion in Section 3.2.2 above.

¹⁰⁹ See for example, UNFCCC, Article 4(1), which imposes certain obligations on all countries. See Sands, *supra* Chapter 2, note 19, at 286-287 and Stone, *supra* note 57, at 276-277. See also the discussion of the concept of the common concern of mankind below.

¹¹⁰ See Sands, *supra* Chapter 2, note 19, at 285-287; and N.E. Bafundo, 'Compliance with the ozone treaty: weak states and the principle of common but differentiated responsibility' (2005-2006) 21 *AUJLR* 461.

commitments or obligations. Among other things, financial and technological capabilities, special needs and circumstances, as well as future economic development needs, are considered.¹¹¹ In relation to climate change, there is general acceptance that developed countries have contributed the most to the problem – they have the greatest responsibility.¹¹² In addition, these countries, because of their greater wealth and technological advancement, are better able to address climate change – they have greater capabilities.¹¹³ According to the Convention, therefore “the developed country Parties should take the lead in combating climate change and the adverse effects thereof.”¹¹⁴

Consequently, although the Convention contains general commitments for all countries to fulfil, it also contains additional commitments for developed countries in light of their historical responsibility.¹¹⁵ There is also differentiation among developed countries, with those countries that are making the transition to a market economy (economies in transition) being exempt from some of the financial obligations that other developed countries have, in recognition of their lesser financial capability.¹¹⁶ In

¹¹¹ See Rio Declaration, Principle 6; Sands, *supra* Chapter 2, note 19, at 287; and Bafundo, *supra* note 110, at 462-463.

¹¹² See UNFCCC, Preamble, paragraph 3. Although it is generally agreed that developed countries are historically responsible for the current level of GHG emissions in the atmosphere, developing country emissions are predicted to exceed developed country emissions in the future, and in fact, some developing country emissions already exceed that of many developed countries. See Rogner *et al.*, *supra* note 91, at 108; and Claussen and McNeilly, *supra* Chapter 2, note 67, at 3. The principle is not meant to be static, but dynamic, considering the situation and circumstances of countries at the relevant point in time, not just at the time the Convention was agreed. See for example A. Halvorsen, ‘Common but differentiated commitments in the future climate change regime – amending the Kyoto Protocol to include Annex C and the Annex C Mitigation Fund’ (2007) 18 *CJIELP* 255, 258-260; and L.D. Guruswamy, ‘Climate change: the next dimension’ (1999-2000) 15 *J. Land Use & Envt’l L.* 341, 343 and 363. See also note 87 above and Chapter 1, note 22 for a discussion of the mitigation actions developing countries are now to take on.

¹¹³ Yamin and Depledge, *supra* Chapter 1, note 15, at 105; and Pittock, *supra* Chapter 1, note 5, at 216.

¹¹⁴ UNFCCC, Article 3(1).

¹¹⁵ *Ibid.*, Article 4. See also Ashton and Wang, (2003), 62.

¹¹⁶ See for example, UNFCCC, Article 4(3).

addition, the Convention requires consideration of the special needs and circumstances of specific groups of countries, such as developing, least developed and small island countries.¹¹⁷ The Convention also provides that the extent to which developing countries will implement their Convention commitments will depend on how developed countries implement their financial and technology transfer commitments.¹¹⁸

Also, as highlighted in the CBDR discussion in Section 3.2.2 above, the CDM itself is an instrument of differentiation within the climate change regime. In recognition of their limited responsibility for the climate problem and their limited capability to address it, developing countries do not have emission reduction commitments under the Kyoto Protocol. However, through the CDM, they are given the chance to contribute to climate change mitigation. According to Cullet, “by participating in the CDM, host countries can be said to take on voluntary climate change mitigation commitments.”¹¹⁹ In addition, in recognition of their need for sustainable development, CDM projects are required to contribute to sustainable development in developing countries. The CDM therefore combines all three elements of the CBDR principle – consideration of countries’ responsibility, capability and needs.

The CBDR principle has been discussed above, and as noted, it requires consideration of countries’ needs, responsibility and capability. The conclusion reached is that

¹¹⁷ See *Ibid*, Preamble, paragraphs 19-22; and Articles 4(7) – 4(10).

¹¹⁸ *Ibid*, Article 4(7).

¹¹⁹ See Cullet, *Differential Treatment in International Environmental Law*, *supra* note 51, at 115-116.

although the element of responsibility is not relevant to the CDM, the elements of needs and capability are relevant.¹²⁰

The requirement that *developed countries should take the lead in combating climate change and its adverse effects* is an upshot of the CBDR principle. In the application of the principle, the differentiated responsibilities and respective capabilities of countries dictate that developed countries should take the lead in addressing climate change, because they are primarily responsible for the problem and are also better able to deal with it. As already discussed above under the CBDR principle, this has played out both in the form of the commitments taken on by developed countries and the requirement for financial support to be provided by developed countries to developing countries.¹²¹ For example, the Convention contains far more obligations for developed countries than for developing countries.¹²² Under the Kyoto Protocol, developing countries do not have any quantified emission reduction targets, whereas developed countries do.¹²³ This particular principle has limited relevance to the CDM, except to the extent already discussed above under the CBDR principle.

The common concern of mankind concept was first referred to in the context of discussions of the need to address the problem of climate change, when the UN General Assembly recognised climate change as a common concern of mankind, because “climate is an essential condition which sustains life on earth.”¹²⁴ The reason

¹²⁰ See the discussion in Section 3.2.2 above. This element of need is discussed in full in Section 3.6.1 below.

¹²¹ See Cullet, *supra* Chapter 2, note 68, at 169.

¹²² See UNFCCC, Articles 4(1) and 4(2). Article 4(1) contains general commitments for all parties, both developed and developing, and Article 4(2) outlines further commitments for developed countries alone.

¹²³ See Protocol, Articles 2, 3, 5 and 7.

¹²⁴ UNGA Resolution 43/53, Paragraph 1.

given suggests the rationale behind the concept: the climate is important to everyone, as climate change affects everyone, and is therefore the concern of everyone.¹²⁵

The original proposal to the UN General Assembly was for the conservation of climate to be regarded as the common heritage of mankind¹²⁶ but the common concern concept was adopted instead.¹²⁷ Murillo states that the reasons for rejecting the common heritage concept were mainly fear by developing countries that the concept would lead to an infringement of their sovereignty and a rejection by developed countries of the shared benefit system of the concept.¹²⁸ The common concern concept was adopted as preferable because it is based on the equitable sharing of the burdens of environmental protection, rather than of the benefits of exploiting common resources or environmental wealth.¹²⁹ According to several

¹²⁵ See L. Glowka and others, *A Guide to the Convention on Biological Diversity* (Gland and Cambridge: IUCN, 1994), 3. The concept has also been used in relation to the protection of biodiversity. See Biodiversity Convention, Preamble, paragraph 3. Other instruments that have applied this concept in some form include the North-East Atlantic Fisheries Convention (London) 24 January 1959, in force 27 June 1963; 486 UN Treaty Series 157, Preamble, paragraph 1, which describes the conservation of the fish stocks and the rational exploitation of the fisheries of the North-East Atlantic Ocean and adjacent waters as of common concern. See also the UN Declaration on International Economic Cooperation, in particular the Revitalization of Economic Growth and Development of the Developing Countries (UN Doc. A/RES/S-18/3), paragraph 29, which states that the threat to the environment is the common concern of all and requires all countries to take effective action to protect and enhance the environment. As it is a relatively new concept, it does not appear to have been adopted or applied explicitly in any other regime. See generally Murillo, 'Common concern of humankind and its implications in international environmental law' (2008) 5 *MqJICEL* 133. It has however also been implicitly applied in some, such as the Montreal Protocol and the Convention for the Protection of the World Cultural and Natural Heritage. See J. Brunnée 'Common areas, common heritage, and common concern' in Bodansky *et al.*, *supra* Chapter 2, note 63, at, 565; and Birnie *et al.*, *supra* Chapter 1, note 15, at 128.

¹²⁶ This was the proposal of the Government of Malta. See UNGA Resolution 43/53, Preamble, paragraph 1. See the discussion of the common heritage of mankind concept in chapter 6.

¹²⁷ See L. Horn, 'The implications of the concept of common concern of a human kind on a human right to a healthy environment' (2004) 1 *MqJICEL* 244. See also 'The implications of the "common concern of mankind" concept on global environmental issues' (December 1990) <http://www.juridicas.unam.mx/publica/librev/rev/iidh/cont/13/doc/doc27.pdf>, www.juridicas.unam.mx (National University of Mexico, 25/11/2010), 240.

¹²⁸ Murillo, *supra* note 125, at 138.

¹²⁹ See 'The implications of the "common concern mankind" concept on global environmental issues,' (1990), 238-239. See also Murillo, *supra* note 125, at 138. However the common heritage of mankind

authors, the common concern concept primarily relates to the sharing of burdens, not of benefits.¹³⁰

The concept has been applied under the climate change regime to give all countries the responsibility to protect the climate system.¹³¹ The Convention acknowledges that “the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response...”¹³² In application of the concept, developed countries have a greater burden of climate protection than developing countries, based on their responsibility for the problem,¹³³ although all countries are ultimately expected to actively protect the climate.¹³⁴ The concept therefore has two elements: common responsibility or duty to address a problem; and apportionment of this duty based on responsibility for the problem.

As explained above, in the context of the CDM, it is not relevant to talk about the sharing of burdens because the CDM is concerned with sharing of benefits, not of burdens.¹³⁵ Equitable distribution of CDM projects cannot therefore be done on the

concept, with its benefit-sharing element, is utilised in some regimes, such as the deep seabed regime. See the discussion of this concept in Section 3.5 below.

¹³⁰ See K. Baslar, *The Concept of Common Heritage of Mankind in International Law* (the Hague: Kluwer Law International, 1998), 290; Murillo, *supra* note 125, at 138; Brunnée, *supra* note 125, at 56; and Birnie *et al.*, *supra* Chapter 1, note 15, at 128.

¹³¹ See UNFCCC, Article 3(1). This application of the concept is also evidenced in the principle of common but differentiated responsibilities discussed above, the element of common responsibility being linked to the common concern of all countries to protect the climate system.

¹³² *Ibid.*, Preamble, paragraph 6. See also Rio Declaration, Principle 7, which requires countries to cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystems.

¹³³ See UNFCCC, Article 3(1), and Preamble, paragraphs 3 and 18. See also L. Horn, ‘Globalisation, sustainable development and the common concern of humankind’ (2007) 7 *Macquarie L.J.* 57-58.

¹³⁴ See for example UNFCCC, Article 4(1), which contains commitments for all Parties.

¹³⁵ It is important at this point to note that although the CDM is not concerned with the sharing of burdens, the mechanism itself may result in substantial future burdens for developing countries. This is because if developing countries are required to take on binding emission reduction commitments (see Chapter 1, note 22 for a discussion of the steps being taking towards this), these countries may be left

basis of responsibility.¹³⁶ The common concern concept is consequently not directly relevant to the CDM, except to the extent that it: provides a basis for all countries, including all developing countries, to participate in efforts to address climate change; and shows that the design of the climate change regime is based on equity and equitable sharing, and the CDM, as an instrument of the regime, should likewise be based on equity and equitable sharing.

The Convention also recognises *the specific needs and special circumstances of developing countries* and requires that these be taken into consideration. This principle is based on Principle 6 of the Rio Declaration, which provides that the special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority.¹³⁷ It is also regarded as an aspect of the CBDR principle.¹³⁸

Many international agreements incorporate a form of this principle in order to ensure equity in the treatment of specific groups of countries, usually developing

with no choice but to fulfil these commitments by undertaking relatively expensive mitigation actions. This will be the case if, through the CDM, most of the cost-effective mitigation actions have already been undertaken for the benefit of developed countries, leaving only the more expensive actions for developing countries themselves to undertake in fulfilment of any future mitigation commitments. This will result in developing countries bearing a greater financial mitigation cost than developed countries bore, as a direct result of the mitigation activities undertaken under the CDM and the fact that the CDM has resulted in most of the “low-hanging fruit” mitigation actions being undertaken to aid developed countries in the achievement of their emission reduction commitments. In recognition of this possibility and to prevent this situation, Cullet points out that the CDM should focus more on avoiding future emissions than on the cheapest mitigation opportunities. See Cullet, *Differential Treatment in International Environmental Law*, *supra* note 51, at 119-120.

¹³⁶ See the discussion of this point in Section 3.2.2. This conclusion would be different if the common heritage concept, rather than the common concern concept, had been adopted, as originally proposed. This is because the common heritage concept deals with the sharing of benefits. See Section 3.5.4 below for a discussion of the common heritage concept.

¹³⁷ Rio Declaration, Principle 6.

¹³⁸ See Section 3.2.2 above for a discussion of the CBDR principle. See also French, *supra* note 55, at 40-42; and Sands, *supra* Chapter 2, note 19, at 288-289.

countries.¹³⁹ The UN Millennium Declaration recognises the obstacles faced by developing countries in mobilising the resources needed to finance their sustained development, as well as the special needs and problems of small island developing States (SIDS) and the least developed countries (LDCs).¹⁴⁰ As applied under the climate change regime, this, for example, requires consideration of the specific needs and special circumstances of developing countries,¹⁴¹ such as their right to promote sustainable development,¹⁴² their need to achieve sustained economic growth and eradicate poverty,¹⁴³ as well as their need for support with climate change education and training,¹⁴⁴ and capacity building.¹⁴⁵ The Protocol provides that developed countries should strive to implement policies and measures in such a way as to minimise adverse effects on other countries, especially developing countries.¹⁴⁶

¹³⁹ See United Nations Convention on the Law of the Sea (Montego Bay) 10 December 1982, in force 16 November 1994; (1982) 21 ILM 1261 (UNCLOS), Preamble, paragraph 5; Vienna Convention for the Protection of the Ozone Layer, Preamble, paragraph 3; Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona) 16 February 1976, in force 12 February 1978; (1976) 15 ILM 290, Article 11(3) (1976 Barcelona Convention); Montreal Protocol, Article 5; Convention on Biological Diversity, Preamble, paragraph 17; and <http://www.unescap.org/LDCCU/index.asp> ‘Special Unit on Countries with Special Needs’ (UNESCAP, 13/07/2010).

¹⁴⁰ See UN Millennium Declaration (UN Document A/RES/55/2), Section III. The Economic and Social Council of the UN classifies countries as LDCs if they satisfy three criteria: a low income criterion, based on their gross national income per capita; a human capital status criterion, based on indicators of nutrition, health, education and adult literacy rate; and an economic vulnerability criterion, based on indicators of population size, remoteness, merchandise export concentration, share of agriculture, forestry and fisheries in gross domestic product, homelessness owing to natural disasters, instability of agricultural production, and instability of exports of goods and services. See <http://www.unohrrls.org/en/ldc/related/59/> ‘Criteria for identification of LDCs’ (UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, 21/10/2010).

¹⁴¹ UNFCCC, Article 3(2).

¹⁴² *Ibid*, Article 3(4).

¹⁴³ *Ibid*, Preamble, paragraph 21 and Article 4(7).

¹⁴⁴ Kyoto Protocol, Article 10(e). See also Decision 11/CP.8, New Delhi Work Programme on Article 6 of the Convention, (FCCC/CP/2002/7/Add.1, 28 March 2003), which provides for financial and other support for developing countries, particularly LDCs and SIDS, to implement Convention Article 6 (education, training and public awareness).

¹⁴⁵ See generally, Yamin and Depledge, *supra* Chapter 1, note 15, at Chapter 10, on the finance, technology and capacity building provisions of the Convention and Protocol.

¹⁴⁶ Kyoto Protocol, Article 2(3).

These general provisions could also be applied to distinguish among the needs of individual developing countries, rather than between developed and developing countries. For instance, the Convention explicitly recognises certain groups of developing countries as having special circumstances that should be considered. These include those developing countries that are particularly vulnerable to the adverse effects of climate change and/or the impact of the implementation of response measures.¹⁴⁷ The specific needs and special situations of the LDCs¹⁴⁸ are also specifically recognised and for instance, the COP established the LDC Fund to provide financial support for LDCs.¹⁴⁹

The key element of this principle therefore is that equity requires consideration of the needs of the relevant groups of countries. When identifying the needs of developing countries, the Convention explicitly refers to the needs of all developing countries as opposed to those of developed countries, but also differentiates among developing countries. It is the latter that equitable distribution of CDM projects would require. For example, in relation to economic growth and poverty eradication, different countries are at differing stages of development and their needs in this regard vary. Countries such as Timor-Leste, Chad and Afghanistan are classified as LDCs because they have low human development¹⁵⁰ levels and greater developmental needs, while

¹⁴⁷ UNFCCC, Preamble, paragraph 19 and Articles 4(8) and 4(10).

¹⁴⁸ See the definition of LDCs in note 140 above. The UN maintains a list of all LDCs. See <http://www.unohrls.org/en/ldc/related/62/> 'Least developed countries' (UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, 28/07/2010).

¹⁴⁹ Decision 7/CP.7.

¹⁵⁰ Human development is defined by UNDP as development that ensures peoples' wellbeing, empowerment and agency, and justice. It is measured using the indicators of life expectancy, adult literacy, gross enrolment in education, purchasing power parity, and income. See UNDP, *Human Development Report 2010, The Real Wealth of Nations: Pathways to Human Development* (New York:

countries such as Singapore, Barbados, Qatar and the Republic of Korea (which are still regarded as developing countries by the Convention) are actually classified as having high human development levels and therefore less developmental needs.¹⁵¹ This is because the latter countries have relatively high life expectancy, high adult literacy and gross enrolment in education, as well as a decent standard of living measured by their gross domestic product.¹⁵² Consequently, such countries for example have less economic, developmental and capacity needs than the LDCs. Consideration of countries' levels of needs should form part of efforts to achieve equitable geographic distribution of CDM projects.

The principles that Parties have *a right to, and should, promote sustainable development* and also *promote sustainable economic growth and development in all Parties, especially developing country Parties*,¹⁵³ are two inter-related Convention principles, which aim at protecting the right of countries to strive for sustainable economic growth and development.

In 1986, the UN General Assembly recognised the right to development as an inalienable human right.¹⁵⁴ This was reaffirmed by the 1993 Vienna Declaration and Programme of Action, which stated that “the right to development, as established in the Declaration on the Right to Development, is a universal and inalienable right and

UNDP, 2010), 13 and 22. It is therefore about more than peoples' or countries' incomes. See <http://hdr.undp.org/en/humandev/> 'The Human Development concept' (UNDP, 16/02/2011).

¹⁵¹ See 'Human Development Report 2009 - HDI rankings' <http://hdr.undp.org/en/statistics/> (UNDP, 21/10/2010).

¹⁵² These are the indicators used by UNDP to measure countries' human development levels. See <http://hdr.undp.org/en/humandev/> 'The Human Development concept' (UNDP, 16/02/2011). See 'Human development index 2007 and its components' http://hdr.undp.org/en/media/HDR_2009_EN_Table_H.pdf (accessed 21/10/2010).

¹⁵³ UNFCCC, Articles 3(4) and 3(5).

¹⁵⁴ 1986 Declaration on the Right to Development (UN document A/RES/41/128), Article 1.

an integral part of fundamental human rights.”¹⁵⁵ Subsequently, this right has been recognised by many international declarations,¹⁵⁶ including the Copenhagen Declaration on Social Development¹⁵⁷ and the UN Declaration on the Rights of Indigenous Peoples.¹⁵⁸ The Rio Declaration provides that the right to development must be fulfilled so as to equitably meet the developmental and environmental needs of present and future generations.¹⁵⁹

The right to development is often linked to equity¹⁶⁰ and cited as a way of ensuring equity, such as through ensuring equal and adequate access to essential resources.¹⁶¹ It is also regarded as an element of sustainable development.¹⁶² No international treaty explicitly contains the “right to development” and the UNFCCC comes closest, by explicitly asserting the right to “promote sustainable development.” Sustainable development goes beyond economic development, and is an attempt at reconciling the objectives of economic development and environmental protection, aimed at ensuring that both are achieved in an integrated manner.¹⁶³ As already highlighted in Chapter 2, key ideas included in the concept of sustainable development are: economic

¹⁵⁵ Vienna Declaration and Programme of Action, adopted by the World Conference on Human Rights (A/CONF.157/23), Article 10.

¹⁵⁶ See generally A. Sengupta, “On the theory and practice of the right to development” (2002) 24 *Human Rights Quarterly* 837, 841-842.

¹⁵⁷ See for example paragraphs 26(j) and 29(f) of the Copenhagen Declaration on Social Development, adopted by the 1995 World Summit for Social Development (UN Document A/CONF.166/9).

¹⁵⁸ United Nations Declaration on the Rights of Indigenous Peoples, adopted by UN General Assembly Resolution 61/295, 13 September 2007 (UN Document A/RES/61/295), Article 2(3).

¹⁵⁹ Rio Declaration, Principle 3.

¹⁶⁰ See Sengupta, *supra* note 156, at 846 and 850. See also page 849, where the author emphasises that, “the right to development implies a process with equity and justice.”

¹⁶¹ See for example the 1986 Declaration on the Right to Development, Article 8, which requires States to ensure “equality of opportunity for all in their access to basic resources, education, health services, food, housing, employment and the fair distribution of income.” See also <http://www2.ohchr.org/english/issues/development/right/index.htm> ‘Development - Right to development’ (Website of the Office of the UN High Commissioner for Human Rights, 13/07/2010).

¹⁶² See Loibl, *supra* Chapter 2, note 19, at 98; and Boyle and Freestone, *supra* note 7, at 11-12.

¹⁶³ See French, *supra* Chapter 2, note 19, at 2, 3 and 10. See also Fuentes, *supra* Chapter 2, note 19, at 7; and Segger and Khalfan, *supra* Chapter 2, note 19. For more on sustainable development, see Chapter 2, note 19.

development, including meeting the needs of present and future generations; and environmental protection.¹⁶⁴ The issue of the recognition of needs has already been highlighted several times.

The climate change regime recognises the right to promote sustainable development and the right to promote sustainable economic growth and development in all countries, especially developing countries. These rights have been implemented under the climate change regime in several ways. It has been implemented to give developing countries far fewer commitments and obligations than developed countries, in recognition of the fact that they (developing countries) have greater needs and fewer resources. It recognises their need for poverty eradication,¹⁶⁵ increased energy resources,¹⁶⁶ technology transfer¹⁶⁷ and financial support,¹⁶⁸ among others. The regime also makes provisions to contribute to meeting these needs, for example, through provisions relating to transfer of environmentally-sound technology and know-how,¹⁶⁹ enabling capacity building in developing countries¹⁷⁰ and the provision of financial assistance for developing countries to address climate change

¹⁶⁴ See also Sands, *supra* Chapter 2, note 19, at 252; Birnie *et al.*, *supra* Chapter 1, note 15, at 53-54; and Magraw and Hawke, *supra* Chapter 2, note 63, at 614 and 618.

¹⁶⁵ UNFCCC, Article 4(7).

¹⁶⁶ *Ibid*, Preamble, paragraph 21.

¹⁶⁷ *Ibid*, Article 4(5). See also L.D. Guruswamy, 'Energy, environment & sustainable development' (2005) 8 *Chapman L. Rev.* 77, 101, where the author notes that commitment to sustainable development requires developed countries to undertake research and development on new technologies for producing better forms of primary energy and then transfer such technologies to developing countries.

¹⁶⁸ UNFCCC, Article 4(3).

¹⁶⁹ *Ibid*, Articles 4(5) and 4(7); and Kyoto Protocol, Article 11(2)(b).

¹⁷⁰ See for example Decision 10/CP.5, Capacity-building in developing countries (non-Annex I Parties) (FCCC/CP/1999/6/Add.1, 2 February 2000); and Decision 2/CP.7, Capacity building in developing countries (non-Annex I Parties) (FCCC/CP/2001/13/Add.1, 21 January 2002).

issues.¹⁷¹ This is in order to help them achieve sustainable social and economic growth, while considering the possibilities for achieving greater energy efficiency and for controlling GHG emissions in general.¹⁷² The CDM is also one of the tools employed by the climate change regime to promote sustainable development in developing countries – one of the main objectives of the CDM is to assist developing countries to achieve sustainable development.¹⁷³

Equity under this principle therefore has two elements: recognition and consideration of the needs of countries; and provision of support to specific groups of countries. In relation to the CDM, the element of needs has already been discussed, as so far, it appears to be a recurring element of equity.¹⁷⁴ With regard to the provision of support (which is also seen under the CBDR principle), this could for example, be interpreted to mean that certain categories of countries should receive support to enhance their participation in the CDM. Such support should for example be targeted towards overcoming barriers to CDM participation. This is discussed in more detail in Section 3.6 below.

3.3.3 The Kyoto Protocol

As explained above, the guiding principles under the Convention also apply to the Protocol.¹⁷⁵ For example, the Protocol highlights that no new commitments are

¹⁷¹ Such as through the LDC Fund and the Special Climate Change Fund - Decision 7/CP.7, Funding under the Convention (FCCC/CP/2001/13/Add.1, 21 January 2002), as well as the Adaptation Fund – Decision 10/CP.7, Funding under the Kyoto Protocol (FCCC/CP/2001/13/Add.1, 21 January 2002).

¹⁷² See Preamble to the UNFCCC.

¹⁷³ See Kyoto Protocol, Article 12. See also Loibl, *supra* Chapter 2, note 19, at 110. The CDM is a good example of a sustainable development tool, as it aims to promote economic development in an integrated manner with environmental protection (by reducing GHG emissions in developing countries).

¹⁷⁴ See the discussions above in this Section and in Section 3.2.2.

¹⁷⁵ See Kyoto Protocol, Preamble, paragraph 4 and UNFCCC, Article 3.

introduced for developing countries, but that the aim is to reaffirm and advance the implementation of their existing Convention commitments.¹⁷⁶ Consequently, the Protocol contains very few commitments for developing countries.¹⁷⁷ This is in accordance with the CBDR principle which recognises the historical responsibility of developed countries and the development priorities of developing countries, resulting in the need for developed countries to take the lead in climate change mitigation efforts.¹⁷⁸ The Protocol also recognises the “needs” of developing countries, and for example, provides that developed countries should provide new and additional financial resources to meet the cost borne by developing countries in implementing their Convention and Protocol commitments.¹⁷⁹ In implementing Article 10, account should be taken of Convention Articles 4.3, 4.5 and 4.7.¹⁸⁰ These, as discussed above, relate to the provision of financial resources to developing countries to implement their commitments. It means therefore that: the implementation of Article 10 by developing countries (which in essence means implementation of their Convention commitments, as Article 10 does not contain any new commitments) depends on developed countries fulfilling their financial and technology transfer commitments; and that account is to be taken of the fact that economic and social development, and poverty eradication are the first and overriding priorities of developing countries.

¹⁷⁶ Kyoto Protocol, Article 10 (chapeau).

¹⁷⁷ That is, additional to those in the Convention. See also Decision 1/CP.1, Paragraph 2.

¹⁷⁸ See Dawson and Spannagle, *supra* Chapter 1, note 15, at 236. See however the discussion in note 87 above for the caveat to the statement, regarding the push for some developing countries, in recognition of their rapidly increasing GHG emission levels, to take on mitigation commitments or actions.

¹⁷⁹ Kyoto Protocol, Article 11.

¹⁸⁰ *Ibid*, Article 11(1).

The Protocol therefore imports the principles contained in the Convention, as well as the conditionalities on developing country commitments.¹⁸¹ As already discussed, it requires consideration of responsibility, ability/capability and needs of the relevant countries or groups of countries, such as developing countries, LDCs, SIDS and those countries with economies in transition.

3.3.4 Conclusion

As explained above, inequity can be seen in the problem of climate change itself, particularly when the distribution of its cause and impacts are considered.¹⁸² In order to ensure that in addressing climate change, this inequity is not perpetuated, the principle of equity is one of the fundamental principles of the regime established to address climate change. Equity is factored into every aspect of the regime, from its ultimate objective,¹⁸³ to the activities to achieve this objective,¹⁸⁴ the financing of these activities¹⁸⁵ and participation in governance.¹⁸⁶ Both in theory and practice therefore, the Convention and Protocol aim to ensure equity among countries.¹⁸⁷

¹⁸¹ See Yamin and Depledge, *supra* Chapter 1, note 15, at 93-94.

¹⁸² See the discussion in Section 3.3.1 above.

¹⁸³ Article 2 of the Convention provides that stabilising GHG concentrations at safe levels should be achieved in such a way as not to threaten food production and economic development.

¹⁸⁴ As discussed above, Article 2 of the Convention, as well as the Kyoto Protocol, contain differentiated commitments for different groups of countries.

¹⁸⁵ See for example UNFCCC, Article 4(7).

¹⁸⁶ Participation in the various governance mechanisms is based on equity. For example, the COP Presidency rotates among the five UN regional groupings, and the COP Bureau consists of 11 members – 2 each from the 5 regional groupings and one from SIDS. See the Draft Rules of Procedure of the Conference of the Parties and its Subsidiary Bodies (FCCC/CP/1996/2), Rule 22(1). Additionally, it is practice to have one member from a developed country and one from a developing country to be the chair and vice-chair of the various subsidiary bodies under the Convention. Also when establishing contact groups during negotiating sessions, the contact groups are usually co-chaired by a representative each from a developed and developing country Party. See for example the list of contact group chairs for the November 2009 *Ad hoc* Working Group sessions, in T. Akanle *et al.*, ‘Summary of the Barcelona climate change talks’ (November 2009) <http://www.iisd.ca/download/pdf/enb12447e.pdf> (25/11/2010). See also Cullet, *supra* Chapter 2, note 68, at 173; and UNFCCC, Article 11(2).

¹⁸⁷ See generally, H. Bulkeley and P. Newell, *Governing Climate Change* (London and New York: Routledge, 2010), Chapters 1-3.

Equity as applied by the climate change regime requires consideration of certain elements. As already identified above, these are: responsibility, capability, needs, and the provision of support (financial, technological and capacity building support). This application of equity is the same as that found in international law generally.¹⁸⁸ The climate change regime does not identify what the equitable outcome should be, but establishes what should be considered in order to ensure an equitable outcome, and the outcome varies depending on the elements and issues being considered. For example, in consideration of countries' responsibility for climate change, developed countries are required to take the lead in mitigating climate change and have quantified emission reduction commitments, whereas developing countries generally have no such commitments.¹⁸⁹ In consideration of developing countries' needs and responsibility (or rather, lack of responsibility), they have far fewer commitments than developed countries and are to receive financial and technological support from developed countries to implement the commitments that they do have.¹⁹⁰

These elements should also apply, to the extent possible, to the CDM, which is an instrument of the regime and therefore must be implemented according to the principles and rules of the regime.¹⁹¹ As underscored,¹⁹² the CDM itself embodies these elements of equity in the CDM regime, as it combines a recognition of developing countries' limited responsibility for the climate change problem and limited capability to address it, with their need for sustainable development, and is an

¹⁸⁸ See Section 3.2 which concludes that equity in international law requires consideration of countries' responsibility, capability and needs, and also requires the giving of preferential treatment or support to specific groups of countries.

¹⁸⁹ See UNFCCC, Article 3(1) and Article 10, and Kyoto Protocol, Annex B.

¹⁹⁰ UNFCCC, Article 4(7) and Kyoto Protocol, Article 10.

¹⁹¹ See Introduction (Section 3.1) above.

¹⁹² On page 63 above.

instrument for achieving sustainable development in developing countries, among other things, through the provision of financial, technological and capacity building support.¹⁹³ As already discussed,¹⁹⁴ although the element of responsibility is relevant within the general framework of the CDM (as an instrument of differentiation between developed and developing countries), it is not directly relevant to equitable geographic distribution within the CDM¹⁹⁵ because it relates in particular to the sharing of burdens, whereas the issue of distribution of projects within CDM relates to the sharing of benefits, not burdens, among developing countries.¹⁹⁶ The other elements (needs, capability and preferential treatment/support) however can be applied to the CDM, and have been discussed to some extent above.¹⁹⁷ They will be considered in full below, in the context of the elements and factors of equitable geographic distribution of CDM projects.

3.4 Theories of Distributive Justice

Next, this chapter examines theories of distributive justice, which are theories that aim to determine how goods and/or services should be distributed or allocated in society in a way that can be regarded as just or fair.¹⁹⁸ The aim of equitable geographic

¹⁹³ See Chapter 2, Section 2.2 for a discussion of the benefits the CDM is intended to provide to developing countries.

¹⁹⁴ In Section 3.2.2 (on the CBDR principle) and in Section 3.3.2 above.

¹⁹⁵ See the discussion on pages 49-51 and at note 136 above.

¹⁹⁶ See note 135 above for an explanation of the fact that the CDM may result in substantial future burdens for developing countries, although this fact is not directly relevant to the issue of the geographic distribution of projects under the CDM.

¹⁹⁷ In Sections 3.2.2, 3.2.3 and 3.3.2.

¹⁹⁸ Distributive justice aims to determine the appropriate distribution of goods. See M.D.A. Freeman, *Lloyd's Introduction to Jurisprudence* 7th ed. (London: Sweet & Maxwell, 2001), 523. Principles of distributive justice are normative principles designed to guide the allocation of the benefits and burdens of economic activity. See 'Distributive Justice' by the Stanford Encyclopedia of Philosophy <http://plato.stanford.edu/entries/justice-distributive/> (Stanford Encyclopedia of Philosophy, 12/03/2010). See also Roemer, *supra* Chapter 1, note 48; J. Arthur, and W.H. Shaw (eds.), *Justice and Economic Distribution* 2nd ed. (New Jersey: Prentice-Hall, 1991). See also C.R. Beitz, *Political Theory and*

distribution of CDM projects is similar – to achieve equity in the distribution of CDM projects among developing countries.¹⁹⁹ Because the goal of equitable geographic distribution is to achieve equity in the *distribution* of CDM projects, this section focuses on theories of distributive justice.²⁰⁰ This section: identifies relevant lessons or principles from the theories; assesses their applicability to the issue of equitable geographic distribution of CDM projects; and uses them (the lessons or principles) to attempt to define equitable geographic distribution. The theories of distributive justice examined below are: egalitarianism, the difference principle and utilitarianism.

There are, of course, other theories of distributive justice apart from those examined below. However, this thesis only examines these three theories for two reasons. The first is that many of the other theories of distributive justice are variations or expansions of these ones, and are generally fundamentally based on these three theories. For example, egalitarianism advocates equality or an equal distribution. However, egalitarians disagree about what should be the object (“currency”) of equal distribution, or what form of equality is the most important. There are consequently many variations of the theory based, *inter alia*, on the object of equal distribution.²⁰¹

International Relations (Princeton: Princeton University Press, 1999), 152, where the author states that the role of a principle of distributive justice is to specify what a fair distribution of benefits and burdens would be like.

¹⁹⁹ See Silayan, *supra* Chapter 1, note 50, at 2. As noted in Section 3.2 above, “equity” is used as a synonym for “justice” or “fairness.”

²⁰⁰ Other theories of justice include theories of retributive justice, restorative justice and corrective justice. This chapter only considers theories of distributive justice, because it is these theories that are relevant to the issue of equitable distribution of CDM projects (because of the distributive element).

²⁰¹ For example, Ronald Dworkin argues for “equality of resources,” which he distinguishes from “equality of welfare.” See R. Dworkin, ‘What is equality? Part 1: equality of welfare’ in M. Hajdin, (ed.) *The Notion of Equality* (Aldershot: Ashgate Publishing, 2001), 120. Bruce Landesman advocates “maximum equal wellbeing.” See B.M. Landesman, ‘Egalitarianism’ in Hajdin, *Ibid*, at 207-236. Thomas Nagel presents his own view of egalitarianism, which is a combination of the personal (the consideration by an individual of his personal desires, experiences and interests) and impersonal (individuals occupy when they abstract themselves from their identities and positions in the world) standpoints. See T. Nagel, *Equality and Partiality* (Oxford: Oxford University Press, 1991).

The second reason is that there are very many theories, including variations on theories, and it is beyond the scope and capability of this thesis to examine every single theory. In selecting the theories to examine, this thesis was guided by jurisprudence texts as to the main theories of distributive justice, specifically those that are both widely discussed and on which many of the other theories are based. These three theories (egalitarianism, the difference principle and utilitarianism) appear to be among the main theories, and consequently, it is these theories that this thesis examines.

3.4.1 Egalitarianism

Egalitarianism advocates allocating equal shares of the object of distribution (for example, benefits or resources) to all members of society.²⁰² As a distributive justice theory, it advocates equal distribution of goods or services – equality of resources, income or wealth.²⁰³ With regard to this thesis, the issue is whether the distribution of CDM projects among developing countries should be based on equality.

Strict equality in the distribution of CDM projects would mean that all countries should receive the same number of projects or generate the same amount of CERs, irrespective of countries' circumstances or differences among countries. For example, as at October 2010, there were 2463 registered CDM projects which were expected to

²⁰² See F.E. Oppenheim, 'Egalitarianism as a descriptive concept' in L.P. Pojman and R. Westmoreland (eds) *Equality: Selected Readings* (New York and Oxford: Oxford University Press, 1997), 56, where he refers to this as "the most extreme view." See generally, R. Dworkin, *Sovereign Virtue: Equality in Theory and Practice* (Cambridge: Harvard University Press, 2000); Hajdin *supra* note 201; Nagel, *supra* note 201; J. Wolff, 'Fairness, Respect, and the Egalitarian Ethos' (1998) 27 *Philosophy and Public Affairs* 97; and J. Gross, *Fair Shares for All* (Cambridge: Cambridge University Press, 1997).

²⁰³ See A. Mason, (ed.), *Ideals of Equality* (Oxford: Blackwell Publishers, 1998), 3. See also Stanford Encyclopedia of Philosophy which states that egalitarianism is used in modern democratic societies to refer to a position that favours greater equality of income and wealth than currently exists.

generate about 390 million CERs annually,²⁰⁴ and there were 123 eligible developing countries.²⁰⁵ Equality would require that each developing country should host about 20 projects each or produce about 3.2 million CERs annually (2463 and 390 million divided by 123). This seems like an attractive outcome, particularly considering the current distribution, where one country (China) hosts over 1000 projects, some countries host several hundred, and many countries host none at all. Nevertheless, there is a problem with this solution, which is that strict equality does not allow consideration of relevant differences among countries.

Applying this to the CDM, a key relevant difference is countries' differing CDM hosting potential. One of the objectives of the CDM is to achieve cost-effective GHG emission reductions through projects in developing countries.²⁰⁶ Countries have different emission reduction potentials because they have different GHG emission levels. They therefore cannot all host the same number of projects or generate the same amount of CERs. Due to their low GHG emission levels, not all countries can host 20 CDM projects or generate 3.2 million CERs annually. For example, about 32 countries produce less than 3 million tonnes of CO₂ equivalent emissions annually.²⁰⁷ It is therefore impossible for them to reduce their emissions by 3.2 million, when they produce less than this, even assuming that all of a country's GHG emissions can be optimally reduced through the CDM.

One way around this would be for countries with low levels of GHG emissions to increase their GHG emissions so that that they can host as many projects as those with

²⁰⁴ See CDM Pipeline, 1 November 2010.

²⁰⁵ See the discussion of participation requirements and eligible countries in Chapter 2.

²⁰⁶ See the discussion of the objectives of the CDM, in Chapter 2.

²⁰⁷ Statistics correct as of November 2010. See CAIT Version 7.0 (2005 data). See also Appendix B and the analysis of countries' emission reduction potential in Chapter 4.

higher GHG emission levels. However, this option is contrary to the CDM's objective of reducing GHG emissions and so is not an appropriate solution.²⁰⁸

Another solution is to require that countries can only host the number of projects which the countries with the lowest GHG emission reduction potential can host (say 10, for example). This would ensure equality, as no country would be allowed to host more projects than any other country, even if they have the potential to do so.²⁰⁹ For example, assume that the CDM has the potential to reduce 30% of global emissions and increase countries' sustainable development levels by 20% if no limit is placed on the number of projects countries can host, but can only reduce global emissions by 10% and increase countries' sustainable development levels by 5% if all countries are limited to hosting a specific number of projects. Choosing the latter option would be counter-productive as it would limit the ability of the CDM to achieve its objectives of sustainable development and GHG emission reductions.

For these reasons, strict equality would not be a suitable theory to apply to the CDM. It is therefore not surprising that the CDM Executive Board has noted that equitable distribution of projects does not mean equal distribution of projects.²¹⁰

3.4.2 The Difference Principle

In his *Theory of Justice*, John Rawls proposes principles of justice to determine how rights and duties in society are to be assigned, and how benefits and burdens of social

²⁰⁸ See the discussion of the CDM and its objectives in Chapter 2.

²⁰⁹ This raises the issue of levelling down, for example, by destroying the eyes of the sighted to create equality with those who are blind. See D. Parfit, 'Equality and Priority' (1997) 10 *Ratio* 202, 211.

²¹⁰ See the 2005-2006 Annual Report of the Executive Board to the COP/MOP, Addendum (FCCC/KP/CMP/2006/4/Add.1 (Part I), 7 November 2006), Annex III, Paragraph 4(b).

cooperation should be distributed.²¹¹ He asserts that to determine the distribution of income and wealth, the difference principle, combined with fair equality of opportunity, would be chosen.²¹² These distributive principles provide that social and economic inequalities are only just if they are to the greatest benefit of the least advantaged (the difference principle) and attached to offices and positions open to all under conditions of fair equality of opportunity.²¹³

The difference principle states that the higher expectations of those better off are just only if these expectations result in an improvement in the expectations of the worst off members of society.²¹⁴ Social and economic inequalities are only allowed if they are for the benefit, or to the advantage, of the least advantaged in society,²¹⁵ and where lowering the expectations of the better off would also lower the expectations of the worst off.

Rawls explains further that under this principle, there are two cases. The first is where the expectations of the worst off are maximised, such that no changes in the expectations of those better off could improve the lot of the worst off. This, according

²¹¹ See J. Rawls, *A Theory of Justice* (Cambridge: Harvard University Press, 1971), 4, 11 and 54. In setting out his theory of justice, Rawls outlines (on page 84) the principles that, according to him, would apply to the “basic structure of society,” and govern the assignment of rights and duties and regulate the distribution of social and economic advantages. See generally on Rawls’s theory of justice, N. Daniels, (ed.) *Reading Rawls: Critical Studies on Rawls’ A Theory of Justice* (Stanford: Stanford University Press, 1989); B. Barry, *Theories of Justice* (London: Harvester Wheatsheaf, 1989), Chapters 5 and 6; and Freeman, *supra* note 198, at 523-534.

²¹² This is Rawls’s second principle of justice. The first principle, which refers to the basic liberties of society, provides for equality in the assignment of basic rights and duties. However, since this thesis is concerned with distributive justice, it is Rawls’s second principle, that concerning the distribution of income and wealth, that this thesis focuses on. *Ibid.*, at 61.

²¹³ *Ibid.*, at 302. See also J. Rawls, *Political Liberalism*, expanded edition (New York: Columbia University Press, 2005), 6-7, where Rawls affirms his principles of justice, together with the basis of the arguments for them. He clarifies that the revisions in *Political Liberalism* do not affect this feature of his conception of justice.

²¹⁴ Rawls, note 211, at 75. See generally, Wacks, *Understanding Jurisprudence: An Introduction to Legal Theory*, 256-261; J.W. Harris, *Legal Philosophies* 2nd ed. (London: Butterworths, 1997), 282-287.

²¹⁵ See Harris, note 214, at 284-285.

to Rawls, is the best arrangement, a perfectly just scheme. The second case is where this maximum has not been reached. The expectations of those better off contribute to those of the worst off, but there is still room for improvement, such that even higher expectations for the better off would raise the expectations of the worst off. If the expectations of the better off were reduced, the expectations of the worst off would likewise drop. This scheme, according to Rawls, is just, but is not the best arrangement. An unjust scheme is one where higher expectations are excessive and do not contribute to the expectations of the worst off, such that if these higher expectations of the better off were reduced, the expectations of the worst off would be improved. The difference principle therefore seeks to maximise the situation of the worst off in society and advocates equality unless inequality is to the benefit of the worst off.²¹⁶

To determine the applicability of the difference principle to the CDM, the first consideration is whether the principle can be applied at the international level, which is the level at which the CDM operates. This is because in developing his theory and principles of justice, Rawls specifies that his principles of justice do not characterise international relations²¹⁷ and his international theory of justice does not include an egalitarian distributive component.²¹⁸ Rather, he says that “peoples” with decent political institutions have a duty of assistance to help burdened societies manage their affairs reasonably and rationally, in order to enable them to establish decent

²¹⁶ Rawls, note 211, at 79.

²¹⁷ Ibid, at 7-8. See also J. Rawls, *The Law of Peoples* (Cambridge, London: Harvard University Press, 2001), 116, where he *inter alia* rejects the attempts made by some authors to extend the difference principle to the international level. See also pages 85-86. Rawls, *Law of Peoples* is a revision of his lecture, published in S. Shute and S. Hurley (eds.), *On Human Rights: The Oxford Amnesty Lectures* (New York: Basic, 1993), 41-82. See also Beitz, note 198, at 132.

²¹⁸ See T.W. Pogge, ‘An egalitarian law of peoples’ (1994) 23 *Philosophy and Public Affairs* 195.

institutions. Once all societies have been able to establish either a liberal or a decent regime, the aim of the law of peoples would be fully achieved.²¹⁹

Some authors however believe that Rawls's principles of justice, although developed for the domestic level, can also be applied at the global level, and have attempted to extend the principles to the international level.²²⁰ These authors believe that at the international level, just as at the domestic level, there is need for distributive justice. For example, Pogge and Beitz adopt and extend Rawls's difference principle to international relations.²²¹ Barry also questions why representatives of countries, in the original position and choosing principles of justice, would be silent on the issue of international redistribution of income. He queries why these representatives would not choose a global difference principle to govern the relations between countries.²²²

One of the reasons for Rawls's rejection of a global distributive principle is that he believes that social cooperation, which is the source of the benefits and burdens to be distributed, only exists within national boundaries.²²³ Beitz disagrees with this assumption and asserts that "national boundaries cannot be regarded as the outer limits of social cooperation."²²⁴ This opinion is shared by Scanlon.²²⁵ This research supports these views that the difference principle can be applied beyond domestic public systems, particularly in the case of the CDM.

²¹⁹ See Rawls, note 217, at 5.

²²⁰ See for example, T.W. Pogge, *Realizing Rawls* (Ithaca: Cornell University Press, 1989), Chapter 6; Pogge, *supra* note 218, at 195; Beitz, note 198; B. Barry, *The Liberal Theory of Justice: A Critical Examination of the Principal Doctrines in A Theory of Justice by John Rawls* (Oxford: Clarendon Press, 1973); and T.M. Scanlon, 'Rawls' Theory of Justice' (1972-1973) 121 *U. Pa. L. Rev.* 1020.

²²¹ See Beitz, *supra* note 198, at 127-160; and Pogge, *supra* note 220, at Chapter 6.

²²² See Barry, *supra* note 211, at 188-189.

²²³ See Rawls, *supra* note 211, at 4 and 457; and Beitz, note 198, at 132-133.

²²⁴ Beitz, note 198, at 143-150.

²²⁵ See Scanlon, *supra* note 220, at 1066-1067.

The CDM is an international scheme, in which members of the international society participate, and it is not restricted to social cooperation within national boundaries. In fact, it cannot be said to apply to social cooperation within national boundaries because CDM projects are either implemented by a country (or its entities) in another country, or, in the case of unilateral CDM projects, the product of the projects (CERs) is sold to another country or entities within another country.²²⁶ Inherently, the CDM is a scheme of international cooperation and for it to achieve its objectives, it must, and does, extend beyond national boundaries. Therefore, Rawls's objection against a global distributive justice on the basis that social cooperation only exists within national boundaries does not apply in the case of the CDM. Even beyond the CDM, Rawls's view of social cooperation only existing within national boundaries is one that is rapidly becoming outdated. This is because there is increasing international social cooperation, with countries, for instance, cooperating to achieve environmental and developmental objectives. The climate change regime contains examples of this, such as the various financial and capacity building mechanisms established by the regime, which involve some countries (usually developed countries) providing some form of assistance, such as financial and capacity building support to other countries (usually developing countries), with the aim both of mitigating climate change and contributing to sustainable development in these other countries.²²⁷ Another example is the Montreal Protocol's Multilateral Fund, which was established to assist developing country parties to the Montreal Protocol to comply with the control

²²⁶ See the discussion of the CDM and its operation in Chapter 2.

²²⁷ See the discussion of the assistance provided by developed countries to developing countries in Section 3.3.2 above.

measures of the Protocol. The Fund is replenished by contributions from developed countries.²²⁸

Beitz also discusses another reason for applying Rawls's principles of justice at the global level. This is the fact that the principles are deemed to be those that would be chosen by persons in the original position, behind the veil of ignorance. Behind this veil, these persons are ignorant of their citizenship, generation, social status and so on.²²⁹ There is no reason to assume that they would be aware of the fact that they are members of a particular national society, choosing principles of justice for that society. Furthermore, there is no reason to believe that the principles of justice chosen by these persons would change if the scope of the original position is widened to include the world as a whole. Beitz concludes that if the difference principle would be chosen in the domestic original position, it would also be chosen in the global original position.²³⁰ This thesis accepts Beitz's justification that Rawls's difference principle can be applied at the international level, and will attempt to apply it to the CDM to see if it would contribute to understanding of the meaning of equitable geographic distribution of CDM projects.

Secondly, there is a need to define, for the purposes of the CDM, the terms used in the difference principle. Rawls provides two possibilities for the meaning of the worst off in society, affirming that either possibility would do. One possibility would be to choose a particular social position (such as that of the unskilled worker) and classify as worst off, all those with the average income of this position or less. The second

²²⁸ See <http://www.multilateralfund.org/> 'Multilateral Fund for the Implementation of the Montreal Protocol' (Multilateral Fund, 25/03/2011). See also the discussion in note 56 above.

²²⁹ See Rawls, *supra* note 211, at 11–19.

²³⁰ See Beitz, *supra* note 198, at 151.

possibility is to classify persons according to their relative income and wealth, and so for example, all those with less than half of the median income and wealth can be regarded as the worst off in society.²³¹ For both of these, “income/wealth” is used as the means of classifying people as worst off or better off. This (income or wealth) can be defined under the CDM in one of two ways - it could be used to refer to development levels or to number of CDM projects. Applying the former definition (to Rawls’s two options for defining the worst off in society) would mean that the worst off are those countries with lower than a specific level of human development (for example the LDCs)²³² or those countries whose human development level is less than half of the median. Applying the latter would mean that the worst off are those countries with less than a specific number of CDM projects (10 projects, for example), or those countries with fewer than half of the median number of projects hosted by countries.

The second appears to be the more appropriate application of Rawls’s difference principle in the context of the CDM. Rawls, in outlining his principle of distribution, was concerned with the distribution of the “primary social goods” (rights and liberties, opportunities and powers, income and wealth) as a means to an end, rather than with the outcome of the use of such goods (that is, the “satisfactions” derived from their use). He leaves it up to people to determine how to use these goods to satisfy their interests.²³³ Under the CDM, the “means” can be regarded as the CDM

²³¹ Rawls, *supra* note 211, at 98.

²³² LDCs are defined as countries with low income, low human capital status and economic vulnerability. See the definition of LDCs in note 140 and the description of “human development” in note 150 above.

²³³ See Rawls, *supra* note 211, at 92-93. See also Davies and Holdcroft, *Jurisprudence: Texts and Commentary*, *Commentary* (London: Butterworths, 1991), 279.

projects themselves and the “end” as the GHG emission reductions and the sustainable development such projects would produce. Consequently applying Rawls’s interpretation to the CDM, the worst off countries should be defined in terms of the “means” (CDM projects) available to them, rather than in terms of their “end” (emission reductions and sustainable development).

Therefore, as suggested by Rawls, a particular position could be chosen and those in or below this position could then be regarded as the worst off. For example, the worst off countries could be taken to be those that currently host 10 or fewer CDM projects.²³⁴ There are 123 eligible countries but only 19 host more than 10 projects.²³⁵ There are therefore 104 countries that qualify as the worst off in this scenario.²³⁶

The other option (Rawls’s second possibility) would be to categorise those countries that host less than half of the median number of projects as the worst off. Currently, 69 countries host a total of 2463 projects.²³⁷ The median number of projects is 3.²³⁸ Half of the median is 1.5 and this can be rounded up or down (to 2 or 1), as it is not possible to host 1.5 projects. This would mean any country hosting less than 1 or 2 projects would qualify as the worst off, and those hosting 3 or more projects would be

²³⁴ Rawls acknowledges the difficulty of avoiding arbitrariness in selecting the worst off group. See Rawls, *supra* note 211, at 98.

²³⁵ Statistics correct as at October 2010. See CDM Pipeline, 1 November 2010.

²³⁶ As already noted, any number can be chosen as the cut-off point. A higher number could be chosen and this would reduce the number of countries that would fall in the worst off category.

²³⁷ Data correct as at October 2010. See CDM Pipeline, 1 November 2010.

²³⁸ The statistical median of a list of numbers is obtained by sorting the list according to value (highest to lowest or lowest to highest) and selecting the middle number. To obtain the statistical median of CDM projects, the numbers of projects hosted by all countries are arranged in order (from 1003, which is the largest number of projects hosted, to 1, which is the lowest number of projects hosted by any country). 69 countries host CDM projects and the statistical median is represented by the number of projects hosted by the 35th country (which is the middle number), in the numerical listing of all projects (taking account of both the numbers of projects and the numbers of countries). Using this process, the statistical median is determined to be 3, which is the number of projects hosted by the 35th country in the list of countries hosting projects, sorted according to the number of projects hosted by all countries.

regarded as better off. Taking for example, the number of countries hosting less than 2 projects (34 countries) and the number that do not host any project at all (54 countries), 88 countries would be regarded as worst off. However, it is difficult to see how a country that hosts 3 projects out of a total of 2463 can be regarded as “better off,” particularly considering that some, also regarded as “better off,” host several hundred projects. The first option (selecting a cut-off point) is therefore probably the better option.

With regard to the meaning of “expectations” (Rawls talks about inequalities that increase the expectations of the worst off being permissible), this can be taken to mean CDM project hosting expectations or potential. Countries expect to be able to participate in the CDM and to enjoy the benefits that CDM projects are meant to produce. Reducing a country’s expectations could mean reducing the number of projects that country could expect to host²³⁹ and increasing a country’s expectations could mean increasing the number of projects hosted by the country.

Rawls specifies that where the basic structure is unjust, his principles of justice would authorise changes that may lower the expectations of the better off.²⁴⁰ It appears therefore to be acceptable to reduce the expectations of the better off in order to increase those of the worst off.²⁴¹ In addition, changes that would improve the

²³⁹ Once a CDM project is registered to a country, it cannot be taken away from that country, so in this sense, reducing a country’s expectations cannot be taken to mean reducing the number of projects the country currently hosts. It can however be taken to mean reducing the number of projects the country could expect to host, so if it could host 300 more projects, then this number could be reduced to benefit the worst off.

²⁴⁰ See Rawls, note 211, at 79-80.

²⁴¹ Rawls attempts to answer the question of why the better off would accept their expectations being lowered to benefit the least advantaged. He explains that: the wellbeing of each member of society depends on a scheme of social cooperation; without this scheme, no one would have a satisfactory life; members of society would only be willing to participate in the scheme if its terms are reasonable; the

expectations of the worst off without increasing or reducing the expectations of the better off are presumably also acceptable.²⁴² However the reverse is not the case. Where changes would increase the expectations of the better off without reducing the expectations of the worst off, such changes are still not justified unless they actually increase the expectations of the worst off. This is because the difference principle specifies that inequalities are only acceptable where they are to the benefit of the worst off. Rawls's "perfectly just" scheme is one under which the expectations of the worst off have been maximised and no changes to the expectations of the better off can improve the situation of the worst off.²⁴³ Presumably at this point, no improvements in the situation of the better off would be allowed because this would result in inequalities that do not improve the situation of the worst off.

Applying this to the CDM would mean that CDM projects should be distributed equally among all developing countries and an unequal distribution would only be acceptable if this directly benefits those that currently host less than a specific number of projects (say 10 projects, or 3 projects if the second possibility for the meaning of worst off is applied). All future CDM projects must be hosted by countries considered the "worst off" unless having a better off country hosting more projects would benefit the worst off countries. The implications of this are that investors can invest in the worst off countries without investing in the better off and they can also invest in the better off countries, but only if this would benefit the worst off. Where there is a choice to be made between a better off country and a worst off country, the worst off

difference principle seems to be a fair basis on which the better off can expect the worst off to participate in this scheme of social cooperation which is necessary for the wellbeing of all. Ibid, at 103.

²⁴² Ibid, at 80.

²⁴³ Ibid, at 76.

country should be selected. However, the difference principle does not permit increasing the number of projects in the better off countries without increasing the number of projects in the worst off countries. This would probably be the case even where no further improvements can be made to the situation of the worst off, that is, when these countries have completely achieved their CDM hosting potential.

This means that once the expectations of the worst off have been maximised and they cannot host any more projects because of a lack of emission reduction potential to do so, the difference principle would not permit any more CDM projects to be registered. This is because any more CDM projects in the better off countries would not result in more projects in the worst off, as the expectations of the latter would have already been maximised. The question that must be answered is whether this would contribute to the objectives of the CDM.

The answer to this question has to be no. If no projects can be registered under the CDM, then the CDM cannot fulfil all of its objectives. This is because the CDM can only fulfil its objectives through the CDM projects, specifically, through the sustainable development benefits and GHG emission reductions the projects provide. A lack of projects would mean that GHG emission reductions and contributions to sustainable development are not being made through the CDM, and adopting a definition of equitable distribution that stops the registration of CDM projects is therefore not appropriate.

It could perhaps be argued that even when the CDM hosting potential of the worst off countries has been maximised, the difference principle would allow the better off countries to continue to host projects. This is because it can be considered that the

continuation of the CDM would still benefit the worst off countries through the GHG emission reductions achieved, because all countries benefit equally from GHG emission reductions, irrespective of where these are achieved. However, it is noted above that in terms of defining the “worst off” and their expectations, the currency to be considered is either countries’ levels of human development or number of CDM projects, and the conclusion is that the latter, that is, the number of CDM projects, appears to be more appropriate. Consequently, the benefit to the worst off countries has to be in terms of increasing the number of CDM projects they host. Increasing countries’ expectations means increasing the number of projects hosted by countries, and reducing their expectations means reducing the number of projects countries could host. Even if the latter option of countries’ human development levels was chosen, this would mean that the benefit to countries has to be in terms of improving their human development level. Consequently, the general benefit of global GHG emission reductions that all countries will enjoy probably does not count as sufficient benefit in the context of the CDM.

It is also difficult to see how investing in projects in one country would benefit another country, apart from in terms of reducing global GHG emissions, which would benefit all countries. Take, for instance, a situation where an investor wants to invest in two CDM projects and it would be more cost-effective and less risky to invest in one of the better off countries, for instance because the country has a better investment environment.²⁴⁴ Such an investor could decide to have one project in a better off country (because this country is more attractive investment-wise) and one in

²⁴⁴ See the discussion of the barriers to equitable distribution discussed in Chapter 5. Such barriers include lack of CDM capacity and the poor investment climate in some countries.

a worst off country (because theoretically, the investor cannot invest in a better off country without investing in a worst off country). However the investment in the better off country does not directly benefit the worst off country – it only benefits the investor and the better off country. This would not be acceptable under the difference principle, as improving the expectations of the better off must be because such improvements would likewise improve the expectations of the worst off countries.

What this would mean for the CDM is that only those countries that qualify as the “worst off” can continue to host projects as an increase in the projects hosted by the better off would not benefit them. Would this be acceptable to countries? It is difficult to state conclusively what countries would accept or reject. However, it is unlikely that the developing countries that already host a substantial amount of CDM projects and that have the potential to host many more projects would be willing to completely give up this opportunity, even if they accept that they cannot host quite as many projects as they would like to. Developed countries could also be reluctant to accept such a specific requirement as to which countries they can invest in, as well as a *de facto* prohibition on investing in certain countries. However, even if countries accepted this limitation, as discussed above, the difference principle would not contribute to the achievement of the objectives of the CDM.

In this sense, the difference principle cannot be directly applied to the CDM without defeating the purpose of the CDM. Under the CDM, inequalities that do not benefit the worst off should be allowed, especially if the expectations of the worst off have been maximised and their situation cannot be further improved. Such inequalities would not arise as a result of reducing the expectations of others, but as a result of

countries' varying GHG emission reduction potential. Rawls appears to be of the view that changes that do not improve the expectations of the worst off are not allowed, even if these changes do not reduce their expectations and even when their situation has been maximised (this is his perfectly just scheme). Under the CDM, countries that are considered "better off" must be allowed to continue to host projects, provided in so doing, it does not prevent the worst off from exploiting their own potential (which would be the case when the expectations of the worst off have been maximised). Otherwise, it would mean ultimately restricting the number of projects these countries can host, and this would not benefit any country, and would not help achieve the CDM objectives of achieving GHG emission reductions and contributing to sustainable development in developing countries.

3.4.3 Utilitarianism

Utilitarianism asserts that the right action is that which produces the greatest overall balance of pleasure over pain – the action which most maximises pleasure and minimises pain.²⁴⁵ According to the theory, "actions are right in proportion as they tend to promote happiness, wrong as they tend to produce the reverse of happiness."²⁴⁶ Bentham puts it thus: "the greatest happiness of the greatest number is

²⁴⁵ See R. Crisp (ed.), *J.S. Mill: Utilitarianism* (Oxford and New York: Oxford University Press, 1998), 11. See generally, J. Bentham, *An Introduction to the Principles of Morals and Legislation* (Kitchener: Batoche Books, 2000) (originally published 1781); J.S. Mill, *Utilitarianism* (London: Electric Book Company, 2001); Freeman, *supra* note 198; Harris, *supra* note 214, at 41-43; Wacks, *supra* note 214, at 244-253; Davies and Holderft, *supra* note 233, at 205-229; and H.R. West, *The Blackwell Guide to Mill's Utilitarianism* (Malden, Mass.; Oxford: Blackwell Publishing, 2006).

²⁴⁶ Crisp, note 245, at 55.

the foundation of morals and legislation.”²⁴⁷ The theory therefore aims to maximise pleasure and minimise pain.²⁴⁸

Utilitarian morality asserts that humans have the power to sacrifice their own greatest good for the good of others, and that this sacrifice is good only when it increases the sum total of happiness (it is not intrinsically good).²⁴⁹ The happiness which utilitarianism refers to is not the happiness of the particular individual, but that of all concerned. To achieve this, the theory requires that laws and social arrangements should, as far as possible, harmonise the happiness or interest of every individual with that of the whole, and then teach every individual that their interest is closely associated with the good of the whole. The result of this would be that no individual would think that any action opposed to the general good could bring him happiness, and the desire to promote the general good would motivate every individual action.²⁵⁰

A main criticism of utilitarianism is the lack of weight that it gives to individual happiness.²⁵¹ It is collective happiness that matters and utilitarianism would require an individual to sacrifice his own happiness if this would increase the overall collective happiness.²⁵² This, according to Davies and Holdcroft, goes against general intuitions about justice,²⁵³ and, according to Hart, may “license the grossest form of inequality

²⁴⁷ See ‘Extracts from Bentham’s Commonplace Book’ in *The Works of Jeremy Bentham*, vol. X (Edinburgh: William Tait, 1843), 142. See generally Bentham, *supra* note 245, at Chapter 1.

²⁴⁸ Crisp, *supra* note 245, at 59.

²⁴⁹ *Ibid*, at 63-64.

²⁵⁰ *Ibid*, at 64.

²⁵¹ The principle faces other criticisms, which will not be examined here, as they do not directly affect its application to the CDM. These criticisms include the emphasis on pleasure as the standard of evaluation, with the objections including the fact that not all pleasures are right (such as the pleasure from committing crime); the difficulty involved in calculating consequences or measuring pleasure and pain; and the ability to manipulate peoples’ pleasure and pain. See Davies and Holdcroft, *supra* note 233, at 213-219; and Wacks, *supra* note 214, at 247-248.

²⁵² See Davies and Holdcroft, *supra* note 233, at 219.

²⁵³ *Ibid*, at 221.

in the actual treatment of individuals if that is required to maximize aggregate or average welfare.”²⁵⁴ For utilitarians, a situation where a few enjoy great happiness while many suffer is as good as a situation in which happiness is more equally distributed.²⁵⁵

As a theory of distributive justice, utilitarianism holds that the just distribution is the one that results in the greatest overall utility. In particular, with reference to society, utilitarianism dictates that the only just distribution is one which maximises the happiness of society as a whole.²⁵⁶ A particular distribution is unjust where a different distribution of resources would increase the overall happiness of society. Applying this to the CDM, happiness or pleasure can be taken to mean the objectives of the CDM, that is, GHG emission reduction and sustainable development, both of which are obtained through CDM projects. Consequently, according to the utilitarian theory, distributive justice under the CDM would be realised when the greatest number of countries achieve the greatest GHG emission reductions and sustainable development. The objectives of GHG emission reductions and sustainable development are achieved through the CDM projects and it is not possible for example, to talk about distributing emission reductions or distributing sustainable development among countries, except by talking about distributing projects, as both can only be achieved through, and depend on, the distribution of CDM projects. Hence, in the context of the CDM, it makes better sense to talk of the greatest number of projects. For utilitarians therefore, the issue would be which distribution would result in the greatest number of countries hosting the largest number of projects possible. To achieve this result,

²⁵⁴ H.L.A. Hart, ‘Between utility and rights’ (1979) 78 *Colum L. Rev.* 828, 830.

²⁵⁵ *Ibid.*

²⁵⁶ See Harris, *supra* note 214, at 41.

individual countries would be required to sacrifice their opportunity to host projects if this would help increase the total number of projects – the objective is maximisation of happiness (CDM projects).²⁵⁷

The question then is whether applying utilitarianism to the CDM would contribute to achieving the objectives of the CDM and help resolve the apparent inequity of the current distribution of projects. In relation to the CDM's objective of reducing GHG emissions, utilitarianism would almost definitely help achieve this goal. This is because this theory seeks to maximise the happiness of society as a whole. Climate change is a global problem, and the underlying principle of the Kyoto Protocol's flexibility mechanisms is that wherever GHG emission reductions take place, such reductions have the same effect on the environment.²⁵⁸ Therefore, maximising GHG emission reductions is good for the environment, irrespective of where (that is, in which country) such reductions occur. But GHG emission reductions cannot be the only consideration.

The CDM is also meant to contribute to sustainable development in developing countries.²⁵⁹ As highlighted in Chapter 2, one of the reasons why developing countries accepted the CDM was its explicit reference and their expectation that it would contribute to sustainable development in *all* developing countries, not just in a few.²⁶⁰ The expectation from the CDM is not that just a few countries will enjoy the sustainable development benefits it provides – that is the precise problem that the goal of equitable geographic distribution is currently trying to address. The utilitarian

²⁵⁷ Ibid, at 40.

²⁵⁸ See Yamin and Depledge, *supra* Chapter 1, note 15, at 136.

²⁵⁹ See Kyoto Protocol, Article 12.

²⁶⁰ See Michaelowa, *supra* Chapter 2, note 62; Sari and Meyers, *supra* Chapter 2, note 61, at 2, 5 and 11; Prouty, *supra* Chapter 2, note 50, at 522 and 536; and Huq, *supra* Chapter 2, note 62, at 22.

theory will not contribute to the sustainable development objective of the CDM, at least not in the way it was intended to. Rather, it is likely to reinforce the *status quo*. This is because the theory focuses on society (the international community) as a whole, not on individual countries, and countries are in fact to forgo benefits or make sacrifices for the good of society. This would obviously be to the disadvantage of such countries (that have to forgo CDM hosting). It also would not necessarily fulfil the CDM's objective of contributing to sustainable development in developing countries generally, especially if the countries that benefit from this are the countries that are already dominating the CDM market, or if the benefits of the CDM or CDM projects keep going to the same countries because the projects have greater overall utility in such countries.

In conclusion, as noted in Chapter 2, the aim of equitable geographic distribution of projects is to ensure that all countries are able to benefit from the CDM, not just a few countries. To require some countries to sacrifice their opportunity to host projects in order that other countries may host more projects, would not contribute to this aim. The end result of applying utilitarianism to the CDM might in fact be a reinforcement of the *status quo*, which has already been deemed inequitable. As Hart stated, it may actually end up permitting gross inequality.²⁶¹

3.4.5 Conclusion

Although the theories of distributive justice examined above may have their advantages and attractions, problems arise when an attempt is made to apply them to the distribution of CDM projects. This is because applying these theories to the CDM

²⁶¹ See Hart, *supra* note 254, at 830.

would not contribute to achieving its objectives, and in the case of egalitarianism for example, could actually frustrate the purpose of the CDM.

Egalitarianism cannot be applied to the CDM because it requires that all countries, regardless of their circumstances (particularly their GHG emission reduction potential), should host the same number of CDM projects or generate the same amount of CERs. This cannot be achieved without limiting the ability of the CDM to achieve its objectives. This is because this solution would either require countries with limited potential to increase their GHG emission levels in order to host as many projects as those with greater potential or it would require limiting the CDM hosting of those with greater potential. Likewise, the difference principle cannot be applied to the CDM without limiting its ability to achieve its objectives. The end result of applying the difference principle to the CDM would be similar to the effect of applying egalitarianism. Once countries considered the worst off have fulfilled their emission reduction potential, the difference principle would not permit the registration of any more CDM projects. This would be the case even if other countries still have the potential to host more CDM projects. Finally, utilitarianism cannot be applied to the CDM because it requires individual countries to sacrifice their opportunity to host projects, irrespective of their situation – whether they are well off or badly off. This is not in accordance with the goal of equitable distribution which, *inter alia*, seeks to ensure that all developing countries have the opportunity to participate in the CDM. In addition, it would not contribute to the CDM's goal of contributing to sustainable development in all countries, as ultimately, it could limit CDM hosting, together with the sustainable development benefits it produces, to just a few countries.

Having determined that none of the theories of distributive justice can be applied directly to the CDM, the next section continues the search for the meaning of equitable geographic distribution under the CDM. It examines the approach to achieving distributive justice in international law, to determine if there are lessons that can be learned to contribute to understanding of the meaning of equitable geographic distribution of CDM projects.

3.5 Distributive Justice in International Law

This section continues the search for a definition of equitable geographic distribution of CDM projects by examining efforts to achieve distributive justice in practice. Specifically, the section undertakes an analysis of various international regimes that aim to achieve equity in the distribution of a resource or benefit. The expectation is that their application of distributive justice will contribute to the understanding of the meaning of equitable distribution under the CDM. At the end of this section, a conclusion is drawn regarding what distributive justice means in international law and what it might mean for the CDM. This section examines the law of the sea regime, specifically the delimitation of maritime boundaries and the fisheries regime, as well as the international watercourses regime. In addition, the moon and deep seabed regimes are also examined, because these two regimes aim to achieve equity through the application of the common heritage of mankind concept. This concept, with its benefits sharing element, are analysed through these two regimes, which are the only two regimes in which the concept is applied.²⁶² These regimes (delimitation of

²⁶² Although the moon and the deep seabed are the only two areas that have been explicitly declared to be the common heritage of mankind, some elements of the common heritage concept are contained in the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space,

maritime boundaries, fisheries, international watercourses, moon and deep seabed regimes) are examined because they are the international regimes that aim to achieve equity in the distribution of a benefit or resource.

3.5.1 The Law of the Sea Regime

The international law of the sea is the law that governs states' dealings in relation to the international marine environment and its resources.²⁶³ This law is found in a range of instruments, including global and regional treaties, as well as soft law instruments.²⁶⁴ Examples of global treaties are the 1958 Geneva Conventions,²⁶⁵ the

including the Moon and Other Celestial Bodies (London, Moscow, Washington) 27 January 1967, in force 10 October 1967; 610 UN Treaty Series 205 (Outer Space Treaty). These elements include non-appropriation (Article II) and exclusive peaceful use (Article IV). The Outer Space Treaty does not contain explicit reference to the sharing of benefits element of the common heritage concept. The closest provision is that which states that, "The exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries..." The Outer Space Treaty therefore does not go as far as explicitly designating these areas as the common heritage of mankind nor does it require the resources from the exploration and use of these areas to be [equitably] shared. See generally, C.Q. Christol, 'The common heritage of mankind provision in the 1979 Agreement Governing the Activities of States on the Moon and other Celestial Bodies' (1980) 14 *International Law* 429; G.C. Raclin, 'From ice to ether: the adoption of a regime to govern resource exploitation in outer space' (1986) 7 *Nw. J. Int'l L. & Bus.* 727; and M.V. White, 'Common heritage of mankind: an assessment' (1982) 14 *Case W. Res. J. Int'l L.* 509. See also S. Coffey, 'Establishing a legal framework for property rights to natural resources in outer space' (2009) 14 *Case W. Res. J. Int'l L.* 119, 125-127. The concept is also reflected, to a very small degree, in the legal framework for the protection of the Antarctic region. See R. Wolfrum, 'The principle of the common heritage of mankind' (1983) 43 *Heidelberg J. Int'l L.* 312, 313.

²⁶³ See R.R. Churchill and A.V. Lowe, *The Law of the Sea* 3rd ed. (Manchester: Manchester University Press, 1999), 1, 6-25. See generally R. Dupuy and D. Vignes (eds), *A Handbook on the New Law of the Sea* (Dordrecht, Boston, Lancaster: Martinus Nijhoff Publishers, 1991); E.D. Brown, *The International Law of the Sea* (Aldershot: Dartmouth, 1994); and D. Freestone, et al. (eds), *The Law of the Sea: Progress and Prospects* (Oxford: Oxford University Press, 2006).

²⁶⁴ Examples of soft law instruments on the law of the sea are: the UN Environment Programme's Guidelines for the Protection of the Marine Environment against Pollution from Land-Based Sources (Decision 13/18/II of the Governing Council of UNEP, Of 24 May 1985), reproduced in (1985) 14 *Environmental Policy and Law* 77-83; the Food and Agriculture Organization of the UN's Code of Conduct for Responsible Fisheries (1995) <http://ftp.fao.org/docrep/fao/005/v9878e/v9878e00.pdf>, www.fao.org (FAO, 17/02/2011); and the UN Environment Programme (UNEP)'s Washington Declaration and Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (UNEP(OCA)/LBA/IG.2/7, 5 December 1995), reproduced in (1996) 26 *Environmental Policy and Law* 37-51.

²⁶⁵ The 1958 Geneva Conventions are: the Convention on the Territorial Sea and the Contiguous Zone (Geneva) 29 April 1958, in force 10 September 1964; 516 UN Treaty Series 205 (1958 Territorial Sea Convention); the Convention on the Continental Shelf (Geneva) 29 April 1958, in force 10 June 1964; 499 UN Treaty Series 311 (1958 Continental Shelf Convention); the Convention on the High Seas

United Nations Convention on the Law of the Sea,²⁶⁶ the Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks,²⁶⁷ the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982,²⁶⁸ the International Convention for the Prevention of Pollution from Ships²⁶⁹ and the International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter.²⁷⁰ There are also regional treaties such as the Convention on the Protection of the Marine Environment of the Baltic Sea Area,²⁷¹ the Convention for the Protection of the Mediterranean Sea against Pollution,²⁷² the Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution,²⁷³ the Convention for Co-operation in the Protection and Development of the Marine and

(Geneva) 29 April 1958, in force 30 September 1962; 450 UN Treaty Series 82 (1958 High Seas Convention); and the Convention on Fishing and Conservation of the Living Resources of the High Seas (Geneva) 29 April 1958, in force 20 March 1966; 559 UN Treaty Series 285 (1958 High Seas Fishing and Conservation Convention).

²⁶⁶ United Nations Convention on the Law of the Sea (Montego Bay) 10 December 1982, in force 16 November 1994; (1982) 21 ILM 1261 (UNCLOS).

²⁶⁷ Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (New York) 4 December 1995, in force 11 December 2001; (1995) 34 ILM 1542 (1995 Fish Stocks Agreement).

²⁶⁸ Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 (New York) 28 July 1994, in force 28 July 1996; (1994) 33 ILM 1311 (the 1994 Implementing Agreement).

²⁶⁹ International Convention for the Prevention of Pollution by Ships (London) 2 November 1973, not in force; (1973) 12 ILM 1319, as modified by the Protocol Relating to the Convention for the Prevention of Pollution from Ships (London) 17 February 1978, in force 2 October 1983; (1978) 17 ILM 246.

²⁷⁰ International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London), 13 November 1972, in force 30 August 1975; (1972) 11 ILM 1294.

²⁷¹ Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki) 22 March 1974, in force 3 May 1980; (1974) 13 ILM 546.

²⁷² Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona) 16 February 1976, in force 12 February 1978; (1976) 15 ILM 290; revised in Barcelona, Spain, 9-10 June 1995, as the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (not yet in force).

²⁷³ Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution (Kuwait) 23 April 1978, in force 1 July 1979; 1140 UN Treaty Series 133.

Coastal Environment of the West and Central African Region,²⁷⁴ and Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific.²⁷⁵ In addition to these treaties and instruments, the law of the sea is also found in customary international law.²⁷⁶ In examining this regime, particular attention will be paid to decisions of international courts and tribunals, where available. This is because, in most cases, the courts and tribunals have been required to actually apply the principles in practice, rather than merely stating what the principles are without showing their practical applicability, as is often the case with conventions.²⁷⁷

As this thesis focuses on distributive justice, the relevant aspects of the law of the sea regime are those aspects in which resources are required to be shared or where there are competing claims to resources. Where there are no competing claims, for example, where a state's claim to one of its maritime zones goes unchallenged because it does not encroach into the area another state intends or desires to claim as part of its own maritime zone, there is no relevant problem to be examined. Consequently, the aspects of the regime that will be examined are: the delimitation of maritime boundaries; and transboundary, straddling and highly migratory fish stocks. In addition, the deep seabed regime is examined in the section (Section 3.5.4) analysing the common heritage of mankind concept.

²⁷⁴ Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan) 23 March 1981, in force 5 August 1984; (1981) 20 ILM 746.

²⁷⁵ Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific (Lima) 12 November 1981, in force 19 May 1986; IELMT 981:85.

²⁷⁶ UNCLOS is binding on states that have ratified it, currently numbering about 159 (see UNCLOS website - <http://www.un.org/Depts/los/index.htm>.) For those states that are not party to UNCLOS or the 1958 Conventions, the law that governs their activities is customary international law. See Shaw, *supra* note 33, at 490-493; and Churchill and Lowe, *supra* note 263, at 24-25.

²⁷⁷ As described above, many of the provisions relating to equitable distribution of the CDM merely refer to the goal of equitable distribution, without specifying what it means or how it can be achieved or applied in practice. The advantage of decisions of courts and tribunals is that they usually relate to practical situations.

3.5.2 Delimitation of Maritime Boundaries

This relates to the delimitation or determination of international boundaries for maritime zones, in particular, the territorial sea, the exclusive economic zone (EEZ)²⁷⁸ and the continental shelf.²⁷⁹ Here, there are competing claims which give rise to the need to delimit or determine maritime boundaries, which happens specifically in situations where states' maritime zones overlap because of close geographic proximity.²⁸⁰

With regard to this aspect of the law of the sea, the courts and tribunals have said that, in delimiting maritime boundaries, they are not involved in the sharing out of something held in undivided shares, or in "awarding a just and equitable share of a previously undelimited area."²⁸¹ By this, they mean that they are not engaged in an exercise of distributive justice,²⁸² drawing a distinction between delimitation and apportionment, the former being what they are engaged in.²⁸³ Nevertheless, some of the rules or principles applied in this area could be useful in this research. For example, according to Ahnish, the aim of the law on delimitation has always been to

²⁷⁸ The EEZ is an area beyond and adjacent to the territorial sea, and extends to a maximum of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured. Within the EEZ, the coastal state enjoys extensive rights in relation to natural resources and related to jurisdictional rights, and third nations enjoy the freedom of navigation, overflight by aircraft and the laying of cables and pipelines. See UNCLOS, Articles 55 and 57. See Churchill and Lowe, *supra* note 263, at 160.

²⁷⁹ See G. J. Tanja, *The Legal Determination of International Maritime Boundaries* (Deventer: Kluwer Law and Taxation Publishers, 1990). For more on the territorial sea, the EEZ and the continental shelf, see UNCLOS, Parts II, V and VI, respectively.

²⁸⁰ See Churchill and Lowe, *supra* note 263, at 181.

²⁸¹ See the North Sea Continental Shelf cases (1969) ICJ. Reports 3, 22, also quoted in Maritime Delimitation in the Area between Greenland and Jan Mayen (Denmark v Norway) (1993) ICJ Reports 38, 66-67; and the Case Concerning the Continental Shelf (Libyan Arab Jamahiriya v Malta) (1985) ICJ Reports 13, 40 (Libya v Malta).

²⁸² See *Libya v Malta*, 40, where the Court says one of the equitable principles of maritime delimitation is that "there can be no question of distributive justice." See also Churchill and Lowe, *supra* note 263, at 187.

²⁸³ See A.G. Oude Elferink, *The Law of Maritime Boundary Delimitation: A Case Study of the Russian Federation* (Dordrecht, Boston, London: Martinus Nijhoff Publishers, 1994).

establish principles and rules that ensure an equitable delimitation in accordance with the geography of the area concerned.²⁸⁴ Many of the provisions relating to delimitation, which will be examined below, refer to the ultimate aim of reaching an equitable outcome.²⁸⁵

The focus here is on delimitation by courts and tribunals, when the relevant countries have been unable to reach an agreement regarding how to delimit their overlapping maritime zones. This is because countries are of course free to negotiate to reach agreement on delimitation and such agreements do not necessarily have to follow the rules of the courts and tribunals, and could, for example, be based on politically-motivated compromises. For example, with regard to delimitation of the territorial sea, UNCLOS provides the rule that should apply *in the absence of an agreement to the contrary*,²⁸⁶ and for the continental shelf, UNCLOS provides that delimitation shall be effected *by agreement* on the basis of international law.²⁸⁷

Regarding *the territorial sea*, UNCLOS provides that the limit of the breadth of the territorial sea is 12 nautical miles from the baseline²⁸⁸ of the coastal State, which has

²⁸⁴ See F.A. Ahnisch, *The International Law of Maritime Boundaries and the Practice of States in the Mediterranean Sea* (Oxford: Oxford University Press, 1994), 31. See also Churchill and Lowe, *supra* note 263, at 183.

²⁸⁵ For example, in the *Arbitration Tribunal Award for the Delimitation of the Maritime Boundary Between Guinea and Guinea-Bissau* (1986) 25 ILM 251 (*Guinea/Guinea-Bissau Arbitration*), the tribunal stated that all delimitations had to be measured against the single goal of reaching an equitable solution in the circumstances of the case. See also *Maritime Delimitation in the Black Sea (Romania v. Ukraine)* (2009) ICJ Reports 61, 100, where the Court points out that the object of delimitation is to achieve a delimitation that is equitable (not an equal apportionment of maritime areas).

²⁸⁶ UNCLOS, Article 15 (emphasis added). See also N. Klein, *Dispute Settlement in the UN Convention on the Law of the Sea* (Cambridge: Cambridge University Press, 2005), 228-229. The same rule was also provided by the 1958 Territorial Sea Convention, Article 12. See below for the rules for delimitation of the territorial sea.

²⁸⁷ See UNCLOS, Article 83(1).

²⁸⁸ A baseline is the line from which the outer limits of a State's maritime zones are measured. It also forms the boundary between the internal waters and territorial sea, as the waters on the landward side of the baseline are the coastal nation's internal waters. See Klein, *supra* note 286, at 228.

the right to establish the breadth of its territorial sea up to this limit.²⁸⁹ Where there is a need to delimit the territorial seas of two countries, where they overlap for example, the general rule is the equidistance-special circumstances rule.²⁹⁰ The Territorial Sea Convention and UNCLOS prohibit countries, in the absence of agreement to the contrary, from extending their territorial seas beyond the “median line every point of which is equidistant from the nearest points on the baselines...”²⁹¹ These treaties then provide further that this rule does not apply where it is necessary by reason of special circumstances, such as historic title, to delimit the territorial seas in a different way. The equidistance/special circumstances is now regarded as part of customary law and applicable to those countries not party to either the Territorial Sea Convention or UNCLOS. For example, in *Qatar v Bahrain*, the International Court of Justice (ICJ), noting that this equidistance/special circumstances rule is found in both the 1958 Territorial Sea Convention and UNCLOS, stated that the rule “is to be regarded as having a customary character.”²⁹²

The special circumstances to be considered could include circumstances such as historic use, the presence of offshore islands, past conduct of the parties in the area, interests of third states and exceptional coastal configurations.²⁹³ These circumstances generally deal with practical or geographical circumstances, and are therefore not

²⁸⁹ UNCLOS, Article 3. Even for countries that are not party to UNCLOS, the 12 mile limit has been established in international law. See Churchill and Lowe, *supra* note 263, at 80.

²⁹⁰ See Churchill and Lowe, *supra* note 263, at 182-183.

²⁹¹ 1958 Territorial Sea Convention, Article 12 and UNCLOS, Article 15. This suggests also that countries can reach agreement to the contrary if they so desire.

²⁹² *Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar v Bahrain)* (2001) ICJ Reports 40, 94. See also *Case Concerning Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras)* (2007) ICJ Reports 1.

²⁹³ See *Nicaragua v Honduras*, 89. See generally, University of Cambridge, *International Boundary Cases: The Continental Shelf* vol. 1 (Cambridge: Grotius Publications Limited, 1992), 46-47; and Ahnish, *supra* note 284, at Chapter 2. See for example, *the Beagle Channel Arbitration* (1978) 17 ILM 634, where the Arbitral Tribunal considered coastal configuration and convenience.

applicable or relevant to the issue of equitable geographic distribution of CDM projects. However, the general idea is still relevant. If the equidistance-special circumstances rule were to be applied to the CDM and equitable geographic distribution, this would mean that the distribution of CDM projects among countries should be equal or as equal as possible, except where special circumstances require otherwise. The special circumstances could include the fact that countries have different levels of GHG emissions and therefore cannot host the same number of projects.²⁹⁴ Applying this rule would result in a more equitable outcome than the current situation, where one country hosts over 1000 projects and many countries host none at all.²⁹⁵ Beyond this however, the rules concerning the delimitation of the territorial sea are not directly applicable to the CDM.

With regard to *the continental shelf*, the customary law is discussed in decisions of the ICJ and arbitral tribunals. Most of the cases decided by these have in common the reference to equitable principles or an equitable basis.²⁹⁶ In the *North Sea Continental Shelf* cases, the ICJ held that the principles and rules of international law applicable to the delimitation of the continental shelf as between the parties included delimitation “by agreement in accordance with equitable principles, and taking account of all the relevant circumstances...”²⁹⁷ In the *Jan Mayen* case, the ICJ, referring to the provisions of Articles 73 and 84 of UNCLOS on achieving an “equitable solution,”

²⁹⁴ See the discussion of the theory of egalitarianism in Section 3.4.1 above. As highlighted, equitable distribution of CDM projects cannot be taken to mean equal distribution, without defeating the purpose of the CDM.

²⁹⁵ See Table 3 in Chapter 4 for the current distribution of CDM projects.

²⁹⁶ See generally B. Kwiatkowska, ‘Equitable maritime boundary delimitation – a legal perspective’ in H. Caminos ed., *Law of the Sea* (Aldershot, Ashgate Publishing, 2001), 241.

²⁹⁷ *North Sea Continental Shelf Cases (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands)* (1969) ICJ Reports 3, 53 (North Sea Continental Shelf). See also the *Case Concerning Maritime Delimitation in the Area between Greenland and Jan Mayen (Denmark v. Norway)* (1993) ICJ Reports 38 (the Jan Mayen case); and *Libya v Malta*.

said that, ‘that statement of an “equitable solution” as the aim of any delimitation process reflects the requirements of customary law as regards the delimitation both of continental shelf and of exclusive economic zones.’²⁹⁸ The Court of Arbitration in the *Anglo-French* arbitration refers to the equidistance-special circumstances rule as giving expression to a general norm that, failing agreement, determination of the continental shelf should be on equitable principles.²⁹⁹

The rule under the 1958 Continental Shelf Convention is that the boundary of the continental shelf should be determined by agreement between the concerned States, but in the absence of this and unless otherwise justified by special circumstances, the boundary was to be determined by applying the equidistance principle.³⁰⁰ This reference to special circumstances was in recognition of the fact that in some situations, application of the equidistance principle would result in an inequitable outcome.³⁰¹ The rule under UNCLOS is that delimitation should be done by agreement on the basis of international law, in order to achieve an equitable solution.³⁰² Countries are therefore encouraged to negotiate an agreement that is equitable. In making this provision, UNCLOS does not identify how parties should

²⁹⁸ See the *Jan Mayen* case, 59.

²⁹⁹ See the report of the Court of Arbitration in the *Delimitation of the Continental Shelf between the United Kingdom of Great Britain and Northern Ireland, and the French Republic (UK, France)* Vol. XVIII Reports of International Arbitral Awards 45 (Anglo-French arbitration). See also Kwiatkowska, *supra* note 296, at 289; Churchill and Lowe, *supra* note 263; N. Dundua, ‘Delimitation of maritime boundaries between adjacent states’ (2006-2007) http://www.un.org/Depts/los/nippon/unff_programme_home/fellows_pages/fellows_papers/dundua_0607_georgia.pdf, www.un.org (UN, 25/11/2010), 32, 53-82; L.M. Alexander ‘Baseline delimitations and maritime boundaries’ (1983) 23 VJIL 503, 524-533, for forms of modified equidistant boundaries; and S.H. Amin, ‘Customary rules of delimitation of the continental shelf: the Gulf States practice’ (1979-1980) 11 *JMLC* 509, 509.

³⁰⁰ 1958 Continental Shelf Convention, Article 6.

³⁰¹ See *Anglo-French* arbitration, 45; and Churchill and Lowe, *supra* note 263, at 184.

³⁰² UNCLOS, Article 83(1).

reach an equitable solution, or what should be taken into consideration.³⁰³ However, the courts have held that the rule is the “equitable principles/relevant circumstances” rule, which according to the courts, is very similar to the “equidistance/special circumstances” rule. In applying this rule, the courts usually (although not necessarily) start by drawing an equidistance line and then consider whether there are factors requiring adjustment of the line in order to achieve an equitable outcome.³⁰⁴ On the other hand, the court could decide that the equidistance method should not be used due to special circumstances, and apply another method entirely (that is, rather than drawing then adjusting an equidistance line).³⁰⁵ In all three situations (that is, customary law, the 1958 Continental Shelf Convention and UNCLOS), the ultimate aim is reaching an equitable outcome.³⁰⁶

The Court, in *Libya v Malta*, has identified some of the equitable principles applicable to maritime delimitation cases. These include: the principle that there is to be no question of refashioning geography or compensating for the inequalities of nature; the principle of non-encroachment by one party on the natural prolongation of the other, that is, that the coastal State enjoys sovereign rights over the continental shelf off its coasts to the full extent authorised by international law in the relevant circumstances;

³⁰³ See *Libya v Malta*, 30, where the Court notes that the Convention sets a goal to be achieved, but is silent as to the method to be followed to achieve it. See also Kwiatkowska, *supra* note 296, at 291; Churchill and Lowe, *supra* note 263, at 191-192; Dundua, *supra* note 299, at 33.

³⁰⁴ See *Land and Maritime Boundary between Cameroon and Nigeria (Cameroon v. Nigeria: Equatorial Guinea intervening) (Cameroon v Nigeria)* (2002) ICJ Reports 303, 441-442; *Libya v Malta*, 47; and the *Jan Mayen* case, 61-62. See also Churchill and Lowe, *supra* note 263, at 187.

³⁰⁵ See *Nicaragua v Honduras*, 90, where the Court held that there were special circumstances, such as the geographical configuration of the coast, which precluded the application of the equidistance principle. See also pages 86 and 90, where the Court notes that there may be factors which make application of the equidistance method inappropriate, but that the method remains the general rule.

³⁰⁶ See Alexander, (1982-1983), 522; and Kwiatkowska, (2001), 243-244. See also *Continental Shelf (Tunisia/ Libyan Arab Jamahiriya)* (1982) ICJ Reports 18 (*Tunisia v Libya*), where the Court held that the principles and rules of international law applicable for the delimitation included delimitation in accordance with equitable principles, and taking account of all relevant circumstances.

the principle of respect due to all such relevant circumstances; the principle that although all States are equal before the law and are entitled to equal treatment, equity does not necessarily imply equality, nor does it seek to make equal what nature has made unequal; and the principle that there can be no question of distributive justice.³⁰⁷

Just as with the delimitation of the territorial sea, for the continental shelf, the circumstances that the Court has found relevant to the delimitation of the continental shelf include proportionality, coastal configurations and the presence of islands.³⁰⁸

These mainly relate to geographic features and can therefore not be applied to the CDM. In addition, the courts have been clear in stating that economic factors, particularly the relative wealth of the countries involved, are not relevant considerations in the process of delimitation, and do not constitute special circumstances.³⁰⁹

The rule for delimitation of *the EEZ and/or fishing zone* is practically identical to that regarding the delimitation of the continental shelf. In the *Gulf of Maine* case, which concerned both the continental shelf and EEZ, the ICJ specified that general international law *in every maritime delimitation* requires that delimitation: must be effected by agreement between the concerned States or (where agreement cannot be reached) by recourse to a third Party; and must be based on the application of equitable criteria and the use of practical methods to achieve an equitable result.³¹⁰

³⁰⁷ *Libya v Malta*, 39-40.

³⁰⁸ See the *North Sea Continental Shelf* cases, 54; *Libya v Malta*, 57; *Tunisia v Libya*, 88; and the *Anglo-French arbitration*. See also Freestone *et al*, *supra* note 263, at 150-159; and Dundua, *supra* note 299, at 53-68.

³⁰⁹ See *Libya v Malta*, 41; *Tunisia v Libya*, 77; the *Case Concerning Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada v United States of America)* (1984) ICJ Reports 246 (*Gulf of Maine case*); and the *Guinea/Guinea Bissau arbitration*. See also Ahnish, *supra* note 284, at 90-92.

³¹⁰ *Gulf of Maine case*, 299-300 (emphasis author's).

The Court stated that this rule represents the fundamental norm of customary international law governing maritime delimitation.³¹¹ Likewise, the provision of UNCLOS regarding delimitation of the EEZ is identical to that regarding the continental shelf. According to UNCLOS, the delimitation of the EEZ should be effected by agreement on the basis of international law, to reach an equitable solution.³¹² In most cases regarding delimitation of the EEZ, the ICJ has been asked to delimit a single maritime boundary for both the EEZ and the continental shelf, rather than just for the EEZ alone.³¹³ In these cases, the Court has also followed its decision in the *Gulf of Maine* case. For example, in the *Guinea/Guinea Bissau* arbitration, the Tribunal stated that the objective of finding an equitable solution is a rule of international law, and that the application of this rule requires the consideration of factors and the application of methods, which the Tribunal can select.³¹⁴

Applying these equitable rules to the CDM, achieving an equitable outcome would require consideration of relevant factors, although the exact factors to be considered will differ from those relevant to maritime border delimitation cases. In maritime border delimitation, relevant factors include the presence of islands and the configuration of coasts, which have no direct relevance to the issue of equitable distribution of CDM projects, because they relate mainly to the physical and/or geographic characteristics of maritime zones. The ICJ has also pointed out that the aim of delimitation is not to change geography or refashion nature, and that

³¹¹ *Ibid*, at 300.

³¹² UNCLOS, Article 74(1).

³¹³ Such as in *Nicaragua v Honduras*, *Cameroon v Nigeria*, the *Gulf of Maine case*, the *Guinea/Guinea Bissau arbitration* and the *Case Concerning the Delimitation of Maritime Areas between Canada and the French Republic* (1992) 31 ILM 1149 (*Canada/France arbitration*). See also Churchill and Lowe, *supra* note 263, at 192.

³¹⁴ *Guinea/Guinea Bissau arbitration*, 289.

delimitation therefore does not aim at addressing natural inequalities.³¹⁵ Likewise in the case of the CDM, the goal of equity should not be that all countries should host the same number of projects irrespective of the reality of their circumstances and limitations in this regard (such as limited emission reduction potential), as this would likely result in limiting the number of projects that can be hosted by the latter group of countries.³¹⁶ As noted by the ICJ in the *North Sea Continental Shelf* cases, delimitation is not a question of “rendering the situation of a State with an extensive coastline similar to that of a State with a restricted coastline.”³¹⁷ Extending this to the CDM suggests that equitable distribution of CDM projects does not necessarily mean equal distribution – relevant factors should be taken into consideration when ascertaining how projects should be distributed.

3.5.3 Fisheries Regime

The international law of fisheries addresses various issues relating to fisheries, particularly their conservation and management.³¹⁸ Article 56(1) of UNCLOS provides that the coastal State has sovereign rights for the purpose of exploring, exploiting, conserving and managing the living and non-living natural resources in its EEZ, which includes fish stocks.³¹⁹ This section focuses on the aspect of the fisheries

³¹⁵ See for example, the *North Sea Continental Shelf cases*, 49-50; and *Libya v Malta*, 39-40. See also Oude Elferink, *supra* note 283, at 51; and Ahnish, *supra* note 284, at 86-87.

³¹⁶ See Section 3.4.1 above for a discussion of the problems of trying to achieve an equal distribution of CDM projects.

³¹⁷ In *Libya v Malta*, 39, the Court identifies the principles of equity, including the principle that although all States are equal before the law and are entitled to equal treatment, equity does not necessarily imply equality.

³¹⁸ See generally Sands, *supra* Chapter 2, note 19, at 558-589; Birnie *et al.*, *supra* Chapter 1, note 15, at Chapter 13; and UNCLOS, Articles 61-63.

³¹⁹ See Shaw, *supra* note 33, at 556; E. Hey (ed.), *Developments in International Fisheries Law* (The Hague: Kluwer Law International, 1999), 20-24; and Churchill and Lowe, *supra* note 263, at 289. These sovereign rights are subject to some duties, particularly conservation and management duties. See UNCLOS, Articles 61(1), 61(3) and 62(1).

regime that deals with access to resources. In this regard, one important characteristic of fish is their migratory nature. Many fish stocks migrate between the EEZs of several countries, and/or between EEZs and the high seas. The fish stocks that straddle the EEZs of two or more countries, or that cross the EEZ boundary of one country into the EEZ of another or several countries, are usually referred to as shared, joint or transboundary stocks (hereinafter referred to as transboundary stocks). Fish stocks that straddle or move across a country's EEZ boundary and the adjacent high seas, or that are to be found both within a country's EEZ and the adjacent high seas, are called straddling stocks.³²⁰ Although "highly migratory" fish stocks are not defined in UNCLOS, it does contain an agreed list of species considered highly migratory.³²¹ These generally have a wide geographic distribution both within and outside countries' EEZs, and migrate through high seas and countries' EEZs during their life cycle.³²² The focus of this section is on access to these transboundary, straddling and highly migratory fish stocks, in particular, how access is allocated or determined.³²³

³²⁰ See M. Hayashi, 'The Management of Transboundary Fish Stocks under the LOS Convention' (1993) 8 *IJMCL* 245; Shaw, *supra* note 33, at 557; and Churchill and Lowe, *supra* note 263, at 294. See also G. Munro *et al.*, 'The conservation and management of shared fish stocks: legal and economic aspects' (2004) [ftp://ftp.fao.org/docrep/fao/007/y5438e/y5438e00.pdf](http://ftp.fao.org/docrep/fao/007/y5438e/y5438e00.pdf), www.fao.org (Food and Agriculture Organization of the UN, 25/11/2010), 3, where shared stocks are defined to include stocks occurring both within and outside EEZs, so covering both transboundary and straddling stocks as defined above. Article 63 of UNCLOS refers to: "stocks occurring within the exclusive economic zones of two or more coastal States or both within the exclusive economic zone and in an area beyond and adjacent to it."

³²¹ See UNCLOS, Annex I.

³²² See M. Christopherson, 'Toward a rational harvest: The United Nations Agreement on Straddling Fish Stocks and Highly Migratory Species' (1996) 5 *Minn. J. Global Trade* 357, 363. See also <http://www.fao.org/fishery/topic/13686/en> 'Highly migratory species' (FAO, 18/02/2011).

³²³ Other aspects of the fisheries regime include access to fish stocks in the internal waters, territorial seas, exclusive fishing zone and continental shelf of countries. These aspects of the fisheries regime are not considered here because the coastal states have sovereignty and sovereign rights over these areas and the resources found therein. See Article 2 of UNCLOS on internal waters and territorial seas, Article 56 on the exclusive economic zone, and Article 77 on the continental shelf. Article 77(2) for example provides that the coastal states' rights are exclusive in the sense that if it does not explore the

The issue of *transboundary fish stocks* is dealt with in Article 63(1) of UNCLOS, which requires States to agree on measures necessary for the conservation and development of such transboundary stocks. This provision relates to conservation and development, rather than access to, and distribution of, these stocks. It does not go further to provide specific guidance on what the necessary measures could be. Unlike with straddling and highly migratory stocks (examined below), there is no international agreement specifically geared towards regulating, conserving or managing transboundary fish stocks, possibly because such stocks tend to migrate between the EEZs of specific countries and consequently, it is these countries that have the primary responsibility for such stocks.

There are, however, bilateral and regional agreements which regulate certain transboundary stocks. Most of these agreements relate, as provided for in UNCLOS, to the conservation and management of transboundary resources, and generally contain procedural provisions regarding agreement to cooperate in the conservation and management of transboundary fish stocks.³²⁴ Even though some of these agreements contain provisions relating to access to transboundary stocks, these agreements will not be examined here. This is because, as in the case of maritime boundary delimitation, countries are generally free to agree on access rules and these are not necessarily motivated by desire to achieve distributive equity.³²⁵ For instance, they could be, and some appear to be, based on politically-motivated reasons.

continental shelf or exploit its natural resources, no one may undertake these activities without the express consent of the coastal state. These aspects therefore do not give rise to issues of distribution of resources. See Hey (ed.), *supra* note 319, at 20-22; and Churchill and Lowe, *supra* note 263, at 289.

³²⁴ See Hayashi, *supra* note 320.

³²⁵ See the discussion of maritime boundary delimitation in Section 3.5.2 above.

For example, although the basis of the access rules agreed by Australia and Papua New Guinea in the Treaty between Australia and the Independent State of Papua New Guinea Concerning Sovereignty and Maritime Boundaries in the Area between the Two Countries, Including the Area Known as Torres Strait, and Related Matters³²⁶ is not explicitly defined, Burmester has suggested that the motivation is political.³²⁷ While the Treaty between Uruguay and Argentina concerning the Rio de la Plata and the Corresponding Maritime Boundary,³²⁸ specifies that the basis for the distribution of the fish resources in the common fishing zone should be equity and proportionality,³²⁹ the Joint Technical Commission appears to use historical catch volumes as the basis for its decisions.³³⁰ This is also one of the factors considered under the EU Common Fisheries Policy.³³¹ The bases of distribution in the Agreement between Norway and Iceland on Fishery and Continental Shelf Questions³³² appear to

³²⁶ Treaty between Australia and the Independent State of Papua New Guinea Concerning Sovereignty and Maritime Boundaries in the Area between the Two Countries, Including the Area Known as Torres Strait, and Related Matters, Australian Treaty Series 1985 No 4, available at <http://www.austlii.edu.au/au/other/dfat/treaties/1985/4.html> (Australasian Legal Information Institute, 02/08/2010) (Torres Strait Treaty).

³²⁷ See H. Burmester, 'The Torres Strait Treaty: ocean boundary delimitation by agreement' (1982) 76 *AJIL* 321, 345.

³²⁸ Treaty between Uruguay and Argentina concerning the Rio de la Plata and the Corresponding Maritime Boundary (Montevideo), 19 November 1973, in force 12 February 1974; 1295 UN Treaty Series 293 (Treaty between Uruguay and Argentina)

³²⁹ *Ibid.*, Article 74.

³³⁰ See L. del Castillo-Laborde, *The Río De La Plata and its Maritime Front Legal Regime* (Leiden: Martinus Nijhoff Publishers/Brill Academic, 2008), 271.

³³¹ See M. Holden, *The Common Fisheries Policy: Origin, Evaluation and Future* (Oxford: Fishing News Books, 1994), 43. It is difficult to conclusively state that the use of historic catches is equitable or inequitable, as this would largely depend on how equitable the original distribution was. The basing of current distribution on historical distribution cannot be said to be equitable or inequitable one way or another, as it would be necessary to examine whether the historical distribution is equitable or inequitable to reach a conclusion. For example, if a distribution method for CDM projects is agreed on, this method can continue to be used indefinitely and can be said to be equitable, not because of its continued use, but because the distribution method itself is equitable.

³³² Agreement between Norway and Iceland on Fishery and Continental Shelf Questions (Reykjavik), 28 May 1980, in force 13 June 1980; 2124 UN Treaty Series 225 (Norway and Iceland Fisheries Agreement).

be political and socio-economic.³³³ For this reason (the freedom of countries to base their agreements on various reasons, including political reasons), and for the reason that no general rule of distributive justice can be deduced from these agreements,³³⁴ bilateral and regional fisheries agreements are not further examined.

Regarding *straddling stocks*, as noted above, these are fish stocks that straddle countries' EEZs and the high seas. The rule regarding fishing in the EEZ is that the coastal country has sovereign rights to explore, exploit, conserve and manage the natural resources, including fisheries, in its EEZ.³³⁵ For the high seas however, the rule is "freedom of the high seas" which means that all countries have the right to fish in the high seas, subject to obligations to conserve and cooperate.³³⁶ The obligation to cooperate is two-fold: cooperation in the conservation of the living resources in the high seas; and cooperation in the conservation of straddling stocks in the high seas. This suggests that access to straddling stocks occurring in the high seas is only subject to rules regarding conservation of these resources, and does not, for example, include the objective of ensuring that countries have equitable access to the resources.

UNCLOS requires the coastal State and the States fishing for straddling stocks in the high seas³³⁷ to seek agreement on measures necessary to conserve these stocks.³³⁸

This provision is quite succinct and does not outline what types of measures should be

³³³ See E.L. Richardson, 'Jan Mayen in perspective' (1988) 82 *AJIL* 443, 450-451; and C. Archer and P. Joenniemi, *The Nordic Peace* (Aldershot: Ashgate Publishing, 2003), 117.

³³⁴ The agreements highlighted here have different distributive bases.

³³⁵ UNCLOS, Article 56.

³³⁶ UNCLOS, Articles 63(2), 87, 116-120. See also J.A. de Yturriaga, 'Fishing in the high seas: from the 1982 UN Convention on the Law of the Sea to the 1995 Agreement on Straddling and Highly Migratory Fish Stocks (1995) 3 *African YBIL* 151.

³³⁷ The provision talks about "an area beyond and adjacent to the zone," which actually means the high seas. See Shaw, *supra* note 33, at 557; and Munro *et al.*, *supra* note 320, at 3.

³³⁸ UNCLOS, Article 63(2).

established. To provide further guidance for the treatment of straddling stocks,³³⁹ the 1995 Fish Stocks Agreement was adopted.³⁴⁰ The objective of the Agreement is to ensure the long-term conservation and sustainable use of straddling and highly migratory fish stocks³⁴¹ and it aims *inter alia* to prevent over-fishing.³⁴² The Fish Stocks Agreement outlines the general principles that should govern the conservation and management of straddling fish stocks. These include provisions requiring countries to: apply the precautionary approach; take conservation and preservation measures; promote and conduct scientific research and develop appropriate technologies in support of fishery conservation and management; share information; protect biodiversity; and minimise pollution and waste.³⁴³ These principles generally relate to the conservation and management of straddling fish stocks,³⁴⁴ rather than ensuring access to such stocks,³⁴⁵ and are therefore not relevant to equitable distribution of the CDM, which is concerned with access and distribution.

³³⁹ Munro *et al.*, *supra* note 320, at 37.

³⁴⁰ *Supra* note 267.

³⁴¹ *Ibid*, Article 2.

³⁴² See generally G. Vigneron, 'The most recent efforts in the international community to implement the 1995 United Nations Straddling Fish Stocks Agreement' (1998) 10 *CJIELP* 225, 227; H.L. Brown, 'United Nations Conference on Straddling Fish Stock and Highly Migratory Fish Stocks: An analysis of international environmental law and the conference's final agreement (1996-1997)' 21 *Vt. L. Rev.* 547; and Churchill and Lowe, *supra* note 263, at 285-287.

³⁴³ Fish Stocks Agreement, Article 5.

³⁴⁴ See generally, S. Oda, 'Fisheries under the United Nations Convention on the Law of the Sea' and M. Hayashi, 'The 1995 Agreement on the Conservation and Management of Straddling and Highly Migratory Fish Stocks: Significance for the Law of the Sea Convention' both in Caminos, *supra* note 296.

³⁴⁵ Access is governed by UNCLOS, Articles 87, 116-120, and the general rule is that all countries have access to the resources of the high seas, although there are some exemptions to this general rule. For example, Article 8(4) of the Fish Stocks Agreement provides that where a subregional or regional fisheries management organisation or arrangement establishes conservation and management measures, only countries which are members of such organisations or participants of such arrangements, or which agree to apply the conservation and management measures, shall have access to the fishery resources to which the measures apply. However, the issue of access is not further taken up, that is, regarding those countries that do have access, the Agreement does not attempt to determine how the access should be distributed among them.

Consequently, the straddling stocks regime will not be examined further as it is not directly relevant to equitable distribution of CDM projects.

The rules with regard to *highly migratory stocks* are similar to those for straddling stocks. UNCLOS requires fishing nations to cooperate directly or through appropriate international organisations to ensure conservation, and promote optimum utilisation, of highly migratory stocks. It provides further that in regions where there are no appropriate international organisations, fishing nations should cooperate to establish such an organisation and participate in its work.³⁴⁶ Just as with the UNCLOS provisions relating to straddling stocks, these provisions are very succinct and consequently, the rules regarding highly migratory stocks are also expanded on in the Fish Stocks Agreement. The objective and principles of the Agreement relating to highly migratory stocks are identical to those relating to straddling stocks: they are primarily concerned with the conservation and management of these species, rather than with access to them.³⁴⁷ Consequently, as with straddling stocks, the provisions relating to [conservation and management of] highly migratory stocks will not be examined in detail, as they are not directly relevant to the issue of the distribution of CDM projects.

3.5.4 Common Heritage of Mankind

The concept of the common heritage of mankind was proposed by Maltese Ambassador Arvid Pardo requesting that the use of the seabed and the ocean floor be undertaken for the benefit of mankind as a whole, and that the net financial benefits

³⁴⁶ UNCLOS, Article 64.

³⁴⁷ See Fish Stocks Agreement, Articles 2, 5 and 8. See also discussion of straddling stocks on pages 116-118 above.

derived be used primarily to promote the development of poor countries.³⁴⁸ The concept advocates that the benefits derived from the “common heritage” should be shared by the whole of humankind, not just a few members/countries: the resources should profit all of mankind, and the benefits derived from the use of these resources should be shared internationally.³⁴⁹

The common heritage concept has been the subject of a lot of discussion and debate in international law. There is as yet, no generally-accepted definition of the concept and no general view regarding its status in international law.³⁵⁰ Attempting to define the concept and identify its status under international law is beyond the scope of this thesis, so this section will focus on examining the elements of the concept as applied under international law. Currently, the only two areas that have been explicitly designated as the common heritage of mankind are the moon and the deep seabed,³⁵¹ as provided in the Agreement Governing the Activities of States on the Moon and

³⁴⁸ See 22 UN General Assembly Official Records, Annex 3 (19 August 1967), UN Doc. A/6695. See also B. Larschan and B.C. Brennan, ‘The common heritage of mankind principle in international law’ (1982-1983) 21 *CJIL* 305, 318; Baslar, *The Concept of Common Heritage of Mankind in International Law*; M.G. Schmidt, *Common Heritage or Common Burden? The United States Position on the Development of a Regime for Deep Sea-Bed Mining in the Law of the Sea Convention* (Oxford: Clarendon Press, 1989), 22-23; Churchill and Lowe, *supra* note 263, at 226; R.P. Arnold, ‘The common heritage of mankind as a legal concept’ (1975) 9 *International Lawyer* 153, 153; and Gorove, ‘The concept of “common heritage of mankind”: a political, moral or legal innovation?’ (1975) 9 *San Diego L. Rev.* 390, 390. Although the idea (of a common heritage of mankind) had been mentioned before this time, in discussions regarding the use of outer space, Ambassador Pardo’s proposal gave it prominence and a much clearer description. See C.C. Joyner, *Governing the Frozen Commons: The Antarctic Regime and Environmental Protection* (South Carolina: University of South Carolina Press, 1998), 221.

³⁴⁹ See Joyner, *supra* note 348, at 223.

³⁵⁰ See Baslar, *supra* note 348, at xx-xxi; S. Errin, ‘Law in a vacuum: the common heritage doctrine in outer space law’ (1984) 7 *B. C. Int’l Comp. L. Rev.* 403, 404; J. Frakes, ‘The common heritage of mankind principle and the deep seabed, outer space, and Antarctica: will developed and developing nations reach a compromise?’ (2003) 21 *Wisconsin Int’l L.J.* 409, 409-410; and E. Egede, *Africa and the Deep Seabed Regime: Politics and International Law of the Common Heritage of Mankind* (Dordrecht: Springer, 2011), 66-73. Attempts to define the concept are sometimes made by defining each element of the concept, that is, defining, “common,” “heritage” and “mankind.” See for example, Baslar, *supra* note 348; and Arnold, *supra* note 348, at 154. See generally, Joyner, *supra* note 348, at Chapter 8.

³⁵¹ See footnote 262 above.

Other Celestial Bodies,³⁵² and UNCLOS, respectively. The elements of the common heritage of mankind concept, as contained in these treaties, are: non-appropriation;³⁵³ equitable sharing of benefits;³⁵⁴ international management,³⁵⁵ and exclusive peaceful use.³⁵⁶

This concept is generally used in relation to the distribution of resources, particularly resources that are outside areas of national jurisdiction.³⁵⁷ It is used to achieve an equitable distribution of resources.³⁵⁸ It is in this sense that the concept is relevant to this thesis. Consequently, the element of the concept which is of interest is the element of the equitable sharing of benefits. Because there is no general definition of the concept and because it has only been adopted under two regimes, rather than examine the meaning of the concept generally, this section will proceed to examine the concept as applied under the two regimes that have adopted it: the moon and deep seabed regimes.

³⁵² Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (New York 5 December 1979, in force 11 July 1984; (1979) 18 ILM 1434 (1979 Moon Treaty). See Article 11. Although this article refers to the moon and its resources as the common heritage of mankind, Article 1 provides that provisions relating to the moon shall also apply to other celestial bodies, other than the earth, within the solar system.

³⁵³ Moon Treaty, Article 11(2) and UNCLOS, Article 137(1).

³⁵⁴ Moon Treaty, Article 11(7)(d) and UNCLOS, Article 140(2).

³⁵⁵ Moon Treaty, Article 11(5) and UNCLOS, Article 137(2) and 140(2).

³⁵⁶ Moon Treaty, Article 3(1) and UNCLOS, Article 141. See generally, Murillo, *supra* note 125; Baslar, *supra* note 348, at Chapter 3; L.E. Viikari, 'The legal regime for moon resource utilization and comparable solutions adopted for deep seabed activities' (2003) 31 *Advanced Space Research* 2427; and Frakes, *supra* note 350, at 411-413. According to at least one author, "equitable sharing of benefits" is not necessarily an element of the concept, but may be more regime-specific. See E. Holmila, 'Common heritage of mankind in the law of the sea' (2005) 1 *Acta Societatis Martensis* 187, 195 and 201-202. However, most authors agree that it is an element of the concept, and is one that can be seen in the two treaties that have adopted it.

³⁵⁷ See Wolfrum, *supra* note 262, at 313.

³⁵⁸ See S.D. Mau, 'Equity, the third world and the moon treaty' (1984) 8 *Suffolk Trans. L.J.* 221, 225.

(a) Moon Regime

The first point to make about the Moon Treaty is that it is considered a “failed” treaty because since its adoption in 1979 and entry into force in 1984, it has only been ratified by 13 countries, none of which has engaged, or has immediate plans to engage, in space exploration.³⁵⁹ None of the countries which has engaged, or plans to engage, in space exploration (regarded as “space powers”) has ratified the treaty and it therefore has minimal effect on actual space exploration and exploitation of lunar resources.³⁶⁰ Secondly, the exploitation of the Moon’s resources has yet to commence³⁶¹ although some countries have expressed an interest in exploiting these resources.³⁶² For these two reasons, primarily the first reason, the Moon Treaty has had no practical application.³⁶³

Article 11(7)(d) of the Moon Treaty provides for the equitable sharing of the resources of the Moon. It however does not specify exactly how such sharing should be carried out and due to the fact that no such sharing, whether equitable or otherwise, has been carried out in practice, it is not possible to determine precisely what is meant

³⁵⁹ It has been ratified by Australia, Austria, Belgium, Chile, Kazakhstan, Lebanon, Mexico, Morocco, Netherlands, Pakistan, Peru, the Philippines and Uruguay. Status as of 03/08/2010. See the UN Treaty Series, Status of Treaties.

³⁶⁰ See H.R. Hertzfeld and F. von der Dunk, ‘Bringing space law into the commercial world: property rights without sovereignty’ (2005) 6 *Chicago J. Int’l L.* 81, 85; and Coffey, *supra* note 262, at 127.

³⁶¹ See Coffey, *supra* note 262; M. Menter, ‘Commercial space activities under the moon treaty’ (1979-1980) 7 *Syracuse J. Int’l L. & Com.* 213, 235; and B.M. Hoffstadt, ‘Moving the heavens: lunar mining and the “common heritage of mankind” in the moon treaty’ (1994-1995) 42 *UCLA L. Rev.* 575. According to Coffey, this is *inter alia* because of the lack of a stable legal regime governing exploitation of the moon resources. See Coffey, *supra* note 262, at 120.

³⁶² See P.J Blount, ‘Jurisdiction in outer space: challenges of private individuals in space (2007) 33 *J. Space Law* 299, 303-304.

³⁶³ See generally on the Moon Treaty, C.Q. Christol, ‘The moon agreement: where is it today?’ (1999) 27 *J. Space Law* 1; and D.A. Porras, ‘The common heritage of outer space: equal benefits for most of mankind’ (2006) 37 *Cal. W. Int’l L.J.* 143.

by “equitable sharing” under this treaty.³⁶⁴ According to some authors, this lack of precision in the meaning of equitable sharing is one of the factors inhibiting investment in space activities.³⁶⁵ Nevertheless, although the article does not specify how “equitable sharing” is to be achieved, it does provide that the interests and needs of the developing countries and of those countries that have contributed to the exploration of the Moon should receive special consideration.

Therefore, although the moon regime does not currently provide an explanation of the meaning of “equitable sharing,” one of the possible elements of such equitable sharing that can be identified from its provisions is that the needs and interests of a specific group or groups of countries, in this case, developing countries and those countries that have contributed to the exploitation of the resources of the moon, should be considered.³⁶⁶

(b) Deep Seabed Regime

The deep seabed regime is governed by UNCLOS³⁶⁷ and the 1994 Implementing Agreement.³⁶⁸ According to UNCLOS, the seabed,³⁶⁹ ocean floor and subsoil beyond

³⁶⁴ See Mau, *supra* note 358, at 246 and 251; M.E. Davis and R.J. Lee, ‘Twenty years after: the moon agreement and its legal controversies’ (1999) 1999 *Austl. Int’l L.J.* 9, 20-21, 23; Porras, *supra* note 363, at 172-173; and Hoffstadt, *supra* note 361, at 591-592.

³⁶⁵ See G. Wohl, ‘Outer space, inc.: transmitting business, ethics, and policy “across the universe”’ (2008-2009) 111 *W. Va. L. Rev.* 311, 332, 341-342; and Hoffstadt, *supra* note 361, at 591-592.

³⁶⁶ Moon Treaty, Article 11(7)(d).

³⁶⁷ UNCLOS, Part XI.

³⁶⁸ *Supra* note 268. The 1994 Implementing Agreement was adopted to address developed countries’ concerns with Part XI of UNCLOS. Article 2 of the Agreement provides that both UNCLOS and the Agreement shall be interpreted and applied together as a single instrument, and that the Agreement shall prevail in the event of inconsistencies between the Agreement and Part XI. See http://www.un.org/Depts/los/convention_agreements/convention_overview_part_xi.htm ‘Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982: Overview’ (UN Division of Ocean Affairs and the Law of the Sea website, 17/06/2010). The changes made to Part XI by the Implementing Agreement relate to issues such as production limitations, mandatory technology transfer and the decision-making power of the International Seabed Authority. The common heritage concept as applied under UNCLOS, including

the limits of national jurisdiction, collectively referred to as “the Area,” together with the resources found in them, are the common heritage of mankind.³⁷⁰ The legal status of the Area is outlined in Article 137, which prohibits States from exercising sovereignty over the Area or its resources and provides that the resources of the Area are vested in mankind as a whole.

Just as with lunar resources, exploitation of the resources of the deep seabed is yet to commence. As such, there are no practical examples of the application of the common heritage concept, or its equitable sharing element, to be examined. However, unlike the moon regime, the deep seabed regime of UNCLOS is widely accepted: 160 countries have ratified UNCLOS and 138 countries have ratified the 1994 Implementing Agreement.³⁷¹

One point to note regarding the deep seabed regime is that there are similarities between certain elements of the regime and the CDM, other than the sharing of benefits element. For example, private entities and investors are involved in both regimes and there are systems in place for these entities and investors to get a return on their investment.³⁷² However, it is beyond the scope of this thesis (and this chapter)

the equitable sharing requirement, remained unchanged by the Agreement. See generally, E. Guntrip, ‘The common heritage of mankind: an adequate regime for managing the deep seabed’ (2003) 4 *Melb. J. Int’l L.* 376, 385-386; B.H. Oxman, ‘The 1994 Agreement and the Convention’ (1994) 88 *AJIL* 687; and L.D.M. Nelson, ‘The new deep sea-bed mining regime’ (1995) 10 *IJMCL* 189, 203.

³⁶⁹ The seabed beyond the limits of national jurisdiction contains vast amounts of mineral resources, in the form of “manganese nodules,” which contain almost inexhaustible amounts of nickel, copper, manganese and cobalt. See Guntrip, *supra* note 368, at 377.

³⁷⁰ UNCLOS, Article 136. See generally Guntrip, *supra* note 368; Larschan and Brennan, *supra* note 348.

³⁷¹ See http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm#The%20United%20Nations%20Convention%20on%20the%20Law%20of%20the%20Sea, ‘Chronological lists of ratifications of, accessions and successions to the Convention and the related Agreements as at 01 March 2010’ (UN Division for Ocean Affairs and the Law of the Sea, 17/06/2010).

³⁷² Under the CDM, this is mainly a contractual issue between the investor and the host country, and both are free to agree on the terms of profit sharing. This can vary depending on the nature of the

to examine every aspect of the deep seabed regime and, as noted above, the part of the deep seabed regime and its common heritage concept that is of interest and relevance to this thesis is the equitable sharing element and the rules for achieving such equitable sharing. This is because the focus of this thesis and this chapter is to determine how the benefits of the CDM regime (CDM projects) should be distributed among developing countries (recipients of the benefits to be shared). It does not, for example, examine the contracts between the investors and the recipient host countries or consider how the CERs generated by CDM projects should be shared between the investor and the host country. Consequently, this section will not, for instance, examine issues of how much profit investors should be allowed to take from deep seabed mining (which is similar to the issue of how the CERs or other profits generated from CDM projects should be allocated between the investor and host country).

The sharing provisions of the deep seabed regime are found principally in Article 140 of UNCLOS, which provides for activities in the Area to be carried out for the benefit of mankind as a whole, taking account of the interests and needs of developing countries and peoples who have not gained self-governing status. It further provides that the International Seabed Authority shall provide for the equitable sharing of financial and other economic benefits derived from activities in the Area, in

agreement and the point in which the “investor” is involved – whether during before, during or after the life of the project. If for example, the project is a unilateral project and the investor simply purchases the CERs generated from the project, then there is no real issue of profit sharing, as the “investor” (who in this situation is not really an investor, but simply a CER purchaser), simply pays the market price for the CERs. See the discussion of the CDM structure in Chapter 2. Under the deep seabed regime, there are more specific rules regarding profit sharing, which arise not just from the equitable sharing element of the common heritage of mankind concept, but from its rules regarding non-appropriation, international management and exclusive peaceful use. These rules are contained in Part XI of UNCLOS, as amended by the 1994 Implementing Agreement. These rules are however not further examined here.

accordance with Article 160(2)(f)(i) of UNCLOS. This article requires the Authority, through its Assembly, to establish the rules, regulations and procedures for equitable sharing, again taking into particular consideration, the interests and needs of developing countries and peoples who have not attained full independence or other self-governing status. These rules, regulations and procedures are to be established taking into consideration the recommendations of the Finance Committee.³⁷³

Just like under the moon regime, the deep seabed regime does not set out the rules for achieving equitability in the sharing of benefits. Rather, it requires the International Seabed Authority to set out these rules, and it is this Authority that is in charge of deciding how the financial and other economic benefits derived from exploitation of the Area are to be shared.³⁷⁴ This has however not yet happened and it is not clear when exactly these rules will be established.³⁷⁵ It can however be expected that the rules will be established in accordance with the principles of the regime, because UNCLOS provides the Authority with some direction in establishing these rules: it requires particular consideration of the interests and needs of developing States and peoples who have not attained full independence or other self-governing status.³⁷⁶

In addition to deciding the rules for equitable sharing (based on the recommendations of the Finance Committee), the Assembly of the International Seabed Authority also has the mandate to make the decisions on the sharing of benefits. Such decisions are

³⁷³ 1994 Implementing Agreement, Annex, Section 9, paragraph 7(f).

³⁷⁴ See Holmila, *supra* note 356, at 201.

³⁷⁵ The International Seabed Authority is still in the process of establishing the various rules, regulations and procedures required by UNCLOS. It has for example, issued the regulations on prospecting and exploration for Polymetallic Nodules and Polymetallic Sulphides in the Area. See <http://www.isa.org.jm/en/documents/mcode> 'Mining Code' (International Seabed Authority, 18/06/2010).

³⁷⁶ UNCLOS, Article 160(2)(f)(i).

to be consistent with the Convention and the sharing rules established.³⁷⁷ Again, because deep seabed mining has not commenced, there has been no distribution of the benefits of mining, and no rules have yet been established for such distribution. Therefore, although the exact manner of achieving equitability is not spelt out in the Convention, according to Churchill and Lowe, some countries will in effect have a preferential claim on the monies.³⁷⁸ This will be done in consideration of their interests and needs.

In conclusion, although the precise meaning and application of the common heritage of mankind concept is uncertain, from the two regimes that have established the concept, an element that can be identified is the requirement to consider the interests and needs of specific groups of countries (in this case, developing countries) in order to achieve equitable sharing.

3.5.5 International Watercourses Regime

The focus here is on international legal rules governing the use of shared watercourses, that is, freshwater resources that are shared by more than one country or parts of which are found in more than one country.³⁷⁹ With regard to the use of, or

³⁷⁷ Ibid, Article 160(2)(g). Although the 1994 Implementing Agreement does not contain any provisions directly relating to the sharing of benefits or the rules for this, it does contain rules regarding the decision-making powers of the Authority. Such rules relate to decisions by the Assembly, as well as the composition and voting procedure of the Council. See 1994 Implementing Agreement, Section 3. See generally, Oxman, *supra* note 368, at 687; P.A. Burr, 'The International Seabed Authority' (2006) 29 *Suffolk Transnational Law Review* 271; and Nelson, *supra* note 368.

³⁷⁸ See Churchill and Lowe, *supra* note 263, at 253.

³⁷⁹ See generally S.C. McCaffrey, *The Law of International Watercourses: Non-Navigational Uses* (Oxford: Oxford University Press, 2003); A. Grzybowski *et al.*, 'Beyond international water law: successfully negotiating mutual gains agreements for international watercourses' (2010) 22 *Pac. McGeorge Global Bus. Dev. L.J.* 139; and Birnie *et al.*, *supra* Chapter 1, note 15, at Chapter 10.

access to, shared watercourses, one of the basic rules is the requirement for equitable and reasonable sharing of the watercourses.³⁸⁰

As far back as 1966, the [non-binding] Helsinki Rules provided that basin States are entitled to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin.³⁸¹ In the *Gabcikovo-Nagymaros Project* case, the ICJ referred to Hungary's right to an equitable and reasonable sharing of the resources of the shared watercourse.³⁸² In his separate opinion in the *Kasikili/Sedudu Island* case, Judge Kooijmans, although falling short of declaring that this was a rule of customary international law, noted that the rule has been widely accepted both for the navigational and the non-navigational uses of international watercourses.³⁸³ Relevant treaty law on international watercourses is the Convention on the Law of the Non-navigational Uses of International Watercourses.³⁸⁴ According to the Convention, watercourse States are to use international watercourses in an equitable and reasonable manner.³⁸⁵ This Convention is however not yet in force.³⁸⁶ Nevertheless, as noted above, the principle of equitable and reasonable utilisation is the most widely

³⁸⁰ See Shelton, *supra* note 19, at 647-648; Sands, *supra* Chapter 2, note 19, at 462; Birnie *et al.*, *supra* Chapter 1, note 15, at 541; and M.S. Amr, 'Diversion of international watercourses under international law' (2002) 10 *African YBIL* 109, 112-113.

³⁸¹ Helsinki Rules on the Uses of the Waters of International Rivers, International Law Association, Report of the Fifty-second Conference, 1966 (London, International Law Association, 1967), Article IV (Helsinki Rules).

³⁸² See *Case Concerning the Gabcikovo-Nagymaros Project (Hungary v Slovakia)* (1997) ICJ Reports 7, 54 (*Gabcikovo-Nagymaros Project case*).

³⁸³ See the separate opinion of Judge Kooijmans in the *Case Concerning Kasikili/Sedudu Island (Botswana v Namibia)* (1999) ICJ Reports 1045, 1150-1152.

³⁸⁴ Convention on the Law of the Non-Navigational Uses of International Watercourses (New York), opened for signature 21 May 1997 (not yet in force); (1997) 36 ILM 703 (Watercourses Convention)

³⁸⁵ *Ibid.*, Article 5(1).

³⁸⁶ According to Article 36 of the Convention, 35 instruments of ratification, acceptance, approval or accession are needed for the Convention to enter into force. As of 30 June 2010, there were 16 signatories and 19 Parties to the Convention. See the UN Treaty Collection http://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-12&chapter=27&lang=en (accessed 30/06/2010).

endorsed principle relating to the use of shared watercourses,³⁸⁷ and is regarded by some as the fundamental norm governing this area of law.³⁸⁸ Consequently, this principle of equitable and reasonable utilisation probably reflects customary international law regarding allocation of, or access to, shared watercourses,³⁸⁹ and this section focuses on this principle.

The Convention requires watercourse States to use international watercourses in an equitable and reasonable manner. This, *inter alia*, means that these countries should use and develop international watercourses with a view to attaining optimal and sustainable use of the watercourses and its benefits. In doing this, the watercourse States should take account of the interests of the watercourse States concerned and should act in a manner consistent with adequate protection of the watercourse.³⁹⁰ The Convention further requires watercourse States to participate in the use, development and protection of international watercourses in an equitable and reasonable manner, with such participation including both the right to utilise watercourses and the duty to cooperate in their protection and development.³⁹¹

Although the Convention does not expressly define “equitable and reasonable” use, it provides guidance as to what can be deemed equitable and reasonable. It does this by outlining some of the factors for determining whether a use is equitable and

³⁸⁷ See Birnie *et al.*, *supra* Chapter 1, note 15, at 541; and Sands, *supra* Chapter 2, note 19, at 462. The principle has also been incorporated into other shared watercourses agreements such as the Revised Protocol on Shared Watercourses in the Southern African Development Community, 7 August 2000; (2001) 40 ILM 321 (SADC Protocol) and the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin (Chiang Rai), 5 April 1995, in force 5 April 1995; (1995) 34 ILM 865.

³⁸⁸ See McCaffrey, *supra* note 379, at 325; and Birnie *et al.*, *supra* Chapter 1, note 15, at 542.

³⁸⁹ See J.W. Dellapenna, ‘The customary international law of transboundary fresh waters’ (2001) 1 *Int’l J. Global Env’t’l Issues* 264, 288. See also *Gabcikovo-Nagymaros Project case*, 54.

³⁹⁰ Watercourses Convention, Article 5(1).

³⁹¹ *Ibid.*, Article 5(2). See also Sands, *supra* Chapter 2, note 19, at 466-467.

reasonable. According to Article 6 of the Convention, account should be taken of all relevant factors and circumstances, including: geographic and other factors of a natural character; the social and economic needs of the watercourse States concerned; the population dependent on the watercourse in each watercourse State; the effects of the use or uses of the watercourses in one watercourse State on other watercourse States; existing and potential uses of the watercourse; conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect; and the availability of alternatives, of comparable value, to a particular planned or existing use.³⁹² Grzybowski divides these factors into two categories: natural factors (such as climatic and geographic factors) and human-related factors (such as the social and economic needs of watercourse States and the existing and potential uses of the watercourses).³⁹³

The starting point for the use of shared watercourses is the equality of States, and their equality of right to use shared watercourses. The ICJ, in the *Gabcikovo/Nagymaros Project* case, refers to the “perfect equality of all riparian States” as an essential feature of the use of the shared watercourse.³⁹⁴ This equality of right does not mean an equal division of the shared waters, but that all the parties have an equal right to use the shared waters, due to the equality of independent States.³⁹⁵ Likewise with the

³⁹² See also the Helsinki Rules, Article V; and Grzybowski *et al.*, *supra* note 379, at 142.

³⁹³ Grzybowski *et al.*, *supra* note 379, at 142.

³⁹⁴ See *Gabcikovo/Nagymaros Project* case, 54. See also *Case relating to the Territorial Jurisdiction of the International Commission of the River Oder* (1929) PCIJ Series A, Number 23 (*River Oder* case). See also McCaffrey, *supra* note 379, at 328; Amr, *supra* note 380, at 135; and Shelton, *supra* note 19, at 648. Shelton however notes the limitations to this arising from the possibility of one party’s use impacting the beneficial uses of others and the fact that not all uses can be satisfied.

³⁹⁵ McCaffrey, *supra* note 379, at 330. See the US case of *Connecticut v Massachusetts* (1931) 282 US 660, 670-671. See also the US case of *Kansas v Colorado* (1907) 206 US 46 and the Swiss case of *Aargau v Zurich* (1878) IV Entsch des Schweizerischen Bundesgerichts 34. See also Birnie *et al.*, *supra* Chapter 1, note 15, at 542.

CDM, all countries have an equal right to participate in the CDM, but this does not necessarily mean there should be an equal distribution of CDM projects.³⁹⁶

Applying the principle of equitable utilisation as conceived in the international watercourses regime to the CDM, this means that to ensure an equitable geographic distribution of CDM projects, all relevant factors should be taken into account. If the division used by Grzybowski is also applied, this could mean these factors could include both natural and human-related factors. Natural factors, because of their nature, will, in most cases, be specific to the issue being considered. For example, in the case of shared watercourses, natural factors include geographic and hydrographic factors, which would not necessarily be applicable to the CDM. In the delimitation of maritime boundaries, natural factors considered include factors such as the existence of islands and the configurations of coasts, which again, cannot be applied to the CDM (or presumably even to the issue of shared watercourses). In relation to the CDM, a natural factor that could be taken into consideration could be the GHG emission levels of countries. In addition, human-related factors may also vary depending on the issue. In the case of shared watercourses, human-related factors include social and economic needs, and the existing and potential uses of the watercourses. Birnie *et al* noted that this rule requires a balance of interests, which accommodates the needs and uses of each State.³⁹⁷ Whereas social and economic needs could be applied to the CDM, it would be difficult to determine the distribution of projects based on the existing and potential uses of CDM projects.

³⁹⁶ See the argument against equal distribution of CDM projects in Section 3.4 above.

³⁹⁷ Birnie *et al.*, *supra* Chapter 1, note 15, at 542.

In conclusion, as applied under the international watercourses regime, equitable utilisation requires consideration of specific factors in order to achieve an equitable outcome. One of such factors, which most of the regimes analysed appear to also consider, is the social and economic needs of countries.

3.5.6 Conclusion

The above regimes show that an equitable outcome very much depends on the specific law, issue or circumstance under consideration. None of the regimes analysed here defines what an equitable outcome is. Rather, they identify some of the factors that should be taken into consideration in order to achieve such an outcome.³⁹⁸ Consequently, the conclusion from the above analysis is that in international law, an equitable outcome is best understood as the outcome of a process that takes certain issues into consideration.³⁹⁹ Distributive justice is achieved when the necessary factors are fully taken into consideration. In the case of international watercourses for example, an equitable outcome is achieved when factors such as the needs and uses of States, as well as the geographic and hydrographic factors of the watercourses, are taken into consideration.⁴⁰⁰ In the case of the delimitation of maritime borders,

³⁹⁸ Ibid, at 543, where the authors, with regard to the meaning of equitable utilisation, note that what constitutes reasonable and equitable utilisation is “not capable of precise definition” but requires a balancing of relevant factors.

³⁹⁹ See McCaffrey, *supra* note 379, at 343, where, in relation to the international watercourses regime, the author states that “the obligation of equitable and reasonable utilization is thus best understood as a *process*.” See also Birnie *et al.*, *supra* Chapter 1, note 15, at 543.

⁴⁰⁰ See the discussion of the international watercourses regime in Section 6.6 above. See also Watercourses Convention, Article 6; Birnie *et al.*, *supra* Chapter 1, note 15, at 543; and McCaffrey, *supra* note 379, at Chapter 9.

account must be taken of circumstances such as the existence of islands, coastal configurations and proportionality, in order to reach an equitable outcome.⁴⁰¹

In Section 3.4, this thesis concluded that none of the distributive justice theories (egalitarianism, the difference principle and utilitarianism) can be directly applied to the CDM, and in any case, the regimes analysed here do not appear to apply these theories. For example, none of the regimes examined support strict equality (in distribution) without consideration of relevant circumstances. Rather, most require that to reach an equitable outcome, relevant circumstances should be considered, and the outcome will then depend on these circumstances. Likewise, although there is no reference to the theory of utilitarianism, most regimes require consideration of specific circumstances as they apply to or affect all relevant parties, which is not compatible with this theory. Utilitarianism dictates that the only just distribution is one which maximises the happiness of society as a whole and this could require individual countries sacrificing their own interests in order to increase the interests of the global community.⁴⁰² At the international level, the utilitarian theory would require consideration of the happiness of the global society as a whole, rather than that of individual countries, and sanction the “unfair” treatment of individual countries if this would result in a fair global outcome.⁴⁰³ However, none of the regimes examined above requires that in order to achieve distributive justice, countries should ignore their own needs or interests if this would increase the benefits

⁴⁰¹ See the discussion of maritime delimitation in Section 6.3 above. See also Freestone *et al*, *supra* note 263, at 150-159; Dundua, *supra* note 299, at 53-68; and Ahnish, *supra* note 284, at Chapter 2.

⁴⁰² See the discussion in Section 3.4.3. See generally, Bentham, *supra* note 245; and Harris, *supra* note 214, at 41.

⁴⁰³ See for example, Davies and Holdcroft, *supra* note 233, at 228, who, quoting Hart ‘Between Utility and Rights’ (1979) 78 *Columbia Law Review* 8282, state that utilitarianism may “license the grossest form of inequality in the actual treatment of individuals.”

to society as a whole. Rather, regimes such as the international watercourses regime, the delimitation of maritime borders and the deep seabed regime, require consideration of the needs and interests of individual countries or groups of countries.

The only theory that appears to be somewhat relevant to the practice of distributive justice in these regimes is the difference principle. This is because of the theory's emphasis on maximising the situation of the worst off in society.⁴⁰⁴ Although none of the regimes examined appears to go to the extent of seeking to maximise the situation of the worst off, some of them do seek to improve their situation. For example, the moon and deep seabed regimes, which both apply the common heritage of mankind concept, require consideration of the needs of developing countries.⁴⁰⁵ Additionally, equity in international law also requires consideration of the needs of developing countries and supports provision of preferential treatment to these countries, *inter alia*, to improve their situation. Nevertheless, the difference principle cannot be said to be directly applied in international law, as maximising the situation of the worst off does not appear to be an objective of any of the regimes examined. It is actually counter to the approach taken in maritime delimitation, where it has been said that the aim of an equitable solution is not to correct geographical disadvantages, as

⁴⁰⁴ See Rawls, *supra* note 211, at 75 and 79; and Harris, *supra* note 214, at 284-285.

⁴⁰⁵ The regimes however do not seek to meet all the needs of developing countries before attending to those of other countries or to meet all the needs of developing countries regardless of the needs of all other countries. As noted above, the difference principle would probably require that only the situation of those countries regarded as worst off should be improved unless improving the situation of the better off would directly improve the situation of the worst off. These regimes (moon and deep seabed regimes) do not go to this extent.

maximising the situation of the worst off could require disregarding or correcting physical inequalities and maritime delimitation, for example, does not support this.⁴⁰⁶

In addition, according to the difference principle, increasing the welfare or situation of those countries that are already better off would only be justified if this would result in an increase in the welfare or situation of those countries that are worst off.⁴⁰⁷

Again, this does not appear to be a distributive principle of any of the regimes examined. To apply this principle, regimes would contain something to the effect that in determining how a benefit or resource should be distributed or shared, the entirety of the benefit or resource should go to those countries considered “worst off” (for instance, developing countries) unless giving “better off” countries (for instance, developed countries) some of the benefit or resource would directly benefit the worst off. Although some of these regimes do require consideration of the needs/interests of other countries,⁴⁰⁸ they do not require that in distributing or sharing a resource or benefit, benefits can only be given to the better off if doing so would improve the situation of the worst off.

Consequently, from the above, distributive justice in international law does not require equal distribution, maximisation of the circumstances of the worst off in society, or maximisation of the happiness of the international community as a whole, regardless of the happiness of individual countries. Distributive justice in international

⁴⁰⁶ See the discussion in Section 3.5.2 above. See also the *North Sea Continental Shelf* cases, 49-50; and *Libya v Malta*, 39-40. See also Oude Elferink, *supra* note 283, at 51; and Ahnish, *supra* note 284, at 86-87.

⁴⁰⁷ Rawls, *supra* note 211, at 75. See generally, Wacks, *supra* note 214, at 256-261; Harris, *supra* note 214, at 282-287.

⁴⁰⁸ For example, in the international watercourses regime, countries are to *inter alia* consider the social and economic needs of the watercourse States concerned; the population dependent on the watercourse in each watercourse State; and the effects of the use or uses of the watercourses in one watercourse State on other watercourse States. See Watercourses Convention, Article 6.

law does not have a specific outcome. Rather, it takes a “process-based” approach, being the outcome of a process in which certain factors are taken into consideration. These factors must be specific to the issue under consideration and cannot be generalised. When these factors are adequately taken into consideration, the outcome of this process would then be considered just or equitable. There is therefore no “one-size-fits-all” outcome.

Following on from the conclusion that an equitable outcome requires consideration of relevant factors and is the result of a process that considers these factors, the next section determines, from the principles and regimes examined in this and previous sections, as well as the objectives of the CDM, the elements that should be considered in order to achieve an equitable geographic distribution of CDM projects.

3.6 Meaning of Equitable Geographic Distribution of CDM Projects

Applying the conclusion in the previous section to the CDM means that equitable distribution is better regarded as the result of a process that takes certain factors into consideration, rather than as a set or pre-determined outcome. Further to this, this section identifies the criteria for equitable geographic distribution, that is, the elements that determine, or that should be considered when determining, whether a distribution of projects among countries is equitable. This section also identifies the factors that should be used to achieve equitable geographic distribution, that is, the factors that need to be considered in efforts to achieve equitable distribution of projects among countries.

These elements and factors are identified drawing from the above analyses of equity and distributive justice. Upon identifying these elements and factors, this section then

provides a working definition of equitable geographic distribution of CDM projects, still based on the discussions above, as well as the elements and factors identified in this section.

3.6.1 Elements and Factors of Equitable Geographic Distribution

The aim of this chapter so far has been to provide a definition of equitable geographic distribution of CDM projects, as this definition has so far not been provided in literature or by the CDM regime.

To provide this definition, this chapter examined different aspects of equity and distributive justice. It concluded that in international law, an equitable outcome is not defined. Instead, distributive justice seems to focus on a process which takes account of specific factors in order to reach an equitable outcome. This approach reflects the definition of equity in international law, as well as distributive justice in the various international regimes examined. It is also the approach taken in the climate change regime and it can therefore be expected that it should be the approach to equitable distribution under the CDM. This approach is, however, different from that in general theories of distributive justice. In these theories, distributive justice generally does not require relevant circumstances to be taken into consideration. Rather, these circumstances are often disregarded⁴⁰⁹ and distributive justice would require that the same formula be applied to all cases, irrespective of relevant circumstances. This chapter therefore concluded that the theories of distributive justice – egalitarianism,

⁴⁰⁹ For instance, both utilitarianism and egalitarianism do not require consideration of relevant circumstances.

the difference principle and utilitarianism – cannot be applied to the CDM.⁴¹⁰ Rather, the approach to equitable distributive justice under the CDM should be the same as that in international law – account should be taken of relevant factors in order to achieve an equitable outcome.

The factors to be considered vary depending on the regime being considered. One almost constant element however is that of “need.” Most of the regimes considered, with the exception of the maritime delimitation regime, require consideration of need and differentiate on this basis, in order to achieve an equitable outcome. This consideration of “need”, together with the provision of preferential treatment to countries in consideration of their need, is also seen in equity in the international climate change regime and in international law generally.

The importance of considering need and preferential treatment in the search for equity is also recognised by various authors. Birnie *et al*, in their discussion of the ozone regime, state that, “acknowledging the inequity of equal treatment for all, and the very small contribution to ozone depletion made by developing states, the protocol makes special provision for their needs.”⁴¹¹ Schachter suggests that “equality among unequals may be inequitable and that differential treatment may be essential for real equity.”⁴¹² Equality has been examined and rejected in Section 3.4 above, and it is criticised because it may yield extreme outcomes when pre-existing economic or other inequalities exist in society. In the case of the CDM, formal equality has already

⁴¹⁰ See Sections 3.4 and 3.5.6 above for a more detailed discussion of why the theories of distributive justice are inapplicable to the CDM.

⁴¹¹ See Birnie *et al.*, *supra* Chapter 1, note 15, 352.

⁴¹² See O. Schachter, *Sharing the World's Resources* (New York: Columbia University Press, 1977), 7. See also Shelton, *supra* note 19, at 647.

been criticised as leading to a perverse outcome, which would neither benefit countries nor contribute to the objectives of the CDM.⁴¹³

One of the reasons why equitable geographic distribution cannot mean equal distribution of projects or CERs is because countries have varying levels of GHG emissions, and hence, varying levels of emission reduction potential. This is important because the CDM aims *inter alia* to help developing countries contribute to the ultimate objective of the Convention (to stabilise GHG concentrations in the atmosphere) and to assist developed countries to comply with their emission reduction commitments.⁴¹⁴ Countries' emission reduction potential and the realisation of this potential determine how much countries can contribute to these objectives of the CDM.⁴¹⁵ Uruguay, which produces about 45 million tonnes of CO₂ equivalent emissions annually, cannot be expected to host the same number of projects as Indonesia, which produces in excess of 2 billion tonnes of CO₂ equivalent emissions annually.⁴¹⁶ According to Diakoulaki *et al*, a country's total GHG emissions theoretically represent the maximum potential of the CDM market in that country.⁴¹⁷

If all countries were required to host the same number of projects or produce the same amount of CERs, this would result in those countries with greater potential being prevented from fulfilling their potential, as they would be prevented from hosting more projects than those countries with a lower potential. This would limit the extent

⁴¹³ See the discussion in Section 3.4 above.

⁴¹⁴ Kyoto Protocol, Article 12. See also the discussion of the CDM in Chapter 2.

⁴¹⁵ See Jung, *supra* note 68, at 2174-2175; C. Karakosta *et al.*, 'Directing clean development mechanism towards developing countries' sustainable development priorities' (2009) 13 *Energy for Sus. Dev.* 77, 77; and Silayan, *supra* Chapter 1, note 50, at 42-47.

⁴¹⁶ CAIT Version 7.0 (2005 data). See the classification of countries according to their GHG emission levels in Chapter 4.

⁴¹⁷ Diakoulaki *et al.*, *supra* Chapter 2, note 26, at 1091.

to which these countries can contribute to the ultimate objective of the Convention – that of GHG stabilisation⁴¹⁸ and would give rise to the problem of “levelling down,”⁴¹⁹ which is one of the criticisms of the egalitarian theory of distributive justice.⁴²⁰ It would also not help fulfil the sustainable development objective of the CDM, as these countries would potentially continue to develop economically, but without the sustainability CDM projects could provide. In determining equitable distribution therefore, countries’ emission reduction potential must be taken into consideration, and as stated by the Executive Board, each country should be given the opportunity to achieve its full potential.⁴²¹

The reference to potential is often a reference to emission reduction potential, which can be determined by the GHG emission levels of countries. However, another kind of potential that should also be considered is the sustainable development potential of countries. Since sustainable development is one of the objectives of the CDM, it is not sufficient to only consider the emission reduction potential and opportunities for cost-effective reductions in countries, as these only measure one of the objectives of the CDM – its objective to promote cost-effective emission reductions. The objective of contributing to sustainable development is equally important, and must also be considered. As highlighted in Section 3.3, one of the principles of equity of the climate change regime is the right to promote sustainable development and the CDM, which is an instrument of this regime, should to the extent possible, contribute to

⁴¹⁸ UNFCCC, Article 2.

⁴¹⁹ For example, by destroying the eyes of the sighted to create equality with those who are blind. See Parfit, (1997), 211.

⁴²⁰ According to a school of egalitarian thought, “we should sometimes choose a smaller sum of benefits, for the sake of a better distribution.” See Mason, *supra* note 203, at 2.

⁴²¹ See the 2005-2006 Annual Report of the Executive Board to the COP/MOP, Addendum (FCCC/KP/CMP/2006/4/Add.1 (Part I), 7 November 2006), Annex III, Paragraph 4(a). See also the discussion and criticisms of equality in Chapter 3.

achieving the principles and objectives of the regime.⁴²² Consequently, in order to achieve this objective of the CDM (and of the climate change regime), countries' sustainable development should also be considered, in addition to their emission reduction potential.⁴²³ Sustainable development has been defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Consideration of needs (particularly the essential needs of the world's poor) is considered a key concept of sustainable development.⁴²⁴ In addition, as noted above, capability is also relevant to the CDM to the extent that it refers to technical capacity to host environmentally-friendly projects, as this is one of the intended benefits of the CDM. Capability in this context should therefore be taken as a measure of sustainable development potential in countries, and countries with less capability should be regarded as having greater sustainable development potential, just as countries with greater needs are regarded as having greater sustainable development potential. For example, one of the needs of developing countries identified by the climate change regime is their need for capacity building.⁴²⁵ However, rather than being a separate element, it is, in the context of the CDM, a measure of countries' need and sustainable development.

⁴²² See Cullet, *supra* Chapter 2, note 68, at 173, where the author notes that implementation of the flexibility mechanisms cannot be dissociated from the guiding principles of the Convention. See also Kyoto Protocol, Article 12(2), which provides *inter alia* that the purpose of the CDM is to assist developing countries to contribute to the ultimate objective of the Convention and to assist developed countries to achieve compliance with their emission reduction commitments under the Protocol.

⁴²³ See Silayan, *supra* Chapter 1, note 50, at 47; and Huq, *supra* Chapter 2, note 62, at 22.

⁴²⁴ See Report of the World Commission on Environment and Development: Our Common Future. See also Sands, *supra* Chapter 2, note 19, at 252; Birnie *et al.*, *supra* Chapter 1, note 15, at 53-54; and Magraw and Hawke, *supra* Chapter 2, note 63, at 614 and 618.

⁴²⁵ See UNFCCC, Articles 5(b) and (c), 7 and 9.2(d); and Kyoto Protocol, Article 10(e). See also http://unfccc.int/cooperation_and_support/capacity_building/items/1033.php 'Capacity-building' for a summary of capacity building-related activities under the UNFCCC and Kyoto Protocol (UNFCCC, 21/02/2011).

The element of need is recognised and applied to achieve equity in international law generally, as well as in the climate change regime and in most of the other international regimes examined here (with the exception of the maritime delimitation regime).⁴²⁶ Most international regimes, in aiming towards an equitable outcome, provide developing countries with some form of preferential treatment, in recognition of their greater need or lower capacity.⁴²⁷ Such preferential treatment, rather than determining whether an outcome is equitable, is used to help achieve an equitable outcome. The Montreal Protocol, the UNFCCC, the International Tropical Timber Agreement and the World Trade Organization's generalised system of preferences all contain examples of such preferential treatment, based primarily on the principles of equity and of common but differentiated responsibilities.⁴²⁸

From the above, the two criteria or elements that should be used to determine whether a distribution of CDM projects is equitable are countries' GHG emission reduction potential and their need (sustainable development potential). In addition, just as is seen in most international regimes, efforts to promote equitable geographic distribution should then be supported by preferential treatment, specifically in consideration of countries' need. These are the factors which should be taken into consideration and balanced in order to achieve a more equitable geographic distribution of CDM projects.

One important consideration in the distribution of CDM projects is countries' population. It cannot really be expected that a country with a very small population

⁴²⁶ See the discussion in Sections 3.2, 3.3 and 3.5 above.

⁴²⁷ See the discussion of the common but differentiated responsibilities (CBDR) principle in Section 3.2.2 above. See also the Stockholm Declaration, the Montreal Protocol and the UNFCCC, which are also discussed in the section on the CBDR principle in Sections 3.2.2 and 3.3.2 above.

⁴²⁸ See the discussions in Section 3.2 of equity in international law.

should host the same number of projects as a country with a very large population. This is mainly due to the fact that a country with a larger population will almost invariably have larger GHG emissions and also need more resources to sustain its population. This could be taken to suggest that countries such as China, India and Indonesia should, simply because of their larger populations, host more projects than countries like Panama, Jamaica and Lesotho, which have much smaller populations in comparison.⁴²⁹ However, population should not be a separate consideration for equitable distribution of projects. This is firstly because it is not a factor that is generally considered in equity or distributive justice in international law. The only regime that makes a reference to population is the international watercourses regime, where the population dependent on the watercourse in each watercourse State is a factor to be considered in determining equitable utilisation.⁴³⁰ In this context, the international watercourses regime probably differs from the CDM, because of the nature of the resource being divided. Specifically, under the international watercourses regime, the resource in question is water, which is, obviously, fundamental for survival. This is in contrast with the CDM, where the issue is one of economic benefit and development, rather than of survival. The element of population is not seen in any other regime and cannot therefore be considered a general element of distributive justice in international law.

More important, however, is the fact that population is not independently linked to either of the CDM's objectives (of reducing GHG emissions and promoting sustainable development), and is not directly relevant to achievement of these

⁴²⁹ See <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html> 'Country comparison: population' (Central Intelligence Agency, 03/02/2011).

⁴³⁰ See Watercourses Convention, Article 5.

objectives. Whereas emission reduction potential and need are directly linked to, and relevant for, the CDM's objectives of reducing GHG emission and promoting sustainable development, population does not have any such direct link, except to the extent already covered by the elements of emission reduction potential and need. Firstly, population is, to a very great extent, already factored into countries' GHG emission levels and emission reduction potentials. One of the drivers of emissions in countries is the size of their population and population growth.⁴³¹ This is partly because the larger the size of the population, the more energy is consumed, and more than 60% of GHG emissions come from energy production and consumption.⁴³² For example, a country such as China is the world's largest GHG emitter partly because it has the world's largest population.⁴³³ A country like China can therefore be expected to host more projects than a country like Ethiopia, not simply because of its larger population, as this will not directly contribute to achievement of either of the CDM's objectives, but because it has a larger emission reduction potential and can therefore contribute to the CDM's objective of reducing GHG emissions.

⁴³¹ See Metz *et al.*, *supra* note 91, at 178-179; and OECD/IEA, *World Energy Outlook 2008* (Paris: International Energy Agency, 2007), 180 and 401.

⁴³² See OECD/IEA, *Ibid*, at 3.

⁴³³ There are other factors involved, such as rapid industrialisation and the nature of energy consumed. See OECD/IEA, *Ibid*, at 82, where it is noted that the increase in China's [projected] energy demand in 2006-2030 dwarfs that of all other countries and regions, because of its rapid economic and population growth.

For example, China's *per capita* emissions are low (5.5 tonnes per person) compared to other developing countries such as Qatar (68.9 tonnes per person – the highest in the world) and Equatorial Guinea (18 tonnes per person). However, looking at total emissions, China's are the highest globally (7.2 billion tonnes), while Qatar's is 61 million tonnes and Equatorial Guinea's is 11 million tonnes. These figures are obviously a function of these countries' population – 1.3 billion in China, 848,016 in Qatar and 668,225 in Equatorial Guinea. For countries' *per capita* emissions, see CAIT Version 7.0. For countries' population, see <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html> 'Country comparison: population' (Central Intelligence Agency, 03/02/2011).

With relation to need and the CDM's objective of promoting sustainable development, population again is not a directly relevant factor. For example, although Brazil has the fifth largest population in the world (fourth largest in the developing world), it has low need because of its high human development.⁴³⁴ Its large population should not therefore be a basis for it to be expected to host more projects than Pakistan, which has the next highest population, but has high need because of its low human development. In this context, population is irrelevant, as the relevant consideration is countries' sustainable development potential and how much the CDM can contribute to this. Adding the population element would simply distort the picture of how CDM projects should be distributed among developing countries.

In addition, presumably, as a country hosts more CDM projects, its sustainable development levels will improve and its "need" will reduce. For example, assume that 10 CDM projects would contribute as much to Ethiopia's sustainable development as 100 CDM projects would to China's (because of the difference in the size of their populations). If Ethiopia and China were each to host 10 CDM projects, then Ethiopia's "need" would reduce significantly because of the contribution of these projects to its sustainable development, while China's would not reduce at the same rate (because it requires more projects to achieve a comparable level of sustainable development). Under the CDM, China would then be expected to continue to receive more projects while Ethiopia would not (or would not be expected to receive as many). This adequately takes account of these countries' populations, and there is therefore no benefit to taking each country's population into account, independently of their need.

⁴³⁴ See Chapter 4, Section 4.3 for the classification of countries according to their need.

Consequently, population is not a separate element that requires to be considered in efforts to achieve equitable geographic distribution.

(a) Potential

In the *North Sea Continental Shelf* cases, the ICJ noted that equity does not necessarily imply equality. In deciding the case, which dealt with three countries with relatively similar coastlines, the Court stated that,

...there can never be any question of completely refashioning nature, and equity does not require that a State without access to the sea should be allotted an area of continental shelf, any more than there could be a question of rendering the situation of a State with an extensive coastline similar to that of a State with a restricted coastline. Equality is to be reckoned within the same plane, and it is not such natural inequalities as these that equity could remedy.⁴³⁵

The Court's point here is that where countries are different in certain relevant respects, there should be no expectation of treating such countries equally in such respects. With regard to the CDM, equitable geographic distribution does not mean that countries with limited potential to host CDM projects should be expected to host the same number of projects as those that have greater potential. Equity does not require this.

Consequently, a country which for example produces very little GHG emissions may not have much in the way of potential CDM projects and should not be expected to host more CDM projects than it has the potential for. To ensure that the CDM

⁴³⁵ North Sea Continental Shelf cases, 49-50.

objective of GHG emission reduction is achieved, countries' emission reduction potential, determined by their GHG emission levels, must be taken into consideration.

Countries' emissions data is available from the World Resources Institute's Climate Analysis Indicators Tool.⁴³⁶ This tool contains the GHG emissions of most countries and can help with calculating a country's potential for GHG emission reductions.⁴³⁷ Data from the CAIT shows that all eligible developing countries have the potential to reduce their GHG emissions. Chapter 4 discusses this issue further and classifies countries according to their GHG emission reduction potential.

(b) Need

The role of the consideration of need in efforts to achieve equity is recognised in many international treaties and by many authors. According to Schachter, "it is undeniable that the fulfilment of the needs of the poor and disadvantaged countries has been recognised as a normative principle which is central to the idea of equity and distributive justice."⁴³⁸ Shelton notes that need as a basis for equitable allocation is recognised in the Rio Declaration and other treaties, including the UNFCCC.⁴³⁹

As highlighted above, "need" is a recurring and important consideration in the search for an equitable outcome in most of the regimes examined in Section 3.5, and is also a

⁴³⁶ CAIT Version 7.0.

⁴³⁷ Several studies have been conducted on CDM potential, mainly on a regional level. See for example, E. Haites, Estimating the market potential for the clean development mechanism: review of models and lessons learned' (June 2004), <http://www.iea.org/papers/2004/cdm.pdf>, www.iea.org (IEA, 04/08/2010), which summarises a few of these studies.

⁴³⁸ Schachter, *Sharing the World's Resources*, *supra* note 412, at 16. See generally, M.G. Erasmus, 'The New International Economic Order' (1976) 2 *South African YBIL*, 111-127; and D.H. Hunter 'The Montreal Protocol: Confronting the Threat to Earth's Ozone Layer' (1988) 63 *Washington Law Review* 997, 1005-1007

⁴³⁹ See Shelton, *supra* note 19, at 655. See also Stone, *supra* note 57, at 291; French, (2000), *supra* note 55, at 52; and T.M. Franck, *Fairness in International Law and Institutions* (Oxford: Clarendon Press, 1995), 74.

key consideration in the principle of common but differentiated responsibilities and in the climate change regime.⁴⁴⁰ The common heritage of mankind concept, as contained in the moon and deep seabed regimes, requires consideration of the needs and interests of a specific group or groups of countries (in this case, developing countries), in order to achieve equitable sharing of the common heritage.⁴⁴¹

In the context of this research, “need” is used in the context of countries’ sustainable development needs or their sustainable development potential, as sustainable development is one of the primary objectives of the CDM.⁴⁴² Although there is no generally acceptable definition of sustainable development, the definition most commonly applied is that contained in the Report of the World Commission on Environment and Development (the Brundtland Commission), as follows: “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”⁴⁴³ This definition highlights “need” as an important element of the principle.⁴⁴⁴ Silayan, in outlining his criteria for CDM project distribution, identifies sustainable development

⁴⁴⁰ See the discussions above.

⁴⁴¹ See the Moon Treaty, Article 11(7)(d) and UNCLOS, Article 140(1). This concept is discussed in full in Section 3.5.4 above.

⁴⁴² See Karakosta *et al.*, *supra* note 415, at 77; and Silayan, *supra* Chapter 1, note 50, at 47. See also B. Metz *et al.*, ‘Towards an equitable global climate change regime: compatibility with Article 2 of the Climate Change Convention and the link with sustainable development’ (2002) 2 *Climate Policy* 211, where the authors highlight development needs as a key dimension to achieving an equitable global climate change regime.

⁴⁴³ See ‘Our Common Future, Chapter 2: Towards Sustainable Development’ from *Our Common Future: Report of the World Commission on Environment and Development*, paragraph 1

⁴⁴⁴ According to the Report, sustainable development contains two key concepts: needs, in particular the essential needs of the world’s poor, to which overriding priority should be given; and limitations imposed by the state of technology and social organisation on the environment’s ability to meet present and future needs.

as one of such criteria.⁴⁴⁵ This criterion however raises the question of how to measure a country's need.

Shelton notes that determining need may require the development of objective criteria and a continuous assessment of the situation.⁴⁴⁶ The UNFCCC and the Kyoto Protocol, while not explicitly defining need, identify categories of countries whose needs and interests should be taken into particular consideration, including: SIDS, countries with low-lying coastal areas, and land-locked and transit countries.⁴⁴⁷

During COP/MOP 1 in 2005, African countries and LDCs were identified by Parties as requiring special attention.⁴⁴⁸ More specifically, the CDM identifies three groups of countries as requiring particular consideration: SIDS, LDCs and African countries.⁴⁴⁹

Regarding what constitutes the special need of LDCs, SIDS and African countries, the most obvious is the need for sustainable development. This is particularly so in the case of LDCs, which are the countries with the lowest human development and are therefore the most in need of sustainable development.⁴⁵⁰ Most African countries and SIDS are among the countries with the lowest human development. For example, 33 of the 53 countries in the African region are on the UN LDCs list;⁴⁵¹ that is 33 out of a total of 49 LDCs. Likewise, 12 of the 38 SIDS are also LDCs. Several SIDS are

⁴⁴⁵ Silayan, *supra* Chapter 1, note 50, at 47. See also Huq, *supra* Chapter 2, note 62, at 22.

⁴⁴⁶ See Shelton, *supra* note 19, at 656.

⁴⁴⁷ See for example, UNFCCC, Preamble, paragraph 19, and Articles 4(8) and 4(9).

⁴⁴⁸ See S. Aguilar *et al.*, 'Summary of the Eleventh Conference of the Parties to the UN Framework Convention on Climate Change and First Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol' (December 2005) <http://www.iisd.ca/download/pdf/enb12291e.pdf>, www.iisd.ca (17/01/2010).

⁴⁴⁹ See Decision 1/CMP.2, paragraphs 39 and 41; Decision 2/CMP.3, paragraph 34; and Decision 2/CMP.4, paragraphs 53, 55 and 56.

⁴⁵⁰ See the criteria for classifying countries as LDCs in note 140 above. See <http://www.un.org/special-rep/ohrls/ldc/ldc%20criteria.htm> 'The Criteria for the identification of the LDCs' (UN, 01/07/2010). See also T. de Lopez *et al.*, 'Clean development mechanism and least developed countries: changing the rules for greater participation' (2009) 18 *J. Env't & Dev.* 436, 438.

⁴⁵¹ See 'Least developed countries' note 148 above.

actually classified among those countries with the highest human development.⁴⁵²

Classifying countries broadly by these groups therefore will not accurately differentiate among countries according to their need, as within these groups, countries' sustainable development potentials and their needs vary widely.

Countries' need can be measured in different ways. These include the Human Development Index (HDI), Gross National Product (GNP), Gross Domestic Product (GDP) and the Index of Sustainable Economic Welfare (ISEW).

The HDI is an index that measures human development in three basic dimensions: a long and healthy life, access to knowledge and a decent standard of living. The index combines measures of a country's life expectancy at birth (health), adult literacy rate and combined primary, secondary, and tertiary gross enrolment ratio (education), and GDP per capita (standard of living). The basic use of HDI is to rank countries by level of "human development."⁴⁵³ The HDI has not been generally accepted as a measure of human development and has been criticised for, *inter alia*, not including environmental indicators in its assessment.⁴⁵⁴ Nonetheless, it is a widely used measure of human development and is regarded as a more complete assessment of a country's development than GDP or GNP, because unlike these two indicators, it assesses not only economic, but also social development.⁴⁵⁵ The ISEW, on the other hand, can be

⁴⁵² Such as Barbados, the Bahamas and Antigua and Barbuda. See the UN Development Programme human development index <http://hdr.undp.org/en/statistics/> 'Human Development Report 2009 - HDI rankings' (UNDP, 01/07/2010).

⁴⁵³ Ibid.

⁴⁵⁴ See M. McGillivray, 'Measuring development? The UNDP's Human Development Index' (1993) 5 *J. Int'l Dev.* 183; and A.D. Sagara and A. Najam 'The human development index: a critical review' (1998) 25 *Ecological Economics* 249.

⁴⁵⁵ See R.A. Dias *et al.*, 'The limits of human development and the use of energy and natural resources' (2006) 24 *Energy Policy* 1026; S. Globerman, 'Global foreign direct investment flows: the role of governance infrastructure' (2002) 30 *World Development* 1899; V. Constantini and S. Monni, 'Measuring human and sustainable development: an integrated approach for European countries' (2004)

regarded as a more complete measure of sustainable development than the HDI, because it includes what the HDI lacks – environmental considerations, such as air pollution and climate change.⁴⁵⁶ It covers consideration of income inequality, health, education, air pollution, depletion of resources and cost of climate change, among others.⁴⁵⁷ Although more complete than the HDI, the ISEW too has been criticised, *inter alia*, as lacking a sound theoretical basis and as being dependent on arbitrary assumptions.⁴⁵⁸ In any case, this research cannot use the ISEW to measure countries' need because the ISEW has not been calculated for most countries - it has only been calculated for about nine countries so far.⁴⁵⁹

Therefore, this thesis will use the HDI to measure countries' need and sustainable development potential, because it is the most complete and available index of sustainable development that could be identified.

(c) Preferential treatment

Equity sometimes requires positive discrimination. This is not unusual, especially in dealings between developed and developing countries, where developing countries

<http://host.uniroma3.it/dipartimenti/economia/pdf/wp41.pdf>, <http://www.uniroma1.it/> (Università di Roma, 24/02/2010); Huq, *supra* Chapter 2, note 62, at 8; D.D. Moran, 'Measuring sustainable development - nation by nation' (2008) 64 *Ecological Economics* 470; J.M. Harris, 'Basic principles of sustainable development' (June 2000) http://ase.tufts.edu/gdae/publications/Working_Papers/Sustainable%20Development.PDF, www.tufts.edu (24/02/2010), 15-16; N.C. Lind, 'Some thoughts on the Human Development Index' (1992) 27 *Social Indicators Research* 89; and Silayan, *supra* Chapter 1, note 50, at 46.

⁴⁵⁶ On the ISEW, see H. Daly and J. Cobb, *For The Common Good: Redirecting the Economy toward Community, the Environment, and a Sustainable Future* (revised edition) (Boston: Beacon Press, 1994).

⁴⁵⁷ See <http://www.foe.co.uk/progress/java/ServletStoryISEW> Friends of the Earth ISEW website (Friends of the Earth, 02/02/2011).

⁴⁵⁸ See E. Neumayer, 'The ISEW – not an index of sustainable economic welfare' (1999) 48 *Social Indicators Research* 77; and J. Porritt, *Capitalism as if the World Matters* (London: Earthscan, 2007), 251.

⁴⁵⁹ See <http://www.foe.co.uk/community/tools/isew/international.html> 'International examples' (Friends of the Earth, 02/02/2011).

often receive some form of preferential treatment, usually in consideration of their special needs, interests and circumstances. Cullet notes that “differential treatment is intrinsically linked to the notion of equity.”⁴⁶⁰ According to Rajamani, real differences exist between states and “norms of differential treatment recognize and respond to these real differences between states by instituting different standards for different states or groups of states.”⁴⁶¹ For example, the Montreal Protocol allows developing countries to delay by 10 years, their compliance with the control measures contained in the Protocol.⁴⁶² Under the UNFCCC, developing countries are generally given far fewer obligations than developed countries, and under the Kyoto Protocol are not given any additional obligations, whereas developed countries are.⁴⁶³ The CDM, too, is an instrument of differentiation, differentiating between developed and developing countries by giving developing countries the opportunity to participate in climate change mitigation without taking on the kind of binding emission reduction commitments developed countries have, and also providing them with the sustainable development benefits that CDM projects are supposed to provide.⁴⁶⁴

In his discussion of differential treatment in international law,⁴⁶⁵ Cullet notes that, “rules which treat all partners in the same way and only allow for divergence from the established patterns in special circumstances are suitable as long as the partners have the same capacity to benefit from the standards in place.” He concludes that, “certain classes of actors need to be singled out on account of differences which affect their

⁴⁶⁰ See Cullet, *Differential Treatment in International Environmental Law*, *supra* note 51, at 29.

⁴⁶¹ See Rajamani, *supra* note 44, at 1.

⁴⁶² Montreal Protocol, Article 5.

⁴⁶³ UNFCCC, Articles 3 and 4; and Kyoto Protocol, Article 10.

⁴⁶⁴ See the discussion at pages 46-47, 63 and 76 above.

⁴⁶⁵ Cullet notes that although differential treatment and preferential treatment have different conceptual bases, both lead to broadly similar outcomes in practice. See P. Cullet, ‘Differential treatment in international law: towards a new paradigm of inter-state relations’ (1999) 10 *EJIL* 549, 551.

capacity to enjoy the rights established by the rules in force.” He gives the example of access to a market and notes that identical rules of access may not be fair when people do not have the same economic capacity to enter the market and states that this is the basis for the establishment of rules which give disadvantaged members of the community the capacity to compete.⁴⁶⁶ Highlighting the importance of differentiation in the allocation of burdens and benefits, Cullet also notes that economic inequalities are the “backbone of differentiation.”⁴⁶⁷ According to Schachter, many international decisions affecting the allocation and distribution of resources seek to meet specific needs on a preferential basis. He asserts that “differential treatment may be essential for real equality.”⁴⁶⁸ Accordingly, there is support for giving preferential treatment on the basis of need, in order to achieve equity. This can already be seen under the CDM. For example, LDCs are exempt from payment of the share of proceeds levy under the CDM,⁴⁶⁹ as well as the CDM registration fee.⁴⁷⁰

⁴⁶⁶ Ibid, at 557-558.

⁴⁶⁷ Ibid, at 574. He notes that differential treatment goes beyond giving a specific category of countries privileges such as different obligations or the right to delay implementation of obligations, and also differentiates between differential and preferential treatment, noting that whereas preferential treatment relied on claims by developing countries against developed countries, differential treatment is based on mutually accepted non-reciprocity. He further notes however the “strong affinities” between differential and preferential treatment, stating that in practice, both lead to broadly similar results. See pages 551 and 556.

⁴⁶⁸ See Schachter, *Sharing the World's Resources*, *supra* note 412, at 7 and 16. See also Shelton, *supra* note 19, at 647; and French, (2000), *supra* note 55, at 52-54; and Cullet, *supra* note 465, at 549. See Rio Declaration, paragraph 6, which states that, “the special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.” See also the Convention on Biological Diversity, Preamble, paragraph 16, which acknowledges that special provision is required to meet the needs of developing countries.

⁴⁶⁹ Article 12(8) of the Protocol provides that a share of the proceeds of CDM projects should be used to cover administrative expenses, as well as to assist in meeting the cost of adaptation in developing countries. The share of proceeds to support adaptation in developing countries is 2% of CERs issued (Paragraph 15(a) of Decision 17/CP.7). The share of proceeds to cover administrative expenses, including the registration fee, is US \$0.10 per CER issued for the first 15,000 tonnes of CO₂ equivalent and US \$0.20 per CER issued for any amount in excess of 15,000 tonnes (Paragraph 37 of Decision 7/CMP.1).

Regarding which countries or categories of countries should receive such preferential treatment, as preferential treatment is to be given on the basis of need, it follows that preference should be given to the countries with the greatest need or lowest level of development,⁴⁷¹ such as those countries with the lowest HDI.⁴⁷²

It is also important to determine what kind of preferential treatment countries should receive.⁴⁷³ The aim of preferential treatment is to improve countries' access to the CDM and ensure a more equitable distribution of projects among countries. Whatever preferential treatment is given should be such that would help countries increase their access to the CDM and overcome barriers to CDM hosting. Barriers to CDM hosting include lack of capacity and lack of financing⁴⁷⁴ and these barriers can for instance, be overcome through targeted capacity building and financial support for this category of countries.⁴⁷⁵ For example, under the CDM, the Nairobi Framework was established *inter alia* to provide capacity building support to sub-Saharan African countries.⁴⁷⁶

Regarding financial support, at COP/MOP 5, the CDM Executive Board was asked to provide loans to countries with fewer than 10 registered projects, to help these countries cover: the costs of developing project design documents; and the costs of

⁴⁷⁰ See Decision 17/CP.7, Paragraphs 15(b) and Decision 2/CMP.3, Paragraph 31.

⁴⁷¹ de Lopez *et al.*, *supra* note 450, at 439. See also Shelton, *supra* note 19, at 647; and French, *supra* Chapter 2, note 19, at 87.

⁴⁷² Table 2 below classifies countries according to the need/HDI, and the countries with high and very high need should probably be the ones to receive preferential treatment.

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⁴⁷⁴ See Chapter 5 for a discussion of the barriers to equitable distribution of CDM projects. See <http://www.cd4cdm.org/index.htm> 'Enhancing a more equitable regional distribution of CDM project activities: overview of UNEP's CDM activities' (UNFCCC, 21/01/2010); Ellis and Kamel, *supra* Chapter 2, note 50; C. Brunt and A. Knechel, 'Delivering sustainable development benefits through the clean development mechanism' (November 2005) http://pubs.pembina.org/reports/SDBenefits_bg.pdf, www.pembina.org (27/02/2010), 5; and H. Kimura *et al.*, 'Clean development mechanism' in A. Srinivasan (ed.) *Asian Aspirations for Climate Regime beyond 2012* (Japan: IGES, 2006), 35, 37-38.

⁴⁷⁵ See Bakker *et al.*, *supra* note 59.

⁴⁷⁶ See the Concept Note for the Nairobi Framework Mobilization Event held at the 26th meeting of the UNFCCC Subsidiary Bodies, in May 2006: http://cdm.unfccc.int/Nairobi_Framework/Nai_framework_mobSB26.pdf.

the validation and first verification of projects.⁴⁷⁷ Such preferential treatment, which should be targeted at the countries with the greatest need, should be provided to help achieve a more equitable distribution of projects. Importantly also, it should be genuine preferential treatment, aimed at reducing, not increasing, dependency (that is, it should not amount to “handouts”). The various forms of preferential treatment currently provided under the CDM regime are discussed in more detail in Chapter 5, where the barriers to equitable geographic distribution, together with the initiatives to overcome these barriers, are discussed.

3.6.2 Definition of Equitable Geographic Distribution

As noted above, in general, distributive justice in international law does not have a set definition or outcome. Instead, most regimes provide that certain factors should be considered in order to achieve an equitable outcome. Likewise, under the CDM, there can be no set outcome in terms of prescribing exactly how many projects or exactly what percentage of projects each developing country should host. Rather, equitable distribution of CDM projects would be the result of a process that gives all developing countries an equal right to participate in the CDM regime and to benefit from the sustainable development benefits of the CDM. This equal right does not mean an equal number of projects. Instead, it means a share of projects proportionate to each country’s GHG emission reduction potential and need (sustainable development potential). These two elements represent the two objectives of the CDM and both need to be equally taken into consideration. In addition to these two elements, efforts

⁴⁷⁷ See Decision 2/CMP.5, Paragraphs 49-50. However see Chapter 5 for a critique of this preferential treatment, particular regarding the lack of differentiation on the basis of potential or need among countries with fewer than 10 projects.

to achieve equitable distribution should also give preferential treatment, such as capacity building and financial support, to those countries with the greatest need, provided they also have emission reduction potential. This is in order to help these countries fulfil their CDM potential.⁴⁷⁸

In conclusion, an equitable geographic distribution of CDM projects is a distribution among countries based on their GHG emission reduction potential and their need or sustainable development potential. A distribution that is the result of the consideration of these two elements can then be regarded as equitable. These two elements make up countries' CDM potential and it is these elements that should determine the priority to be given to countries in terms of CDM hosting. Countries with the greatest need should then also be given preferential treatment, as long as they have some emission reduction potential. Such preferential treatment could be in the form, *inter alia*, of financial and capacity building support, and should be aimed at enabling these countries to fulfil this emission reduction potential.

3.6.3 Conclusion

This chapter has identified two [inter-linked] sets of criteria. The first set is the elements that should be considered when selecting host countries to invest in and that determine how equitable the distribution of projects is. These elements are countries' GHG emission reduction potential and their need (sustainable development potential).

Paying serious, deliberate and explicit attention to equity in the distribution of projects will compel investors to consider developing countries' need, together with

⁴⁷⁸ Preferential treatment is not used to calculate CDM potential. Instead, preferential treatment should be given to countries with the greatest need to help them fulfil their CDM potential (calculated using countries' emission reduction and sustainable development potentials). See the discussion in Chapter 4 for more on countries' CDM potential.

their emission reduction potential, when selecting countries to invest in. These two elements are used in Chapter 4 to answer the two research sub-questions: “what should an ideal distribution of projects among countries be?” and “does the current distribution of CDM projects meet this ideal geographic distribution of projects?”

The second set is those factors that should be considered in efforts to achieve a more equitable distribution of projects (than what currently obtains). This set comprises the elements of GHG emission reduction potential and need, together with preferential treatment. These three factors make up the analytical framework used to undertake the critique of the CDM regime in Chapter 5, and to answer the two research sub-questions: “what are the main reasons for the inequitable geographic distribution of CDM projects?” and “are these reasons/barriers being addressed within the CDM regime, and if so, how?”

As already highlighted (in Section 3.1 above), countries are operating under a presumption that the distribution of CDM projects among countries is not equitable, and many efforts have been taken to achieve an equitable distribution. In order to ascertain whether this presumption is in fact correct, the next chapter will determine how projects should be distributed among countries, using countries’ emission reduction and sustainable development potentials as the measurements. This will then be compared to the current distribution to determine how the current distribution compares to this ideal distribution.

CHAPTER FOUR

Distribution of CDM Projects in Practice – Is the Current Geographic Distribution Equitable?

4.1 Introduction

Having determined an appropriate meaning and elements of equitable geographic distribution in Chapter 3, this research now examines whether the current distribution of CDM projects among countries is in accordance with that meaning and elements. This chapter contains a practical application of the conceptual discussions undertaken and conclusions reached in Chapter 3. Applying the elements of equitable geographic distribution identified in Chapter 3, this chapter determines whether the current geographic distribution of CDM projects is equitable or inequitable. As identified in Chapter 3, the elements of equitable distribution which determine countries' CDM potential are emission reduction potential and need.¹ The current geographic distribution of projects² is compared to this ideal distribution, with the aim of determining whether or not the current distribution fits this ideal.

The questions this chapter answers are “what is the ideal distribution of CDM projects among countries?” and “is the current distribution of CDM projects equitable?”

¹ As explained in Chapter 3, the element of preferential treatment is not used to determine countries' CDM potential, and so will not be used in this Chapter. Rather, its purpose is to promote a more equitable distribution, by helping countries with the greatest need to fulfil their CDM potential. This element will therefore play a role in the critique of the CDM regime undertaken in Chapter 5.

² In looking at the current distribution of projects, the focus is on the number of projects and no account is taken of the size of projects.

4.2 Emission Reduction Potential

As identified in Chapter 3, one of the elements of equitable geographic distribution is countries' emission reduction potential. This element should be taken into consideration when determining whether a geographic distribution is equitable. Consequently, this section analyses countries' emission reduction potential, as the first step to calculating their CDM potential and ascertaining whether the current distribution of projects matches their potential.

Chapter 3 notes that all developing countries produce GHG emissions. Therefore all have the potential to reduce their GHG emissions. It is however unlikely that every country will be able to host as many projects as it has the potential to, largely due to practical issues, specifically the size of the CDM market. As of November 2010, the CDM generated approximately 390 million CER units annually, which is equivalent to annual reductions of 390 million tonnes of CO₂ equivalents.³ Annual developing country GHG emissions for 2005 are estimated to be about 25 billion tonnes of CO₂ equivalent,⁴ which means that annually, only about 1.36% of developing countries' emissions are being reduced through the CDM. The monetary value of CERs depends on the CDM market and usually varies depending on many factors, such as the type of CERs and whether the investor provides upfront finance or simply buys CERs already issued. However, although there is no set price, according to the World Bank, CER

³ See <http://cdm.unfccc.int/Statistics/index.html> 'CDM Statistics' (UNFCCC, 10/11/2010).

⁴ Data obtained from CAIT Version 7.0. See the CAIT website: <http://cait.wri.org/>.

prices in 2009 averaged US\$12.7 per tonne of CO₂, down from the 2008 average of US\$16.1 per tonne.⁵

This section classifies countries according to their GHG emission reduction potential. This is the first step in the process of calculating countries' CDM potential, in order to determine whether the current distribution of projects is consistent with this potential, and is equitable or inequitable. The data used here is obtained from the World Resources Institute Climate Analysis Indicators Tool.⁶ This database contains the total GHG emissions of all eligible developing countries,⁷ with the exception of Serbia and Montenegro. For these two countries, their 2005 GHG emission levels are computed together and there is therefore no emissions data available for each country - only joint emissions data is available.⁸

The available data however has some shortcomings. For all countries, their total CO₂ emissions data is available up to 2006. For non-CO₂ emissions (such as methane and nitrous oxide), this data is only available up to 2005 and is not available for all countries. In addition, for some countries, their emissions data from land use, land-use change and forestry activities is also not available. However, the CAIT database contains the most up to date and comprehensive information found.⁹ As a result, the

⁵ See A. Kossoy and P. Ambrosi, *State and Trends of the Carbon Market 2010* (Washington: World Bank, 2010), 39.

⁶ CAIT Version 7.0 (2005 data).

⁷ "Eligible developing countries" refers to those countries that are eligible to participate in the CDM, that is, those countries that currently meet the CDM requirements (Protocol ratification and DNA establishment). See Appendix A for a list of these countries. The data is correct as of July 2010.

⁸ This is because the data used is 2005 data, and at this time, Serbia and Montenegro were a single country. The countries became independent of each other in 2006.

⁹ The GHG emissions data submitted by countries themselves as part of their UNFCCC reporting commitments is out of date, as most of the data submitted was for 1994. Although some countries have submitted more recent data, for the majority of countries, the data submitted by them is out of date. See Sixth compilation and synthesis of initial national communications from Parties not included in Annex I to the Convention (FCCC/SBI/2005/18, 25 October 2005), paragraphs 32-34. According to CAIT, the

emissions data for 2005, which is the year with the most comprehensive record of all GHG emissions for all countries, will be used.¹⁰

For ease of analysis, countries will be divided into 5 categories, representing the emission reduction potential of each category: 1 billion tonnes and over (very high); 500 million – 1 billion tonnes (high); 100 million – 500 million tonnes (medium); 1 - 100 million tonnes (low); under 1 million tonnes (very low). The actual GHG emissions values are contained in Appendix B.

Table 1: eligible developing countries and their GHG emission reduction potential

Very High (5)	High (4)	Medium (3)	Low (2)	Very Low (1)
China	Mexico	Nigeria	Turkmenistan	Maldives
Brazil	Republic of Korea	South Africa	Guatemala	Cape Verde
Indonesia	Iran	Saudi Arabia	Kuwait	Antigua & Barbuda
India		Malaysia	Chile	Saint Lucia
		Thailand	Israel	Samoa
		Argentina	Ethiopia	Grenada
		Dem. Republic of the Congo	Syria	
		Myanmar	Zimbabwe	
		Pakistan	Honduras	
		Egypt	Serbia & Montenegro	
		Philippines	Morocco	
		Bolivia	Qatar	
		Uzbekistan	Papua New Guinea	
		Vietnam	Oman	
		Colombia	Singapore	

GHG emissions data is obtained from many sources, including the United Nations, the International Energy Agency, and World Bank. Data for a single country could be drawn from as many as seven sources. See <http://cait.wri.org/faq-about-cait.php#1> 'FAQ: About CAIT' (CAIT, 26/01/2011).

¹⁰ Accessed at <http://cait.wri.org/cait.php?page=yearly&mode=view&sort=country&pHints=shut&url=form&year=2005§or=natl&co2=1&ch4=1&n2o=1&pfc=1&hfc=1&sf6=1&lucf=1>, www.wri.org (CAIT, 30/07/2010).

		Zambia	Azerbaijan	
		United Arab Emirates	Uruguay	
		Peru	Kenya	
		Bangladesh	Cuba	
		Algeria	Nepal	
		Angola	Trinidad & Tobago	
		Ecuador	Tunisia	
		Sudan	Côte d'Ivoire	
		North Korea	Madagascar	
		Tanzania	Uganda	
		Cambodia	Mongolia	
		Cameroon	Yemen	
			Paraguay	
			Dominican Republic	
			Sri Lanka	
			Mozambique	
			Jordan	
			Mali	
			Senegal	
			Ghana	
			Bahrain	
			Chad	
			Lebanon	
			Guinea	
			Burkina Faso	
			Laos	
			Gabon	
			Nicaragua	
			Moldova	
			Jamaica	
			Botswana	
			Namibia	
			Macedonia	
			Benin	
			El Salvador	
			Panama	
			Costa Rica	
			Tajikistan	
			Kyrgyzstan	
			Equatorial Guinea	
			Albania	

			Georgia	
			Mauritania	
			Cyprus	
			Armenia	
			Niger	
			Malawi	
			Togo	
			Guyana	
			Eritrea	
			Rwanda	
			Mauritius	
			Sierra Leone	
			Suriname	
			Malta	
			Fiji	
			Swaziland	
			Burundi	
			Bahamas	
			Guinea-Bissau	
			Liberia	
			Bhutan	
			Lesotho	
			Barbados	
			Gambia	
			Djibouti	
			Belize	

Source of data: CAIT Version 7.0 (2005)

Source of classification: Author

4.3 Need

Chapter 3 identifies the second element of equitable geographic distribution of projects as countries' need or sustainable development potential. In this Section, countries are classified according to their need (sustainable development potential). As explained in Chapter 3, the most complete measurement of countries' development this research was able to identify is UNDP's Human Development Index and it is this

that is used in this section to measure countries' sustainable development.¹¹ The latest HDI data available is for 2007, and it is this data that is used in this section.¹² HDI data is available for all eligible developing countries with the exception of Zimbabwe and the Democratic People's Republic of Korea (North Korea).

UNDP classifies countries into four groups, which are defined based on values, as follows: Low HDI (0.000 to 0.499); Medium HDI (0.500 to 0.799); High HDI (0.800 to 0.899); and Very High HDI (0.900 to 1.000). Currently 75 countries fall into the medium HDI group, while 20-40 countries fall into each of the other groups. Because so many countries fall in the medium HDI group, compared to the other groups, and to make it easier to analyse the data more precisely, this section further splits this group into two. To achieve this, UNDP's low HDI group is renamed "very low HDI" and UNDP's medium HDI group (0.500 – 0.799) is split into two equal groups and these become the low (0.500 – 0.649) and medium (0.650 – 0.799) HDI groups. As a result, this section classifies countries into five groups according to their HDI, which also enables cross comparison with the data on developing country GHG emissions, where countries are also categorised into 5.

The groups and values used by this thesis to categorise countries are as follows: very low HDI = very high need (0.000 to 0.499); low HDI = high need (0.500 to 0.649); medium HDI = medium need (0.650 to 0.799); high HDI = low need (0.800 to 0.899);

¹¹ See the UNDP Human Development Index (HDI) website <http://hdr.undp.org/en/> (UNDP, 30/07/2010).

¹² See 'Human development index 2007 and its components' <http://hdrstats.undp.org/en/indicators/87.html>, <http://hdr.undp.org/en/> (UNDP, 30/07/2010). Although it is possible to use the 2005 HDI data in order to be consistent with countries' GHG emissions data, the 2007 data is a more accurate measurement of countries' current development levels than the 2005 data. As the purpose of this section is not to compare countries' sustainable development potential to their GHG emission reduction potential, but to carry out a comparison among countries, this author determines that it is better in this situation to be accurate.

very high HDI = very low need (0.900 to 1.000). Countries' actual HDI values are contained in Appendix C.

Table 2: eligible developing countries and their sustainable development potential/need

Very Low Need (1)	Low Need (2)	Medium Need (3)	High Need (4)	Very High Need (5)
Singapore	Bahrain	Armenia	Bhutan	Togo
Republic of Korea	Chile	Azerbaijan	Laos	Malawi
Israel	Antigua and Barbuda	Thailand	India	Benin
Kuwait	Argentina	Iran	Cambodia	Côte d'Ivoire
Cyprus	Uruguay	Georgia	Myanmar	Zambia
Qatar	Cuba	Dominican Republic	Yemen	Eritrea
United Arab Emirates	Bahamas	China	Pakistan	Senegal
Barbados	Mexico	Belize	Swaziland	Rwanda
Malta	Costa Rica	Samoa	Angola	Gambia
	Saudi Arabia	Maldives	Nepal	Liberia
	Panama	Jordan	Madagascar	Guinea
	Trinidad and Tobago	Suriname	Bangladesh	Ethiopia
	Montenegro	Tunisia	Kenya	Mozambique
	Malaysia	Jamaica	Papua New Guinea	Guinea-Bissau
	Serbia	Paraguay	Sudan	Burundi
	Saint Lucia	Sri Lanka	Tanzania	Chad
	Albania	Gabon	Ghana	Democratic Republic of the Congo
	Macedonia	Algeria	Cameroon	Burkina Faso
	Grenada	Philippines	Mauritania	Mali
	Brazil	El Salvador	Djibouti	Sierra Leone
	Colombia	Syria	Lesotho	Niger
	Peru	Fiji	Uganda	
	Ecuador	Turkmenistan	Nigeria	
	Mauritius	Indonesia		
	Lebanon	Honduras		
		Bolivia		
		Guyana		

		Mongolia		
		Viet Nam		
		Moldova		
		Equatorial Guinea		
		Uzbekistan		
		Kyrgyzstan		
		Cape Verde		
		Guatemala		
		Egypt		
		Nicaragua		
		Botswana		
		Tajikistan		
		Namibia		
		South Africa		
		Morocco		

Source of data: UNDP HDI (2007)

Source of classification: Author

4.4 CDM Potential and the Current Geographic Distribution of Projects

Having classified countries according to their emission reduction potential and their need (the two criteria for equitable distribution of CDM projects), this thesis then shows the complete CDM potential of all countries. To do this, a simple arithmetic calculation is done using the values assigned to each country grouping in Tables 1 and 2, and adding these numbers to show overall out of 10, what each country's potential is.

Countries are then classified again into 5 groups to show what the distribution of projects among countries should look like, based on their CDM potential. The categories and values used are as follows: very high CDM potential (9-10); high CDM potential (7-8); medium CDM potential (5-6); low CDM potential (3-4); and

very low CDM potential (1-2). This is compared to the current geographic distribution of projects, to show whether or not this distribution is equitable. This is presented in Table 3 below.

The first point to note about this table is that it is intended as a rough representation of countries' CDM potential. It cannot, and is not intended to, be used to determine exactly how many projects countries should host compared to other countries. Instead, the purpose of Table 3 is to provide a guide as to which countries should be performing well under the CDM, due to both their emission reduction potential and need taken together. The ultimate objective is to use this information to reach a conclusion about whether or not those countries that should be doing well are the ones doing well and if not, to ascertain the possible reasons for this. However, the exact number of projects that a particular country can or should host will depend on the country's own emission reduction potential and need.

This is particularly so because, due to countries' varying emission reduction potential, the number of projects they can host will also vary. Therefore, countries which, according to Table 3, have the same CDM potential, are not necessarily expected to host the same number of projects, because, *inter alia*, of their varying emission reduction potentials which determine how many projects they can physically host. For example, although Guinea-Bissau and Iran have the same CDM potential value of 7, this does not mean both countries should host the same number of projects. While Guinea-Bissau has a low emission reduction potential, Iran has a high potential and this necessarily affects the numbers of projects these countries can host. This however does not change the fact that Guinea-Bissau should be performing well under the

CDM because it has a high CDM potential, considering both its emission reduction potential and need. Because Guinea-Bissau has high need, it should receive priority (preferential treatment) to facilitate its participation in the CDM and to enable it to achieve the emission reduction potential that it does have. However, the precise meaning of “well,” in terms of exact number of projects, will depend on the country’s emission reduction potential and how many projects it can physically host. And because the country currently hosts no project and the CDM is only reducing about 1.36% of developing country emissions, it is obvious that the country can, and should, do much better than it is currently doing.

The scale of the projects hosted, whether large- or small-scale, also affects the number of projects a country can host. One single large-scale project can reduce the same amount of greenhouse gas emissions as several small-scale projects, and therefore, when determining how many projects countries can or should host, the size or scale of the projects also play an important role. However, this detail is not provided in Table 3 because it is not relevant to the information the table aims to present – the aim is not to specify how many projects countries should host, but to identify countries’ CDM potential and also to identify those countries doing well under the CDM and those not doing well. Considering that all countries produce GHG emissions and therefore all have the potential to reduce their GHG emissions, but the CDM is only reducing about 1.36% of total developing country emissions, generally, all countries have the potential to host more projects. However, as already explained, to determine the exact number of projects a particular country should host, its emission reduction potential (with necessary deductions made for the volume of emissions already being reduced through the CDM and other means, if any), will require to be taken into consideration.

Consequently, Table 3 does not aim to identify exactly how many projects should be hosted by countries and cannot be used for this purpose. In determining how many projects countries should host, countries' emission reduction potential and their need must both be taken into account, and for instance, a country cannot be expected to host more projects than it has the emission reduction potential to host.

Table 3: Current geographic distribution of projects compared to ideal distribution/prioritisation of hosting

	Country	Potential	Need	CDM Potential	No of Registered Projects
1	India	Very high (5)	High (4)	9 (Very high)	547
2	Democratic Republic of the Congo	Medium (3)	Very high (5)	8 (High)	0
3	China	Very high (5)	Medium (3)	8 (High)	1003
4	Indonesia	Very high (5)	Medium (3)	8 (High)	49
5	Nigeria	High (4)	High (4)	8 (High)	4
6	Zambia	Medium (3)	Very high (5)	8 (High)	1
7	Angola	Medium (3)	High (4)	7 (High)	0
8	Bangladesh	Medium (3)	High (4)	7 (High)	2
9	Benin	Low (2)	Very high (5)	7 (High)	0
10	Brazil	Very high (5)	Low (2)	7 (High)	179
11	Burkina Faso	Low (2)	Very high (5)	7 (High)	0
12	Burundi	Low (2)	Very high (5)	7 (High)	0
13	Cambodia	Medium (3)	High (4)	7 (High)	4
14	Cameroon	Medium (3)	High (4)	7 (High)	1
15	Chad	Low (2)	Very high (5)	7 (High)	0
16	Côte d'Ivoire	Low (2)	Very high (5)	7 (High)	1

17	Gambia	Low (2)	Very high (5)	7 (High)	0
18	Guinea	Low (2)	Very high (5)	7 (High)	0
19	Guinea-Bissau	Low (2)	Very high (5)	7 (High)	0
20	Iran	High (4)	Medium (3)	7 (High)	1
21	Liberia	Low (2)	Very high (5)	7 (High)	0
22	Malawi	Low (2)	Very high (5)	7 (High)	0
23	Mali	Low (2)	Very high (5)	7 (High)	1
24	Mozambique	Low (2)	Very high (5)	7 (High)	0
25	Myanmar	Medium (3)	High (4)	7 (High)	0
26	Niger	Low (2)	Very high (5)	7 (High)	0
27	Pakistan	Medium (3)	High (4)	7 (High)	9
28	Rwanda	Low (2)	Very high (5)	7 (High)	1
29	Senegal	Low (2)	Very high (5)	7 (High)	1
30	Sierra Leone	Low (2)	Very high (5)	7 (High)	0
31	Sudan	Medium (3)	High (4)	7 (High)	0
32	Togo	Low (2)	Very high (5)	7 (High)	0
33	Tanzania	Medium (3)	High (4)	7 (High)	1
34	Algeria	Medium (3)	Medium (3)	6 (Medium)	0
35	Bhutan	Low (2)	High (4)	6 (Medium)	2
36	Bolivia	Medium (3)	Medium (3)	6 (Medium)	4
37	Djibouti	Low (2)	High (4)	6 (Medium)	0
38	Egypt	Medium (3)	Medium (3)	6 (Medium)	6
39	Ghana	Low (2)	High (4)	6 (Medium)	0
40	Kenya	Low (2)	High (4)	6 (Medium)	2
41	Lao	Low (2)	High (4)	6 (Medium)	1
42	Lesotho	Low (2)	High (4)	6 (Medium)	0
43	Madagascar	Low (2)	High (4)	6 (Medium)	1
44	Mauritania	Low (2)	High (4)	6 (Medium)	1
45	Mexico	High (4)	Low (2)	6 (Medium)	123
46	Nepal	Low (2)	High (4)	6 (Medium)	2

47	Papua New Guinea	Low (2)	High (4)	6 (Medium)	1
48	Philippines	Medium (3)	Medium (3)	6 (Medium)	42
49	South Africa	Medium (3)	Medium (3)	6 (Medium)	17
50	Swaziland	Low (2)	High (4)	6 (Medium)	0
51	Thailand	Medium (3)	Medium (3)	6 (Medium)	40
52	Uganda	Low (2)	High (4)	6 (Medium)	2
53	Uzbekistan	Medium (3)	Medium (3)	6 (Medium)	7
54	Viet Nam	Medium (3)	Medium (3)	6 (Medium)	36
55	Yemen	Low (2)	High (4)	6 (Medium)	0
56	Argentina	Medium (3)	Low (2)	5 (Medium)	17
57	Armenia	Low (2)	Medium (3)	5 (Medium)	5
58	Azerbaijan	Low (2)	Medium (3)	5 (Medium)	0
59	Belize	Low (2)	Medium (3)	5 (Medium)	0
60	Botswana	Low (2)	Medium (3)	5 (Medium)	0
61	Colombia	Medium (3)	Low (2)	5 (Medium)	24
62	Dominican Republic	Low (2)	Medium (3)	5 (Medium)	2
63	Ecuador	Medium (3)	Low (2)	5 (Medium)	14
64	El Salvador	Low (2)	Medium (3)	5 (Medium)	6
65	Equatorial Guinea	Low (2)	Medium (3)	5 (Medium)	0
66	Eritrea	Low (2)	Very high (5)	5 (Medium)	0
67	Ethiopia	Low (2)	Very high (5)	5 (Medium)	1
68	Fiji	Low (2)	Medium (3)	5 (Medium)	1
69	Gabon	Low (2)	Medium (3)	5 (Medium)	0
70	Georgia	Low (2)	Medium (3)	5 (Medium)	2
71	Guatemala	Low (2)	Medium (3)	5 (Medium)	11
72	Guyana	Low (2)	Medium (3)	5 (Medium)	1
73	Honduras	Low (2)	Medium (3)	5 (Medium)	16

74	Jamaica	Low (2)	Medium (3)	5 (Medium)	1
75	Jordan	Low (2)	Medium (3)	5 (Medium)	2
76	Kyrgyzstan	Low (2)	Medium (3)	5 (Medium)	0
77	Moldova	Low (2)	Medium (3)	5 (Medium)	4
78	Mongolia	Low (2)	Medium (3)	5 (Medium)	3
79	Morocco	Low (2)	High (3)	5 (Medium)	5
80	Namibia	Low (2)	Medium (3)	5 (Medium)	0
81	Nicaragua	Low (2)	Medium (3)	5 (Medium)	4
82	Paraguay	Low (2)	Medium (3)	5 (Medium)	1
83	Tajikistan	Low (2)	Medium (3)	5 (Medium)	0
84	Peru	Medium (3)	Low (2)	5 (Medium)	22
85	Republic of Korea	High (4)	Very low (1)	5 (Medium)	48
86	Saudi Arabia	Medium (3)	Low (2)	5 (Medium)	0
87	Sri Lanka	Low (2)	Medium (3)	5 (Medium)	7
88	Suriname	Low (2)	Medium (3)	5 (Medium)	0
89	Syria	Low (2)	Medium (3)	5 (Medium)	2
90	Tunisia	Low (2)	Medium (3)	5 (Medium)	2
91	Turkmenistan	Low (2)	Medium (3)	5 (Medium)	0
92	Albania	Low (2)	Low (2)	4 (Low)	1
93	Bahamas	Low (2)	Low (2)	4 (Low)	0
94	Bahrain	Low (2)	Low (2)	4 (Low)	0
95	Cape Verde	Very low (1)	Medium (3)	4 (Low)	0
96	Chile	Low (2)	Low (2)	4 (Low)	38
97	Costa Rica	Low (2)	Low (2)	4 (Low)	6
98	Cuba	Low (2)	Low (2)	4 (Low)	2
99	Lebanon	Low (2)	Low (2)	4 (Low)	0
100	Macedonia	Low (2)	Low (2)	4 (Low)	1
101	Malaysia	Low (2)	Low (2)	4 (Low)	86
102	Maldives	Very low (1)	Medium (3)	4 (Low)	0

103	Mauritius	Low (2)	Low (2)	4 (Low)	0
104	Montenegro	Low (2)	Low (2)	4 (Low)	0
105	Panama	Low (2)	Low (2)	4 (Low)	6
106	Samoa	Very low (1)	Medium (3)	4 (Low)	0
107	Serbia	Low (2)	Low (2)	4 (Low)	0
108	Trinidad and Tobago	Low (2)	Low (2)	4 (Low)	0
109	United Arab Emirates	Medium (3)	Very low (1)	4 (Low)	4
110	Uruguay	Low (2)	Low (2)	4 (Low)	3
111	Antigua and Barbuda	Very low (1)	Low (2)	3 (Low)	0
112	Barbados	Low (2)	Very Low (1)	3 (Low)	0
113	Cyprus	Low (2)	Very low (1)	3 (Low)	6
114	Grenada	Very low (1)	Low (2)	3 (Low)	0
115	Israel	Low (2)	Very low (1)	3 (Low)	17
116	Kuwait	Low (2)	Very low (1)	3 (Low)	0
117	Malta	Low (2)	Very low (1)	3 (Low)	0
118	Qatar	Low (2)	Very low (1)	3 (Low)	1
119	Saint Lucia	Very low (1)	Low (2)	3 (Low)	0
120	Singapore	Low (2)	Very low (1)	3 (Low)	1
121	Democratic People's Republic of Korea	Medium (3)	NA	NA	0
122	Zimbabwe	Low (2)	NA	NA	0

Source: Author

Source of project data: CDM Pipeline (November 2010)

4.5 Analysis of the Geographic Distribution of CDM Projects

Table 3 above shows clearly the countries with the highest CDM potential. Thirty-three countries fall into the category of those with the highest CDM potential (those with very high and high CDM potential), comprising countries from all regions. Within this category are those hosting the largest number of projects (such as India, China and Brazil), and this is as it should be. On the other hand, of this number, only about half (16 countries) currently host projects and this hosting is extremely skewed. It ranges from China hosting 1003 projects, to countries like Mali and Iran hosting 1. The other 17 countries, such as Democratic Republic of the Congo, Angola and Myanmar, host no projects at all.

This skewed distribution cannot be explained solely by the GHG emission reduction potential of countries. Although the countries that are currently performing well are among those with the highest GHG emission reduction potential,¹³ many of the countries that also have relatively high potential are underperforming¹⁴ particularly when compared to other countries in the same category¹⁵ or those in a lower category.¹⁶ Therefore the current distribution of projects cannot be justified on the basis of countries' emission reduction potential.

It also cannot be explained by countries' need, as the current distribution of CDM projects does not match with that required by the element of need. The groups of countries with the greatest need (such as those with high and very high need, shown in

¹³ For example, China, Brazil, Indonesia, India, Mexico and the Republic of Korea are the countries with the highest GHG emissions and they are among the countries with the largest number of CDM projects.

¹⁴ Such as Iran (1 project), Nigeria (3 projects) and Cambodia (4 projects).

¹⁵ Such as the Philippines (41 projects) or Malaysia (83 projects).

¹⁶ Such as Chile (37 projects).

Table 2) are actually hosting the least number of projects, with most of them not hosting any project. Therefore considering both GHG emission reduction potential and need separately, neither of these elements explains the current distribution of CDM projects.

Also taking both indicators together, the distribution of projects is still inequitable. Out of the 33 countries with the highest CDM potential, 24 are in the African region. However, these 24 countries only host a total of 11 projects out of the 1805 hosted by the countries in the category of those with the highest potential. Many of these countries (such as Zambia and Nigeria) have relatively high emissions and some of them (such as the Democratic Republic of the Congo and Zambia) are also among those with the greatest need because they have the lowest HDI. Despite this, many of them are not hosting projects or not hosting as much as their potential would allow. This again is patently inequitable, considered both on an individual country basis and a regional basis.¹⁷

Table 3 shows also that many of the countries (such as Mexico, the Philippines, Thailand and Viet Nam) currently performing very well under the CDM are not among those with the highest CDM potential. In fact, countries like Israel, Malaysia and Chile have among the lowest CDM potential, but relatively high number of projects. This again cannot be explained by either their GHG emission reduction potential (relatively low) or their need (very low or low). In relation to those countries with higher CDM potential, the conclusion must be that this distribution is not equitable.

¹⁷ See the regional analysis of the distribution of CDM projects on pages 6-7 above.

It is therefore reasonable to conclude, based on the data set out above, that the current geographic distribution of CDM projects is inequitable.

4.6 Conclusion

This chapter examined the current distribution of projects among countries with the aim of determining whether this distribution is equitable or inequitable. The conclusion reached is that it is inequitable. The current distribution cannot be explained by countries' GHG emission reduction potential because many countries with relatively high levels of GHG emissions are underperforming, whereas some countries with relatively low GHG emission levels are performing well under the CDM. Likewise, the current distribution cannot be explained by countries' need, because most of the countries with the highest need are underperforming, while some countries with the lowest levels of need are actually doing well under the CDM. Consequently, the conclusion is that the distribution is inequitable and the reason for this inequity cannot be found solely in countries' emission reduction potential or need.

In order to address the problem of the inequitable geographic distribution of projects, it is necessary to ascertain the cause(s) of the problem, so that efforts can be targeted at these causes. This is what the next chapter sets out to do: to identify the main reasons for the inequitable geographic distribution of CDM projects.

CHAPTER FIVE

Distribution of CDM Projects in Practice – Barriers to Equitable Distribution

5.1 Introduction

In Chapter 4, the elements of equitable distribution of CDM projects identified in Chapter 3 (emission reduction potential and need) are used to determine whether the current distribution of projects is equitable or inequitable. The conclusion reached is that the current distribution of projects is inequitable, because the distribution does not fit with these elements. Following this conclusion, this chapter identifies the reasons for this inequitable distribution. Specifically, this chapter examines the current CDM regime to: determine the barriers to the equitable distribution of CDM projects; and ascertain whether the current CDM regime can support an equitable distribution of projects. To achieve these objectives, the chapter undertakes a further critique of the CDM legal regime. This is carried out using the second component of the analytical framework set up in Chapter 3, that is, the factors for achieving equitable distribution (emission reduction potential, need and preferential treatment), to assess whether the regime supports, or can support, an equitable distribution of projects in the way it (the regime) is set up or operates. The chapter also concludes as to whether there are aspects of the regime that prevent achievement of equitable distribution.

Through a review of relevant literature, this chapter first identifies the barriers to equitable distribution of projects, which are: the CDM participation requirements; lack of capacity and local expertise; finance and other cost-related barriers; the size of projects; the market-based nature of the CDM; and the unilateral CDM structure. Some of these barriers might appear to

refer to the same thing, but as used within the CDM regime and in this thesis, they refer to different issues. Specifically, lack of capacity and local expertise, and the size of projects, might appear to both refer to some form of potential. However, as explained further below, lack of capacity and local expertise refers, *inter alia*, to lack of technical expertise to implement projects, lack of awareness and an unattractive investment climate. The size of projects, as a barrier to equitable distribution, refers to the fact that some investors prefer to invest in large-scale projects and this is a disadvantage for countries that have more opportunities for small-scale projects and limited opportunities for large-scale projects. Potential, on the other hand, refers to emission reduction potential generally, determined by countries' levels of GHG emissions, and is irrespective of whether the potential is for both small- and large-scale projects or for only one or the other. In this sense, potential is not a barrier, but an element of equitable distribution.

While little effort has gone into addressing some of these barriers, for others, such as lack of capacity and cost-related barriers, attempts are being made to address them within the regime through various initiatives like payment exemptions (to address cost-related issues) and capacity building initiatives, such as the Nairobi Framework. These initiatives, together with the barriers, are analysed in this chapter and the factors for achieving equitable distribution are used to undertake this analysis, with the specific aim of identifying the reasons for the inequitable distribution of projects and determining whether enough is being done to address this problem. As identified in Chapter 3, the factors for achieving equitable distribution of CDM projects are potential, need and preferential treatment. For each initiative discussed, this chapter will identify whether, and the extent to which, the initiative adequately considers these factors.

The question this chapter answers is whether the CDM regime can achieve an equitable distribution of CDM projects among developing countries, given its current structure and operation.

5.2 *Barriers to Equitable Distribution and Solutions*

Some of the barriers to participation in the CDM and equitable distribution of projects are internal to the countries involved, and include barriers that would affect any kind of investment. Examples of such internal barriers are corruption, lack of security, poor governance structures, conflict and political instability, all of which lead to high investment risks.¹ These internal barriers to investment are beyond the ability of the CDM regime to address, and so will not be discussed in this chapter, as modifications to the CDM regime itself at the international level cannot address these barriers. However, many other barriers stem from the institutional makeup of the CDM itself and are issues that the international CDM regime can address, such as lack of capacity and lack of financing opportunities. These CDM barriers are the focus of this chapter.

Nevertheless, before moving on, it is important to show that the internal barriers (that is, the barriers internal to the countries themselves, such as corruption and government instability) are not the key or sole reasons for the inequitable distribution of CDM projects. This is

¹ See generally, M. Habib and L. Zurawicki, 'Corruption and foreign direct investment' (2002) 33 *J. Int'l Bus Studies* 291, which highlights the impact of corruption on foreign direct investment; M. Busse and C. Hefeker, 'Political risk, institutions and foreign direct investment' (2007) 23 *European J. Pol. Econ.* 397, which concludes that significant determinants of foreign investment inflows include government stability, internal and external conflict, corruption and ethnic tensions, law and order, democratic accountability of government, and quality of bureaucracy; S. Globerman and D. Shapiro, 'Global foreign direct investment flows: the role of governance infrastructure' (2002) 30 *World Development* 1899, which highlights the importance of governance infrastructure to FDI inflows and outflows; and C. Dupasquier and P.N. Osakwe, 'Foreign direct investment in Africa: Performance, challenges, and responsibilities' (2006) 17 *J. Asian Econ.* 241, which identify political and macroeconomic instability, low growth, weak infrastructure, poor governance, inhospitable regulatory environments, and ill-conceived investment promotion strategies, as responsible for the limited FDI flows into Africa.

because if the inequitable distribution of projects is primarily because of these internal barriers, and, as noted above, the CDM regime cannot address these barriers, then the conclusion would have to be that the CDM regime cannot address the problem of inequitable distribution of projects.

Statistics show that although many countries do have internal barriers to investment, this has not stopped some of them from performing well under the CDM. In addition, some of the countries that are actually doing well in terms of their internal governance structures are under-performing under the CDM. For instance, Botswana, Cape Verde, Mauritius, the United Arab Emirates, Uruguay and Qatar are performing relatively well in terms of the World Bank's governance indicators,² which are: voice and accountability,³ political stability, government effectiveness, regulatory quality, rule of law and control of corruption.⁴ Nevertheless, these countries are not doing well under the CDM: Botswana, Cape Verde and Mauritius do not host any project; Qatar hosts just one; and the United Arab Emirates hosts 4. The Republic of Korea and Israel, whose good governance rankings are similar to these countries', host 48 and 17 projects, respectively. Mexico and the Philippines have much worse rankings, but they host 123 and 42 projects, respectively. China, which hosts almost half of all registered projects (1003), ranks low compared with many other countries, such as Brazil (179), South Africa (17), Bhutan (2) and Lesotho (0), but this has not stopped it from

² For the World Bank good governance indicators, see <http://info.worldbank.org/governance/wgi/index.asp> 'The Worldwide Governance Indicators (WGI) project' (World Bank, 22/03/2011). See generally, D. Kaufmann *et al.*, 'The worldwide governance indicators: methodology and analytical issues' (September 2010) <http://siteresources.worldbank.org/INTMACRO/Resources/WPS5430.pdf>, www.worldbank.org (16/11/2010). On good governance, see also International Monetary Fund, 'Good governance – the IMF's role' (August 1997) <http://www.imf.org/external/pubs/ft/exrp/govern/govern.pdf>, www.imf.org (22/02/2011); C. Santiso, 'Good governance and aid effectiveness: the World Bank and conditionality' (2001) 7 *Georgetown Public Policy Review* 1; and UNDP, 'Governance for Sustainable Human Development' (1997) <http://mirror.undp.org/magnet/policy/>, www.undp.org (22/02/2011).

³ These refer to the perception of how much a country's citizens are able to participate in selecting their government, as well as freedom of expression and association, and a free media. See Kaufmann *et al.*, *Ibid*, at 4.

⁴ These countries are performing well for most, though not necessarily all of the statistics. But in comparison to other developing countries, they *are* performing very well.

being the single largest CDM host country and doing far better than these other countries. Even though some of these difference can be explained by the varying levels of emission reduction potential and/or need in these countries, not all can. For example, South Africa has more emission reduction potential and greater need than the Philippines,⁵ South Africa's governance ranking by the World Bank is higher than that of the Philippines, but while South Africa hosts 17 projects, the Philippines hosts more than double this number – 42 projects.⁶

These statistics suggest that while internal structures and barriers may play a part in determining the distribution of CDM structures, there are other, probably more important, considerations that investors look out for, and these internal barriers are not the overriding barrier to CDM participation. Therefore, this chapter determines what the other barriers to equitable distribution are and also identifies the key barriers to equitable distribution, arising from the CDM regime itself.

5.2.1 CDM Participation Requirements

Participation in the CDM is regulated by the Convention, the Protocol and the COP/MOP.⁷ These establish the rules regarding eligibility to participate in the CDM, the kinds of activities that qualify as CDM projects and other relevant issues. As discussed in Chapter 2, there are three requirements that all countries, both developed and developing, must fulfil to be eligible to participate in the CDM. These are ratification of the Kyoto Protocol,

⁵ In absolute values. See Appendixes A and B for countries' GHG emission reduction and HDI values. In the classification in Chapter 4, both have the same emission reduction potential and need rankings (as these rankings cover a range of values).

⁶ All governance statistics are for 2009 (the latest available) and are available at http://info.worldbank.org/governance/wgi/sc_country.asp 'Access governance indicators' (World Bank, 23/03/2011). Even computing beyond 2009, the conclusion remains that governance is not the key barrier to equitable distribution. For example, comparing South Africa's and the Philippines' governance indicators for 2007, 2008 and 2009, South Africa has consistently ranked higher, but the Philippines is still performing better under the CDM.

⁷ See Kyoto Protocol, Article 12(4). See generally the discussion in Chapter 2.

establishment of a designated national authority (DNA) and confirmation of voluntary participation.⁸

Firstly, only countries that have ratified the Kyoto Protocol can participate in the CDM.⁹ These countries may also authorise private entities within their jurisdictions to participate in the CDM.¹⁰ Secondly, countries must establish a DNA for the CDM,¹¹ which will serve as a point of contact within that country for information on the CDM.¹² Thirdly, countries' participation in the CDM must be voluntary, and each country involved must approve its participation in the particular CDM project.¹³ This is usually done by the DNA of the country, which issues a letter of approval confirming that the country participates voluntarily in the CDM.¹⁴

Accordingly, any country must fulfil these requirements to be eligible to participate in the CDM. Because of this, one author concluded that these requirements effectively mean that the CDM is not available to all developing countries.¹⁵ This might be factual, but it does not necessarily point to inequity. The CDM was set up for very specific reasons and has very specific rules. The CDM rules, modalities and guidelines, including the participation

⁸ See the discussion in Chapter 2.

⁹ See Decision 3/CMP.1, Annex, paragraphs 30 and 31(a).

¹⁰ See Kyoto Protocol, Article 12(9) and Decision 3/CMP.1, Annex, paragraph 33.

¹¹ Decision 3/CMP.1, Annex, paragraph 29

¹² Examples of DNAs include: in the UK, the Department for Environment, Food and Rural Affairs (DEFRA) acts as the DNA (see www.defra.gov.uk) and in India, the DNA is a body specifically constituted for the purpose – the National Clean Development Mechanism Authority (see the India CDM website <http://cdmindia.nic.in>).

¹³ See Kyoto Protocol, Article 12(5)(a) and Decision 3/CMP.1, Annex, paragraph 28.

¹⁴ The letters of approval issued by DNAs for CDM projects are on the CDM website under the description of each CDM project. See <http://cdm.unfccc.int/Projects/projsearch.html>, www.unfccc.int (UNFCCC, 16/11/2010).

¹⁵ See Silayan, *supra* Chapter 1, note 50, at 22, where he states that the requirements hindered participation of 67% of developing countries. This is as of 2005, and since then, more developing countries have become eligible to participate in the CDM – 117 (77% of developing countries) as opposed to the 44 identified by Silayan.

requirements, are *inter alia* designed to ensure the environmental integrity of the CDM.¹⁶ In addition, these requirements do not seem particularly or unreasonably onerous and do not seem to have had a significant effect on CDM hosting.¹⁷ For example, as of November 2010, there are 152 developing country Parties to the Kyoto Protocol. The only developing country that has not ratified the Protocol is Afghanistan.¹⁸ 123 of the 152 developing country Parties have established DNAs.¹⁹ However, only 69 are CDM hosts.²⁰ This means that although over 80% of developing countries (123 out of 152 developing countries) are eligible to participate in the CDM, only 45% of them currently do (56% of eligible countries). In practice therefore, the participation requirements probably do not significantly affect the distribution of CDM projects, considering that most developing countries are currently eligible to participate in the CDM but less than half do.

Nevertheless, the fact remains that about 30 developing countries are currently not eligible to participate in the CDM – 1 (Afghanistan) because it is not a party to the Protocol, and 29 because they have not established DNAs. Therefore, to a limited extent, the CDM participation requirements act as a barrier, not to equitable distribution of projects, but to CDM hosting by those countries that have not fulfilled the requirements. Of the 29 that have

¹⁶ See Decision 2/CMP.1, 'Principles, nature and scope of the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol' (FCCC/KP/CMP/2005/8/Add.1, 30 March 2006), Preamble, paragraph 7.

¹⁷ The situation has changed since the article referred to was written, and many more developing countries are now eligible to host CDM projects.

¹⁸ See http://unfccc.int/parties_and_observers/parties/items/2352.php 'Parties to the Convention and Observer States' and http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php 'Status of ratification of the Kyoto Protocol' (UNFCCC, 09/11/2010).

¹⁹ See <http://cdm.unfccc.int/Statistics/Registration/RegisteredDNAPieChart.html> 'Designated National Authorities' (UNFCCC, 09/11/2010) and <http://cdm.unfccc.int/DNA/index.html> 'Designated National Authorities' (UNFCCC, 09/11/2010). See generally the discussion in Chapter 2.

²⁰ Information correct as of 16/11/2010. See 'Registered projects by host party' <http://cdm.unfccc.int/Statistics/Registration/NumOfRegisteredProjByHostPartiesPieChart.html> (UNFCCC, 16/11/2010).

not established DNAs, 10 are least developed countries (LDCs)²¹ and so are among the countries with the greatest need. Many of them also have sufficient GHG emission reduction potential to make their participation in the CDM worthwhile.²² This could therefore suggest the need to assist these countries, particularly the LDCs among them, to fulfil the participation requirements, in order to make them eligible to participate in the CDM and begin to enjoy its sustainable development benefits. Such assistance can, for example, be in the form of building the capacity of these countries to establish DNAs.²³

5.2.2 Lack of Capacity and Local Expertise

Description of Barrier

There are two different elements to hosting CDM projects which may impact on the equitable distribution of projects: the CDM-specific element and the general investment/project element. CDM-specific issues arise out of the need to comply with the various CDM modalities and procedures when developing and implementing CDM projects.²⁴ These modalities and procedures relate to activities such as selecting and applying baseline methodologies to establish baselines, proving additionality and preparing the necessary

²¹ Central African Republic, Comoros, Haiti, Kiribati, Sao Tome and Principe, the Solomon Islands, Somalia, Timor-Leste, Tuvalu and Vanuatu. The other 19 are Bosnia & Herzegovina, Brunei Darussalam, Republic of Congo, the Cook Islands, Dominica, Iraq, Kazakhstan, Libya, the Marshall Islands, the Federated States of Micronesia, Nauru, Niue, Palau, Saint Kitts and Nevis, Saint Vincent and the Grenadines, San Marino, Seychelles, Tonga and Venezuela.

²² With the exception primarily of most of the small island developing States (SIDS), such as Comoros, Kiribati, Sao Tome and Principe, the Cook Islands and Dominica, most of these countries have the potential to reduce their emissions, with some such as Venezuela, Kazakhstan and Iraq, having substantial emission reduction potentials. See CAIT Version 7.0 (2005 data).

²³ See the discussion of capacity building in Section 5.2.2 below.

²⁴ The rules relating to the CDM are provided by the COP/MOP and the CDM Executive Board. The basic rules can be found in the early decisions of the COP/MOP: Decision 3/CMP.1, 'CDM Modalities and Procedures'; Decision 5/CMP.1, 'Modalities and procedures for CDM afforestation and reforestation project activities in the first commitment period of the Kyoto Protocol'; and Decision 6/CMP.1, 'Simplified modalities and procedures for small-scale afforestation and reforestation project activities under the CDM in the first commitment period of the Kyoto Protocol and measures to facilitate their implementation.' In addition to these, there are various other rules that must be complied with by project developers and other project participants. See generally Lee, *supra* Chapter 2, note 12, at Chapters 4-6.

project documentation such as the project design documents, as well as other issues such as an effective DNA, general CDM awareness and willingness to participate in the CDM.²⁵ General investment issues are those that would affect normal investments (not just CDM projects), and relate to the underlying project.²⁶ They include the legal and regulatory framework for investment within the host developing country, political stability and adequate infrastructure, such as transportation and telecommunications facilities.²⁷ Lack of capacity in these two areas (that is, lack of CDM-specific and general investment capacity) has been identified as one of the barriers to CDM hosting and equitable distribution of projects.²⁸ However, this section focuses on the CDM-specific capacity issues because, as noted above, this chapter focuses on the barriers that stem from the CDM's institutional makeup as it is these that the CDM regime can effectively address. Issues such as political stability and

²⁵ See UNDP, *supra* Chapter 1, note 28; Silayan, *supra* Chapter 1, note 50, at 25-32; and Ellis and Kamel, *supra* Chapter 2 note 50, at 27-30.

²⁶ CDM projects are essentially normal projects with added CDM elements. An example is a CDM project involving the construction of a hydroelectric power plant to provide electricity to a particular province, to replace the fossil fuel-generated electricity currently in use. Apart from the CDM rules (such as establishing a baseline and proving additionality), such a project would generally also have to comply with the host country's rules that would apply to any other project for the installation and operation of a hydroelectric power plant (although some countries may give special concessions to CDM projects). See J. Morisset and O.L. Neso, 'Administrative barriers to foreign investment in developing countries' (2002) http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2002/06/24/000094946_02061104142385/Rendered/PDF/multi0page.pdf, www.worldbank.org (27/01/2010). For some of the host country legal issues that would affect CDM projects, see P. Curnow and G. Hodes (eds.), *Implementing CDM Projects: Guidebook to Host Country Legal Issues* (UNEP: Roskilde, 2009).

²⁷ See generally Curnow and Hodes, *supra* note 26, at Chapter 4; Ellis and Kamel, *supra* Chapter 2, note 50; S. Jackson and S. Markowski 'The attractiveness of countries to foreign direct investment' (1995) 29 *J. World Trade* 159; B. Seyoum, 'The impact of intellectual property rights on foreign direct investment' (1996) 31 *Colum J. World Buss* 50; and R.J. Hunter *et al.*, 'Legal considerations in foreign direct investment' (2003) 28 *Oklahoma City Univ. L. Rev.* 851.

²⁸ See Prouty, *supra* Chapter 2, note 50, at 523; and S. Lutzeyer 'Climate trading: the clean development mechanism and Africa' (2008) 12 *Stellenbosch Economic Working Papers* 1, 27. According to Boyd *et al.*, 'the constituents of a successful "enabling environment" for foreign direct investment, such as macroeconomic and political stability, institutional predictability, legal competence in contract law and enforcement, and regulatory and business transparency' appear to 'mirror the variables that explain variation in CDM investment across different countries.' See E. Boyd *et al.*, 'The clean development mechanism: an assessment of current practice and future approaches for policy' (2007) <http://www.tyndall.ac.uk/sites/default/files/wp114.pdf>, www.tyndall.ac.uk (23/07/2010), 23.

regulatory and business transparency go beyond what the CDM regime can address, and in any case, as noted above, are probably not the key barriers to equitable distribution.²⁹

Regarding lack of CDM capacity as a barrier to CDM development, Ellis and Kamel highlight that the CDM framework within host countries is an important factor that can help or hinder CDM project development.³⁰ This is because the various elements of CDM project development and implementation could be fairly technical and complicated and require a degree of expertise to act within the rules.³¹ For example, Pakistan identified lack of project development capacity as a barrier to CDM hosting in the country.³²

Specifically, lack of CDM capacity has been identified as a barrier to CDM development in some groups of countries, such as LDCs and African countries.³³ Lutzeyer points out that most African countries find it difficult to fulfil CDM registration requirements such as conducting project baseline studies and fulfilling approved methodologies due to a lack of local infrastructure and qualified personnel.³⁴ Ellis and Kamel also highlight lack of CDM knowledge at the project origination level (that is, among those that should ordinarily originate projects, such as rural electrification and solid waste management practitioners) and lack of adequate CDM information among financial intermediaries, as barriers to CDM hosting in some regions such as sub-Saharan Africa.³⁵

²⁹ See pages 179-180 above.

³⁰ See Ellis and Kamel, *supra* Chapter 2 note 50, at 25.

³¹ See <http://cd4cdm.org/Publications/OverviewUNEPsCDMActivities.pdf> 'Enhancing a more equitable regional distribution of CDM project activities: overview of UNEP's CDM activities' (CD4CDM, 21/01/2010); Ellis and Kamel, *supra* Chapter 2 note 50; Brunt and Knechel, *supra* Chapter 3, note 474, at 5; and Kimura *et al.*, *supra* Chapter 3, note 474, at 35, 37-38.

³² See the submission of Pakistan to the COP/MOP, in 'Equitable distribution of clean development mechanism project activities: submissions from Parties' (FCCC/KP/CMP/2006/MISC.1, 14 August 2006), 8. See also Prouty, *supra* Chapter 2, note 50, at 523; and Ellis and Kamel, *supra* Chapter 2 note 50, at 29.

³³ See Lutzeyer, *supra* note 28, at 27; Ellis and Kamel, *supra* Chapter 2 note 50, at 29; and Oppenoorth *et al.*, *supra* Chapter 2, note 60, at 18.

³⁴ Lutzeyer, *supra* note 28, at 27.

³⁵ See Ellis and Kamel, *supra* Chapter 2 note 50, at 29-30.

One point to be made is that the real barrier to equitable distribution might be a *perception* of lack of capacity, rather than an actual lack of capacity. This is because there does not appear to have been any comprehensive study of the technical capacity of all developing countries to host CDM projects.³⁶ While there is some information available about the general investment climate in many countries, this information is either not comprehensive or does not cover all countries. For example, the World Bank's indicators of good governance do not specifically cover technical capacity in a comprehensive manner, even though they could help with the evaluation of the general investment climate of countries.³⁷ Even the World Bank's Investment Climate Assessments: have only been carried out for some developing countries; and mostly do not assess CDM capacity – although they cover the general investment climate in these countries.³⁸ In her paper on host country attractiveness for CDM non-sink projects, Jung uses ratification of the Kyoto Protocol, participation in the Activities Implemented Jointly pilot phase, timely establishment of a DNA and completion of a National Strategy Study as indicators of a country's institutional CDM capacity.³⁹ However, although these may form part of countries' capacity, they do not represent every aspect of countries' capacity. In fact, two of these indicators – Protocol ratification and DNA establishment – are

³⁶ In the course of this research, no such comprehensive study could be identified or obtained. Although there is a lot of literature asserting lack of capacity as a barrier to CDM hosting in certain countries, groups of countries or regions, often this literature is based on other literature (rather than studies) or on evidence showing a lack of capacity in specific countries, making such evidence insufficient to prove a general lack of capacity. See for example, Ellis and Kamel, where the authors often rely on other literature or on interviews conducted with specific companies, and which generally only relate to a handful of countries. See Ellis and Kamel, *supra* Chapter 2 note 50, at 29-30. See also G.R. Timilsina *et al.*, 'Clean development mechanism potential and challenges in sub-Saharan Africa' (2010) 15 *Mitigation and Adaptation Strategies for Global Change* 93, 105-106, where the authors identify the methodologies used to assess CDM potential in sub-Saharan Africa, but do not specifically identify the source of the information about the challenges.

³⁷ See the discussion of the World Bank's governance indicators on pages 179-180 above.

³⁸ See the World Bank's Investment Climate Assessments, available at <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/EXTAFRSUMAFTPS/0,,contentMDK:20763282~menuPK:2153382~pagePK:51246584~piPK:51241019~theSitePK:2049987,00.html> (World Bank, 26/01/2010).

³⁹ Jung, *supra* Chapter 3, note 68.

actually participation requirements and rather than measuring countries' capacity, they determine countries' eligibility to participate in the CDM. Therefore, although it is not disputed that many countries probably lack sufficient capacity to register and implement CDM projects, there is a need for a comprehensive study to determine countries' capacity, *inter alia* to enable targeted and effective capacity building to be undertaken.⁴⁰

The primary reason why lack of capacity, particularly project development capacity, constitutes a barrier to CDM hosting and the equitable distribution of projects is the unilateral nature of many CDM projects.⁴¹ In the unilateral CDM structure, developing country entities themselves develop and implement projects, rather than with developed country support, as was originally envisaged.⁴² As a result of this, those that lack the capacity to develop and implement projects are under-performing in the CDM market which is currently dominated by unilateral projects.⁴³ In addition, it must be noted that one of the objectives of the CDM, as already discussed, is to promote sustainable development,⁴⁴ and the CDM is *inter alia* expected to facilitate technology transfer and capacity building in developing countries.⁴⁵ Particularly in relation to the ability to actually implement CDM projects, current inability or limited ability to do so should not constitute a reason for not implementing CDM projects in

⁴⁰ Capacity building should be undertaken in countries that lack sufficient capacity and that have the greatest need. Such capacity building will form part of the preferential treatment that should be given to these countries to enable a more equitable distribution of projects. See the discussion in Chapter 3, Section 3.6.1.

⁴¹ See the discussion below of the unilateral CDM structure as a barrier to equitable distribution. See Chapter 2 for a discussion of the CDM structure, including the unilateral, bilateral and multilateral CDM structures.

⁴² See the discussion in Section 5.2.6 below. See generally M. Jahn *et al.*, 'Climate protection programme: unilateral CDM – chances and pitfalls' (2003) <http://www.gtz.de/de/dokumente/en-climate-unilateral-cdm.pdf> www.gtz.de (04/02/2010).

⁴³ Baumert *et al.*, *supra* Chapter 2, note 51, at 7, for example point out that generally, the unilateral CDM would be attractive to countries with sufficient capacity and resources to select, develop, finance, and operate CDM projects. See also A. A. Niederberger and R. Saner, 'Exploring the relationship between FDI flows and CDM potential' (2005) 14 *Transnational Corporations* 1, 6; and Michaelowa, *supra* Chapter 2, note 62, at 13. See generally the discussion of the unilateral CDM structure in Section 5.2.6 below.

⁴⁴ See the discussion in Chapter 2.

⁴⁵ See for example Birnie *et al.*, *supra* Chapter 1, note 15, at 365; and Sari and Meyers, *supra* Chapter 2, note 61.

these countries. On the contrary, it should be seen as a measure of their sustainable development potential and such technical capacity should be built both through capacity building and by “learning-by-doing.”⁴⁶

It cannot however be denied that many countries lack sufficient capacity to develop and implement CDM projects compared to other countries, and that this negatively impacts on their attractiveness to CDM investors. This capacity barrier to equitable distribution of CDM projects primarily undermines the “need” factor for achieving equitable distribution because the countries with the lowest human development and greatest need are often those with the least capacity and expertise. It also undermines the “potential” factor because many of the countries that lack the capacity to effectively participate in the CDM and are therefore affected by this capacity barrier, such as LDCs and sub-Saharan African countries among others,⁴⁷ do have sufficient emission reduction potential to participate in the CDM.⁴⁸

Recognising that lack of capacity is a barrier to CDM hosting, various international organisations have capacity building programmes aimed at enhancing countries’ CDM capacity.⁴⁹ For example, UNEP’s Capacity Development for the Clean Development Mechanism (cd4cdm) project was established to build developing country capacity to participate in the CDM, and the project organises training workshops and publishes CDM

⁴⁶ See the World Bank’s brochure for Community Development Carbon Fund Plus <http://wbcarbonfinance.org/Router.cfm?Page=CDCF&FID=9709&ItemID=9709&ft=Plus#Top> (World Bank, 25/01/2010), where the World Bank notes that “the experience gained from the first and second carbon finance transactions is essential for building the capacity of government agencies, small and medium enterprises, NGOs, and intermediaries to participate in the emerging carbon market.” It also highlights the importance of building capacity through “learning by doing.”

⁴⁷ See notes 33, 34 and 35 above.

⁴⁸ Most of these countries fall in the medium emission reduction potential category and others fall in the low potential category. See the classification of countries according to their emission reduction in Chapter 4, Table 1.

⁴⁹ See generally Silayan, *supra* Chapter 1, note 50, at 65-73, for a list of various capacity building programmes.

guidebooks to help achieve this objective.⁵⁰ Other institutions and [developed] countries also provide capacity building to developing countries to *inter alia* build their CDM capacity, both within and outside the CDM framework.⁵¹ In addition to these external programmes, several initiatives have been launched within the CDM framework to build developing countries' capacity to host projects. These initiatives are examined below, and the extent to which they have succeeded in their goal of building CDM capacity is also analysed.

Mechanisms for Addressing the Capacity Barrier under the CDM Framework

a) The Nairobi Framework: the Nairobi Framework was launched at COP/MOP 2 in November 2006, with the aim of helping all developing countries, especially those in sub-Saharan Africa, to improve their participation in the CDM. The Framework was first announced by the UN Secretary-General during his address at the Conference.⁵² It was initiated by five agencies - the UNFCCC Secretariat, the UN Environment Programme, the UN Development Programme, the African Development Bank and the World Bank. The UN Conference on Trade and Development and the UN Institute for Training and Research subsequently joined the initiative, bring the total number of Nairobi Framework partner

⁵⁰ See <http://www.cd4cdm.org/index.htm> (UNEP CD4CDM, 26/01/2010). See also the UNEP Risoe Centre's CDM capacity building activities, at <http://www.uneprisoe.org/CDMCapacityDev/index.htm> (UNEP Risoe Centre, 26/01/2010).

⁵¹ For example, the Institute for Global Environmental Strategies (IGES), established by an initiative of the Japanese Government, runs the CDM Programme, which provides CDM capacity building to developing countries in Asia. See <http://www.iges.or.jp/en/cdm/index.html> 'Market mechanism (CDM programme)' (IGES, 26/01/2010). For a description of the various capacity building activities undertaken by the UN Industrial Development Organization (UNIDO), see 'CDM Project Activities/Capacity Building' <http://www.unido.org/index.php?id=o7184800> (UNIDO, 09/02/2010). The World Bank's Carbon Finance Assist programme is a "consolidated capacity building and technical assistance" programme which aims to enhance capacity and expertise of host countries to *inter alia* participate in the CDM. See <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,,contentMDK:21849454~menuPK:5232931~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html> 'Capacity building' (World Bank, 09/02/2010).

⁵² <http://www.un.org/apps/sg/sgstats.asp?nid=2303> 'Secretary-General's Address to the UN Climate Change Conference' (UN, 26/02/2010). See also Decision 1/CMP.2, Paragraph 37.

agencies to 7. The aim of the Framework is *inter alia* to “catalyse the CDM in Africa”⁵³ and it has five objectives, all aimed at enhancing different aspects of CDM capacity. The objectives of the Nairobi Framework are to: build and enhance DNA capacity; build capacity to develop CDM projects; promote investment opportunities for projects; improve information sharing, outreach and exchange of views on activities, as well as education and training; and enhance inter-agency coordination.⁵⁴ The UNFCCC Secretariat has also identified some of the possible elements of each of these objectives, based on the needs to be addressed by the Framework and also identified some of the activities that could be undertaken to achieve the objectives.⁵⁵ In recognition of their limited CDM capacity and to help increase their participation in the CDM, the Framework aims to build the capacity of African countries to identify, develop, submit and process CDM projects.⁵⁶ This essentially means building their capacity to go through the CDM project cycle.

The Framework operates through each partner agency, either individually or in partnership with others, undertaking activities in support of the Framework. Since the launch of the Framework, the agencies have carried out a variety of capacity building and other activities.⁵⁷ An example of such activities is the Africa Carbon Forum. The first Africa Carbon Forum

⁵³ See the Nairobi Framework webpage ‘Regional Distribution - Nairobi Framework’ http://cdm.unfccc.int/Nairobi_Framework/index.html (UNFCCC, 26/01/2010).

⁵⁴ See Ibid.

⁵⁵ See http://cdm.unfccc.int/Nairobi_Framework/Nai_framework_possible_elements.pdf ‘Elements of the Nairobi Framework’ (UNFCCC, 26/01/2010).

⁵⁶ See the Concept Note for the Nairobi Framework Mobilization Event held at the 26th meeting of the UNFCCC Subsidiary Bodies, in May 2006: http://cdm.unfccc.int/Nairobi_Framework/Nai_framework_mobSB26.pdf (UNFCCC, 26/01/2010).

⁵⁷ There is very limited information available on the Nairobi Framework webpage about the activities being carried out in response to the Framework. See the UNFCCC Secretariat presentation on the Nairobi Framework “Nairobi Framework: Achievements and Challenges” available at http://cdm.unfccc.int/Nairobi_Framework/cop15_se_091211_nf.pdf (UNFCCC, 26/01/2010) for a summary of the various activities undertaken under the Framework.

was held in September 2008⁵⁸ and aimed to strengthen links between CDM project developers and the African region's investment community, as well as to provide opportunities for DNAs to exchange views and share experiences on the CDM. It combined a carbon investment trade fair with targeted CDM capacity building.⁵⁹ A second Africa Carbon Forum was held in March 2010, to "build on CDM gains on the continent." The Forum comprised a conference and trade fair, and provided knowledge-sharing and matchmaking opportunities for project developers and investors.⁶⁰ A third Forum is planned for April 2011.⁶¹ Another activity under the Framework is a joint UNDP–UNEP six-country CDM capacity development project in sub-Saharan Africa initiated in September 2007 and launched in October 2007.⁶² The Framework is therefore in essence, a capacity building initiative for all developing countries but with a specific focus on sub-Saharan African countries.

b) The DNA Forum: the DNA Forum is another capacity building initiative established under the Kyoto Protocol/CDM framework to promote equitable distribution of CDM projects. It was established by the CDM Executive Board in response to the request by COP/MOP 1 for the organisation of DNA Forum meetings to help broaden participation in

⁵⁸ Organised by the UNFCCC Secretariat in collaboration with the International Emissions Trading Association and the Nairobi Framework partner organisations.

⁵⁹ See T. Akanle *et al.*, 'Summary of the Africa carbon forum' (September 2008) <http://www.iisd.ca/africa/pdf/arc1501e.pdf>, www.iisd.ca (17/11/2010).

⁶⁰ See the Forum website <http://africacarbonforum.com/2009/english/index.htm> (Africa Carbon Forum, 19/07/2010).

⁶¹ See <http://africacarbonforum.com/2011/english/index.htm> (Africa Carbon Forum, 18/01/2011).

⁶² The countries covered by this project are Ethiopia, Kenya, Mauritius, Mozambique, Tanzania and Zambia. See the UNFCCC Press Release of 6 December 2007, available at http://unfccc.int/files/press/news_room/press_releases_and_advisories/application/pdf/nf_release_english.pdf, www.unfccc.int (UNFCCC, 26/01/2010). These are the concrete programmes under the Nairobi Framework reported so far by the UNFCCC Secretariat. Other activities include general information exchange and awareness raising, among others. See generally, http://cdm.unfccc.int/Nairobi_Framework/NF_Work_programme_20100607.pdf 'Nairobi Framework Implementation: Work Programme 2010' (UNFCCC, 17/11/2010).

the CDM.⁶³ The DNA Forum is held regularly and aims to provide an information exchange platform, enabling DNAs to share their experiences regarding the CDM, and also provide an opportunity for DNAs to bring common views and issues to the attention of the Executive Board.⁶⁴ The DNA Forum is therefore specifically targeted at enhancing DNA capacity by providing a platform for DNAs to interact with one another, and exchange information, experiences, problems and best practices in relation to the CDM process.

c) **The CDM Bazaar:**⁶⁵ the CDM Executive Board, during its 21st meeting, identified as one of its functions, the development of a publicly-available database of CDM project activities.⁶⁶ To implement this, the CDM Bazaar was launched by the UNFCCC Secretariat and the UNEP Risoe Centre to facilitate the exchange of information about CDM projects and opportunities, with the ultimate aim of “creating an efficient global CDM market.”⁶⁷ The CDM Bazaar was not specifically established as an equitable distribution initiative. Rather it is essentially a capacity building and information sharing tool for all CDM participants, particularly developing country participants.

The Bazaar is a web-based, free information platform, which provides information on CDM buyers, sellers and service providers. It is designed to provide information about CDM opportunities, and lists specific CDM projects and CDM project ideas, notices about CERs for sale, as well as the profiles of CDM market participants such as investors, buyers and sellers. Potential host countries can thus “advertise” project ideas and potential projects that they would like to see developed in their countries as CDM projects. Examples include

⁶³ See Decision 7/CMP.1, Paragraph 36.

⁶⁴ See the DNA Forum webpage, at <http://cdm.unfccc.int/DNA/DNAForum/index.html> (UNFCCC, 12/02/2010).

⁶⁵ See http://cdm.unfccc.int/public_inputs/bazaar/CDM_Project_Bazaar_v4.pdf ‘Concept note for a CDM Bazaar’ (UNFCCC, 12/02/2010).

⁶⁶ See ‘CDM Management Plan’ Annex 25 of the Report of the 21st Meeting of the Executive Board (18 October 2005) <http://cdm.unfccc.int/EB/021/eb21repan25.pdf> (UNFCCC, 12/02/2010), 17.

⁶⁷ See <http://www.cdm-bazaar.net/about> (CDM Bazaar website, 17/11/2010).

project ideas for a hydropower project in Serbia⁶⁸ (which currently does not host any CDM project) and for a fossil fuel switch project in Uganda⁶⁹ (which currently has 3 registered projects).

As an information sharing tool, it aims to make relevant CDM information readily and easily available to interested stakeholders in the process, thus facilitating their participation. It is in this sense that it aims to contribute to the equitable distribution of projects, by helping facilitate the participation of countries in the CDM, through making relevant information readily and easily available to potential project participants.⁷⁰

Effectiveness of the Capacity Building Mechanisms

These three capacity building initiatives (the Nairobi Framework, the DNA Forum and the CDM Bazaar) aim to build the capacity of developing countries to participate in the CDM, with one – the Nairobi Framework – targeting sub-Saharan African countries specifically. As highlighted, lack of capacity and local expertise is one of the barriers to equitable distribution of CDM projects and it particularly affects those countries with the lowest human development and greatest need, as they generally have the least capacity and experience. These initiatives are a start to addressing this barrier and to ensuring equitable distribution of CDM projects.

It is however difficult to assess the effectiveness of these capacity mechanisms, specifically because of the difficulty of linking specific capacity building activities to any improvements in countries' participation in the CDM. Nonetheless, it is clear that with regard to the Nairobi

⁶⁸ See http://www.cdm-bazaar.net/repo/project_ideas/project_idea-340480702.0 'CDM project idea: SHPP Gramada' (CDM Bazaar, 22/03/2011).

⁶⁹ See http://www.cdm-bazaar.net/repo/project_ideas/project_idea-297196027.0 'CDM project idea: Sameer's Environment Conservation Project through Boiler Fuel Switch to Biomass' (CDM Bazaar, 22/03/2011).

⁷⁰ See the CDM Bazaar website, www.cdm-bazaar.net.

Framework for instance, the African region is still significantly under-performing compared to other regions, although the Nairobi Framework has been in operation for over 3 years. Although the number of projects hosted by African countries has increased from 11 (in December 2006) to 48 (in November 2010), the region's share has dropped from 2.61% of total CDM projects to 1.9%, as the total number of CDM projects has more than quadrupled from 421 (in December 2006) to 2513 (in November 2010).⁷¹

With regard to the DNA Forum also, it can only be noted that as insufficient DNA capacity is one of the barriers to equitable distribution, initiatives such as this have the potential to help address the problem. Unlike the Nairobi Framework however, this capacity building initiative does not provide targeted capacity building to the categories of countries with the greatest need. In its current forum format, it does make sense for the DNA Forum to be a general capacity building initiative. However because lack of DNA capacity remains a problem, additional capacity building that provides direct capacity building to the DNAs of the countries with the greatest need would be useful to supplement the more general capacity building assistance provided by the DNA Forum. Such capacity building should go beyond information and experience exchange. It should include capacity building, such as training workshops and exercises, that would directly address the capacity needs of DNAs and help them to be more effective in carrying out their functions. This capacity building should, as advocated in Chapter 3, be targeted at those countries with the greatest need which also have emission reduction potential.⁷²

⁷¹ See <http://cdm.unfccc.int/Statistics/Registration/RegisteredProjByRegionPieChart.html> 'Registered projects by region' (UNFCCC, 17/11/2010).

⁷² See Chapter 4, Table 3 for the classification of countries according to their need and potential.

The CDM Bazaar also aims to help facilitate countries' participation in the CDM by providing a platform to share information regarding, among other things, project ideas and proposed projects. Again, the success of this initiative is not easy to evaluate, but, whereas some of the project ideas advertised on the Bazaar may have been developed and registered as CDM projects, many of them, such as those by Benin (1), Cuba (7) and Nigeria (1) have not been registered.⁷³ This suggests that the CDM Bazaar has not been completely successful in achieving its objectives.

As discussed in Chapter 3, in order to achieve equitable distribution, there is a need for preferential treatment to be given specifically to those countries with the greatest need. Such countries should receive support to enable their effective participation in the CDM, provided they have sufficient emission reduction potential to make the preferential treatment, such as targeted capacity building, worthwhile.⁷⁴ The Nairobi Framework, in targeting African countries⁷⁵ and also in aiming specifically at enhancing their capacity to identify, develop, submit and process CDM projects, appears to be providing this preferential treatment.⁷⁶

However without practical action in support of this initiative, the initiative is unlikely to

⁷³ For details of these project ideas, see http://www.cdmbazaar.net/overview?listing_type=project_idea 'CDM project ideas' (CDM Bazaar, 22/03/2011). Benin and Cuba currently do not host any CDM project, while Nigeria hosts just 4.

⁷⁴ As noted above, most of the countries with the greatest need also have emission reduction potential. See note 48 above. For example, Zambia (1 project) has medium emission reduction potential and very high need, and Tanzania (1 project) has medium emission reduction potential and high need. Both these countries have comparable governance rankings to countries like China (very high emission reduction potential and medium need - 1003 projects), Indonesia (very high emission reduction potential and medium need - 49 projects) and Viet Nam (medium emission reduction potential and medium need - 36 projects), as well as comparable CDM potential. See Chapter 4, Table 3 for countries' CDM potential and see http://info.worldbank.org/governance/wgi/sc_country.asp 'Access governance indicators' (World Bank, 23/03/2011) for countries' governance rankings.

⁷⁵ With the exception of Mauritius, all African countries fall into the medium to very high need categories. Tunisia, Gabon, Algeria, Equatorial Guinea, Cape Verde and Egypt are in the medium need category and all others are in the high and very high need categories. All 21 countries in the very high need category are African countries. See Chapter 4, Section 4.3.

⁷⁶ See also H. van Asselt and J. Gupta, 'Stretching too far? Developing countries and the role of flexibility mechanisms beyond Kyoto' (2009) 28 *Stanford Env't'l L.J.* 311, 364, where the authors state that the Nairobi Framework appears to be well designed in this regard, noting however that its effects remain to be seen.

achieve its objective of catalysing the CDM in Africa. The initiative contains voluntary obligations, activities carried out in implementing it are not always reported and there is inadequate publicly-available information about these activities, making it difficult to assess the extent to which the initiatives are actually being implemented. This is not to suggest that the Nairobi Framework is not being implemented, but to underline that in order for it to be effective in promoting equitable distribution, it requires to be practically implemented.

Nevertheless, much more is required. None of the other capacity building initiatives provides targeted capacity building for countries with the greatest need. For example, there is no capacity building initiative specifically designed to address the capacity problems of LDCs.⁷⁷ This is despite LDCs being the countries that most require capacity building, because they have the lowest human development and least capacity. The CDM regime is failing to provide sufficient preferential treatment to those countries with the greatest need. Since such preferential treatment is one of the factors for achieving equitable distribution of projects, the regime is, consequently, not doing enough to address the problem of the inequitable distribution of CDM projects. The absence of targeted capacity building, particularly for those countries with the greatest need, which also have sufficient emission reduction potential to make such capacity building worthwhile, is a key failing of the CDM regime in achieving a more equitable distribution of CDM projects.

5.2.3 Finance and Cost-Related Barriers

Lack of funding has been identified as a major barrier to the equitable distribution of CDM projects, or as a barrier to the hosting of projects by certain groups of countries, such as

⁷⁷ Although it is possible that some organisations also carry out capacity building initiatives targeted at specific groups of countries.

LDCs and African countries.⁷⁸ As with most projects, the funding required for CDM projects can be divided into: funding for the project transaction costs; and funding for the underlying project.

(a) Transaction costs

Description of Barrier

Transaction costs are costs that accrue in the process of making an economic exchange or effecting a transfer of goods from seller to buyer.⁷⁹ Although there is no generally-accepted definition,⁸⁰ transaction costs have been defined as the “costs of running the economic system”⁸¹ or the costs of organising and conducting business activities.⁸² Under the CDM, transaction costs are incurred in the creation, alteration, protection or enforcement of CERs⁸³ and have been described as additional costs beyond the cost of production.⁸⁴ Krey outlined CDM transaction costs as follows: market transaction costs, comprising search and negotiation costs; pre-implementation transaction costs, comprising project design document, approval, validation and registration costs; and implementation transaction costs, comprising

⁷⁸ See UNEP and EcoSecurities, *Guidebook to Financing CDM Projects* (Roskilde: UNEP, 2007), 3 and 7. See also the Annotated Agenda of the 26th Meeting of the CDM Executive Board, Equitable distribution of clean development mechanism project activities - Analysis of submissions, available at <http://cdm.unfccc.int/EB/026/eb26annagan4.pdf> (UNFCCC, 11/02/2010), Annex 4, pages 2 and 8, where lack of financing was identified as one of the main obstacles to increased participation of SIDS, LDCs and African countries.

⁷⁹ See generally, D.W. Carlton, ‘Transaction costs, externalities, and “two-sided” payment markets’ (2005) 2005 *Columbia Business Law Review* 617, 618-619; P. Schlag, ‘The problem of transaction costs’ (1988) 62 *Southern California Law Review* 1661, 1674-1676; C.J. Dahlman, ‘The problem of externality’ (1979) 22 *J. L. Econ* 141, 147-148; D.J. Dudek and J.B. Wiener, ‘Joint implementation, transaction costs, and climate change’ (1996) <http://www.oecd.org/dataoecd/17/33/2392058.pdf>, www.oecd.org (29/01/2010); and C. Pitelis (ed.), *Transaction Costs, Markets and Hierarchies* (Oxford and Cambridge: Blackwell Publishers, 1993).

⁸⁰ See G.M. Hodgson, ‘Transaction costs and the evolution of the firm’ in Pitelis *supra* note 79, at 81.

⁸¹ See K. Arrow, ‘The organization of economic activity: issues pertinent to the choice of market versus non-market allocation’ in R.H. Haverman and J. Margolis (eds.), *Public Expenditure and Policy Analysis* (Chicago: Markham Publishing, 1970), 60; and Pitelis, *supra* note 79, at 9.

⁸² See P. Holden, ‘Government reforms to reduce transaction costs and promote private sector development’ (January 2004) <http://www.cipe.org/publications/papers/pdf/IP0406.pdf>, <http://www.cipe.org/> (28/01/2010), 1.

⁸³ See UNDP, *supra* Chapter 1, note 28, at Chapter 5.

⁸⁴ *Ibid.*, at 56.

monitoring, verification and certification, and adaptation fee costs.⁸⁵ They therefore include the cost of identifying potential CDM projects, identifying potential partners and negotiating the CDM contract, as well as the costs involved in the approval process, such as those associated with establishing baselines, proving additionality, validation, registration and verification of the project.⁸⁶ They also include the share of proceeds and registration fees required by the Protocol.⁸⁷ These costs are part of the transaction costs of CDM projects, as they do not result directly from implementing the project itself.⁸⁸

Transaction costs constitute a barrier to the distribution of CDM projects in two ways. Firstly, they are a barrier to CDM project development by local developers who cannot access the funds required to pay the transaction costs associated with the development of projects. As these costs are incurred upfront (that is, before the project generates CERs), project developers would require some financing to cover the costs, which could be quite substantial.⁸⁹ UNEP estimates the costs incurred during the planning phase as from US\$18,500-610,000, depending on various things such as the complexity and scale of the project (whether small- or large-scale).⁹⁰ The need for host country project developers to bear the bulk of these transaction costs would generally only arise in the case of unilateral

⁸⁵ Krey, *supra* Chapter 2, note 52, at 2388.

⁸⁶ See B.P. Chadwick, 'Transaction costs and the clean development mechanism' (2006) 30 *Natural Resources Forum* 256, 256; Kimura *et al.*, *supra* Chapter 3, note 474, at 39; UNESCAP, *Implementation of the Clean Development Mechanism in Asia and the Pacific: Issues, Challenges and Opportunities* (New York: UNESCAP, 2003), 19; and A. Michaelowa *et al.*, 'Transaction costs of the Kyoto mechanisms' (2003) 3 *Climate Policy* 261.

⁸⁷ Article 12(8) of the Protocol provides that a share of the proceeds of CDM projects should be used to cover administrative expenses, as well as to assist in meeting the cost of adaptation in developing countries. The share of proceeds to support adaptation in developing countries is 2% of CERs issued (paragraph 15(a) of Decision 17/CP.7). The share of proceeds to cover administrative expenses, including the registration fee, is US \$0.10 per CER issued for the first 15,000 tonnes of CO₂ equivalent and US \$0.20 per CER issued for any amount in excess of 15,000 tonnes (paragraph 37 of Decision 7/CMP.1).

⁸⁸ See UNEP and Ecosecurities, *supra* note 78, at 52, for the activities carried out during the various phases of a CDM project.

⁸⁹ See the estimates in Michaelowa *et al.*, (2003), *supra* note 86 above; and Ellis and Kamel, *supra* Chapter 2 note 50, at 33.

⁹⁰ See UNEP and Ecosecurities, *supra* note 78, at 56.

projects, where the host country entity itself undertakes and finances all the preliminary elements of the CDM project.⁹¹ However, even in the case of bilateral projects, the host country project developer may still have to bear some of the transactions costs, such as negotiation costs.

In order to address this problem, some CER purchasers offer advance payments to project developers to help them pay the transaction costs of the project. This advance payment could be in the form of an advance payment of the purchase price of the CERs.⁹² For example, the World Bank states that it can advance funds for the preparation of the necessary CDM documentation and recover the costs of preparing the documentation from future payments. It also states it can make upfront payments of up to 25% of the value of the purchase contract.⁹³

The second way transaction costs could constitute a barrier to equitable distribution is where high transaction costs associated with investment in some countries discourage investors from investing in such countries. As noted by the UNDP, if the transaction costs associated with the CDM project are high compared to the total costs of the project, this reduces the project's feasibility.⁹⁴ This is also of concern in the case of small-scale projects, which do not generate large quantities of CERs, compared to large-scale projects, as "[t]he smaller the

⁹¹ See the discussion in Section 5.2.6 below on unilateral CDM projects. In this type of projects, the host country entity also incurs the operating costs of the project – that is, the entity must finance the underlying CDM project as well. This is discussed in more detail below under production costs as a barrier to equitable distribution of projects.

⁹² See Ellis and Kamel, *supra* Chapter 2 note 50, at 32-33. See also UNEP and Ecoscurities, *supra* note 78, at 56, which notes that government tenders and carbon funds will often pay a proportion of the transaction costs (the CDM-specific costs incurred during the planning phase) in return for a contract to purchase some or all of the resulting CERs.

⁹³ See

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,,contentMDK:21844272~menuPK:5220636~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html> 'For project developers' (World Bank, 03/02/2010).

⁹⁴ See UNDP, *supra* Chapter 1, note 28, at 57.

project's financing requirements, the higher the financing transaction costs per unit of finance will be."⁹⁵

High transaction costs could also act as a barrier where the transaction costs of projects are higher in some areas and for some projects than others.⁹⁶ This constitutes a barrier in cases where the foreign entity actually invests in the CDM project directly, rather than just purchasing the CERs generated from the project. Where the foreign entity is only purchasing CERs generated (which is the case with unilateral projects), some of the transaction costs are already borne by the project developer and would not impact on the investor. Some transaction costs are however still relevant even where the developed country entity is only purchasing CERs, such as the cost of negotiating and implementing the purchase agreement. In addition, to the extent that high transaction costs would drive up the price of the CERs, this could also affect the attractiveness of such CERs to investors, especially considering the market nature of the CDM, where host countries are competing for CERs and investors can simply purchase CERs from other projects if the price for the CERs generated by some projects is too high.

This transaction costs barrier to equitable distribution of CDM projects particularly affects those countries with the greatest need and therefore undermines the "need" factor for achieving equitable distribution.⁹⁷ It also, obviously, undermines the "potential" factor, because some of these countries with the greatest need that are unable to effectively

⁹⁵ See UNEP and Ecosecurities, *supra* note 78, at 75. See the discussion of this barrier in Section 5.2.4 below.

⁹⁶ S. Humphreys *et al.*, 'Equity in the CDM' (1998) <http://www.iisd.ca/journal/enda.html>, www.iisd.ca (14/01/2010); and UNDP, *supra* Chapter 1, note 28, at Chapter 4.

⁹⁷ See, for example, Ellis and Kamel, *supra* Chapter 2, note 50, 32-33, where the authors state that transactions costs are a barrier faced by many project developers, especially for small-scale projects, and in poor developing countries. See also Michaelowa, (2005), *supra* Chapter 2, note 62, at 11-13.

participate in the CDM also have emission reduction potential.⁹⁸ Their inability to participate effectively therefore means that their potential is not being adequately exploited under the CDM.

In order to address the problem of the transaction costs of small-scale projects (by reducing such transaction costs), the CDM Executive Board has adopted simplified modalities and procedures for small-scale CDM project activities⁹⁹ and simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities.¹⁰⁰ These initiatives are discussed in Section 5.2.4 below, which addresses the size of projects as a barrier to equitable distribution.

Mechanisms for Addressing the Transaction Costs Barrier under the CDM Framework

With regard to the transaction costs associated with investing in certain groups of countries, some steps have been taken to help to reduce these costs. Firstly, in order to support a more equitable regional distribution of projects by reducing the transaction costs associated with CDM projects in LDCs and thus making these projects more attractive, the share of proceeds levy and registration fee for CDM projects, were abolished for projects hosted in LDCs.¹⁰¹ This means that for CDM projects hosted by LDCs, there is no registration fee to pay, and also no amount will be deducted upon issuance of CERs to cover the share of proceeds levy for administration expenses and adaptation.

Secondly, for countries with fewer than 10 registered project activities, the payment of the registration fee has been deferred until after the first issuance of CERs.¹⁰² This deferment

⁹⁸ See notes 48 and 74 above for examples of such countries.

⁹⁹ See Decisions 17/CP.7 and 4/CMP.1.

¹⁰⁰ Decision 7/CMP.1, Paragraph 3.

¹⁰¹ See Decision 17/CP.7, Paragraph 15(b) and Decision 2/CMP.3, Paragraph 31.

¹⁰² See Decision 2/CMP.5, Paragraph 47.

means that these countries do not have to source financing to cover this registration fee, but can cover the payment after the first issuance of CERs, presumably from the revenue generated from the sale of the CERs.

In addition, the CDM Executive Board will provide loans to countries with fewer than 10 registered projects, to help these countries cover: the costs of developing project design documents; and the costs of the validation and first verification of projects. These loans will be provided from the interest accrued on the principal of the CDM Trust Fund, as well as any voluntary contributions from donors, and will be repaid starting from the first issuance of CERs.¹⁰³

Finally, during COP/MOP 6 in November 2010, countries agreed to allow the application, and request the development, of standardized baselines, with the aim *inter alia* of reducing the time and costs associated with establishing baselines on a case-by-case basis and facilitating access to the CDM.¹⁰⁴ As explained in Chapter 2, to be registered as CDM projects and generate CERs, project developers must show that the projects will reduce GHG emissions below what would be otherwise produced in the absence of the CDM projects.¹⁰⁵ To do this, a baseline must be established which represents the emission reduction scenario without the proposed project and CERs are issued for emission reductions below this baseline. This process could be time-consuming and costly, and streamlining the process could reduce the time and costs involved.¹⁰⁶

¹⁰³ Ibid, Paragraphs 49-50. See also Decision 3/CMP.6, Annex III, for the guidelines and modalities for the operationalisation of the loan scheme.

¹⁰⁴ See Decision 3/CMP.6, Paragraphs 45-46.

¹⁰⁵ See the discussion in Chapter 2. See generally, Lee, *supra* Chapter 2, note 12.

¹⁰⁶ See UNDP, *supra* Chapter 1, note 28, at Chapter 5; and IETA, 'Multi-project, standardized baselines: explaining a key issue in the reform of the clean development mechanism' <http://www.ieta.org/ieta/www/pages/getfile.php?docID=3375> www.ieta.org (26/07/2010), 1.

The COP/MOP defines a standardized baseline as a baseline established to facilitate the calculation of emission reductions and removals and/or the determination of additionality for CDM project activities, while providing assistance for assuring environmental integrity.¹⁰⁷

What this would entail is still somewhat unclear but countries have requested that a workshop be organised on the issue and that the Executive Board should report to COP/MOP 7 on its work on standardized baselines.¹⁰⁸ However, a standardized baseline would likely involve uniform parameters for determining the baseline emissions of specific kinds of projects, thereby removing the need to determine such parameters on a project-by-project basis.¹⁰⁹

The approach of these four initiatives is therefore to make investing in projects hosted by a specific group of countries more financially attractive than they would otherwise be, by reducing some of the transaction costs associated with the projects. In the case of the loan scheme, the aim is to make accessing funds, albeit for the project transaction costs, easier for project developers.

Effectiveness of the Transaction Costs Mechanisms

As highlighted in Chapter 3, in order to ensure an equitable distribution of projects, preferential treatment should be given to those countries with the greatest need, in order to help them increase their participation in the CDM. LDCs fall in this category, as they are among the countries with the greatest need/lowest human development.¹¹⁰ Therefore, by exempting projects hosted in LDCs from payment of transaction costs, the CDM has taken a step towards ensuring a more equitable distribution of projects by providing LDCs with

¹⁰⁷ See Decision 3/CMP.6, Paragraph 44.

¹⁰⁸ Ibid, Paragraphs 51 and 52.

¹⁰⁹ See IETA, *supra* note 106. See also the submission of the European Union in 'Views related to modalities and procedures for the development of standardized baselines from the clean development mechanism: Submissions from Parties and relevant organizations' (FCCC/SBSTA/2010/MISC.3/Rev.1, 27 April 2010), 6.

¹¹⁰ See the discussion and classification in Chapter 4.

preferential treatment, as recommended in Chapter 3. In addition, because most LDCs, other than Samoa, have at least medium CDM potential, this initiative also goes some way in meeting the “potential” factor for achieving equitable distribution, because, as shown in Chapter 4, most LDCs are significantly underperforming in the CDM and are not fulfilling their potential.¹¹¹ This payment exemption initiative therefore ticks all the boxes regarding the factors for achieving equitable distribution – it provides preferential treatment to those countries with the greatest need, which also have emission reduction potential.

However, although this initiative is undoubtedly a good one, it does not appear to have been particularly successful in helping LDCs effectively and equitably participate in the CDM. The payment exemption was introduced in 2001, before the first CDM project was registered.¹¹² To date however, out of the 49 LDCs, only 14 of them host projects – all 14 host a total of 19 projects between them. A further 5 have projects either at the validation or registration request stage. Out of the 5619 projects in the CDM pipeline (including registered projects and those in the registration process) as of November 2010, only 62 are in LDCs.¹¹³ CDM projects in LDCs therefore currently constitute about 1% of the projects in the CDM pipeline. As the analysis in Chapter 4 shows, LDCs are not currently fulfilling their CDM potential in terms of GHG emission reduction potential, so the reason for this poor performance cannot be said to be a lack of emission reduction potential of these countries.¹¹⁴ And from the fact that this initiative has not been completely successful, it is obvious that there are issues other than transaction costs that influence CDM project hosting.¹¹⁵ Therefore

¹¹¹ See Chapter 4, Tables 1-3, for a classification of countries according to their emission reduction potential, need, CDM potential and number of projects hosted.

¹¹² Decision 17/CP.7, which establishes the exemption, was adopted by the Parties in COP 7 in 2001. The first CDM project entered the CDM pipeline in December 2003.

¹¹³ Statistics obtained from the CDM Pipeline, 1 November 2010.

¹¹⁴ See the analysis in Chapter 4.

¹¹⁵ Other barriers to equitable distribution of projects are discussed in this chapter.

while this initiative may have contributed to these countries being able to participate in the CDM, more obviously needs to be done to ensure that CDM projects are more equitably distributed among all developing countries, including LDCs.

The loans that will be made available to countries currently hosting fewer than 10 registered projects will undoubtedly be helpful to these countries, and combined with the deferment of the payment of the registration fee, will contribute to overcoming the transaction cost barrier in these countries. As high transaction costs constitute a barrier partly because they are incurred upfront (before the project begins to generate income), these initiatives will help countries that cannot raise sufficient upfront financing. Nonetheless, only time will tell how successful the initiative will be in helping these countries increase their participation in the CDM because as noted above, the similar initiative for LDCs has not been particularly successful in promoting the participation of LDCs.

However, the loans initiative is not in accordance with the factors for achieving equitable distribution identified in Chapter 3 (that is, need, potential and preferential treatment for those with the greatest need). This is because the payment postponement and the loans are to be made available to all countries with fewer than 10 registered projects, regardless of their GHG emission reduction potential or their need. It is also not restricted to countries with the greatest need, which is what is advocated in Chapter 3. Consequently, countries like Barbados, Kuwait, Singapore and Qatar, which have very high human development (and very low need) will be as eligible to receive these loans as countries like the Democratic Republic of the Congo and Zambia, which have very low human development (and very high need). It also means that countries like Antigua and Barbuda and Saint Lucia, which have very low emission reduction potential will also be as eligible to receive these loans as countries like

Iran and Nigeria, which, respectively, have very high and high emission reduction potential.¹¹⁶ Such generic preferential treatment therefore does not adequately consider the specific circumstances of countries and would not be an effective use of resources, as resources would be better targeted at those countries that need them the most, particularly those that do have sufficient GHG emission reduction potential. In this regard, this preferential treatment (given to all countries with fewer than 10 registered projects) falls short of the effort needed to achieve equitable distribution.

Regarding standardized baselines, the main aim appears to be to simplify the process for proving additionality, thereby reducing the cost and complexity involved in the process. Specifically, this will address two of the barriers to equitable distribution identified above: lack of capacity and transaction costs. It may contribute to a more equitable distribution of projects, to the extent that the other capacity building and transaction cost-related initiatives discussed above do. However, as already noted, similar initiatives already adopted under the regime (those to increase capacity and to reduce transaction costs) have not resulted in a significantly more equitable distribution of projects, although they may have helped improve participation in the CDM to some degree.¹¹⁷ The extent to which this initiative will further improve equitable distribution remains to be seen, but this author does not consider that the initiative will significantly improve equitable distribution because, as noted, similar initiatives have not been particularly successful. In addition, the initiative does not provide preferential treatment to the developing countries with the greatest need (identified in Chapter 4) and does not provide any extra incentive to encourage developed country entities to invest in these developing countries. Instead, it is an initiative that applies to all countries,

¹¹⁶ See Chapter 4, Tables 1-3 for the classification of countries according to their need, emission reduction potential, CDM potential and number of registered projects.

¹¹⁷ See the previous discussion in this section and in Section 5.2.2 above.

regardless of their need or emission reduction potential, although the Executive Board was requested to, when developing these baselines, prioritise methodologies that are applicable to LDCs, SIDS, countries with 10 or less registered CDM projects and underrepresented project activity types or regions.

(b) Implementation costs

Description of Barrier

These refer to the actual or direct cost of producing the goods, as opposed to the transaction costs, which are the costs associated with organising production. Under the CDM, the implementation costs would include the project construction costs (such as purchasing the plant and equipment) and the project operating costs (such as the cost of maintenance and other running costs).¹¹⁸ CDM project implementation costs include the costs of the underlying project which either removes a GHG from the atmosphere or prevents the emission of the GHG to the atmosphere.¹¹⁹ For example, the implementation costs of a CDM hydropower project would include the cost of constructing and operating the hydropower station, but as already noted above, would exclude the costs involved in registering the project with the CDM Executive Board. Generally, the largest costs associated with a project are implementation costs, incurred specifically at the construction stage. UNEP estimates that even a relatively small engineering project could cost several million dollars.¹²⁰

Lack of underlying finance for the project has been identified as a major barrier to CDM participation, particularly for those smaller developing countries that do not have strong

¹¹⁸ See generally for the financing requirements of CDM projects, UNEP and EcoSecurities, *supra* note 78.

¹¹⁹ See generally Chadwick, *supra* note 86; and UNDP, *supra* Chapter 1, note 28.

¹²⁰ See UNEP and EcoSecurities, *supra* note 78, at 29.

financial institutions.¹²¹ Ellis and Kamel identify lack of financing as one of the most common barriers inhibiting CDM project development, noting that “large numbers of potential small-scale CDM projects in poor host countries are unable to move forward due to this financing barrier.”¹²² UNEP notes that one of the challenges facing CDM projects, particularly in the African region and in LDCs, is lack of access to financing for the underlying project.¹²³ It was also identified as one of the barriers to equitable distribution of CDM projects, for example, limiting the ability of LDCs and African countries to participate in the CDM market.¹²⁴ For example, Sieghart, commenting on the Yemeni experience, states that “some buyers offer to assist with the designing of the project. However, transaction costs are not perceived as the major financial barrier by project developers. Developers face difficulties in procuring underlying finance due to a deficiency of domestic capital and both to country-specific and CDM-specific risks.”¹²⁵

The original expectation of the CDM was that it would attract foreign investment, and that this foreign investment would provide financing for the actual CDM project, beyond the purchase of CERs generated from the projects.¹²⁶ If this original expectation was generally the case, local project developers would only have to secure foreign developed country counterparts to invest in the projects and this investment would cover the production costs of

¹²¹ See S. Mwakasonda, ‘Africa is energizing itself’ (2006) http://www.gfse.at/fileadmin/dam/gfse/gfse%206/PLENARY_VI/5_Energy_Research_Centre_GFSE-6_Presentation_Stanford_Mwakasonda.pdf, www.gfse.at (12/02/2010).

¹²² See Ellis and Kamel, *supra* Chapter 2 note 50, at 30-32.

¹²³ See UNEP and EcoSecurities, *supra* note 78, at 3 and 7.

¹²⁴ See ‘Equitable distribution of clean development mechanism project activities - Analysis of submissions’ Annex 4 to the Annotated Agenda of the 26th Meeting of the CDM Executive Board <http://cdm.unfccc.int/EB/026/eb26annagan4.pdf> www.unfccc.int (UNFCCC, 11/02/2010), 8. See also Oppenorth *et al.*, *supra* Chapter 2, note 60, at 18-19; and Mwakasonda, *supra* note 121, at 18.

¹²⁵ L.C. Sieghart, ‘Unilateral clean development mechanism – an approach for a least developed country? The case of Yemen’ (2009) 12 *Environmental Science and Policy* 198, 201.

¹²⁶ See Lecocq and Ambrosi, *supra* Chapter 2, note 45, at 143; and E. Paulsson, ‘A review of the CDM literature: from fine-tuning to critical scrutiny?’ (2009) 9 *International Environmental Agreements* 63, 71. See the discussion of the unilateral CDM structure in Section 5.2.6 below.

the project, in exchange for the CERs generated by the project.¹²⁷ However because of the prevalence of unilateral CDM projects and pure CER purchase style projects, the norm has become that local developers source local financing for the underlying projects and then secure foreign developed country counterparts to purchase the CERs generated by the projects.¹²⁸ This is a problem for many countries that do not have well-developed financial institutions, and for those that even where these institutions exist, local financiers are reluctant to invest in CDM projects because of a lack of understanding of its operation and because of its greater risk compared to other kinds of projects. In these situations, local developers have difficulty sourcing the required financing for the underlying projects locally and depend on foreign investment, which is often not forthcoming because of the preference for simply purchasing CERs.¹²⁹

In this scenario of the unilateral CDM structure, CER purchasers/investors, rather than actually investing in the underlying project itself, will merely purchase the CERs/pay for the CERs generated from the project. The purchase price, or some of it, is sometimes paid upfront, and can then be used by the project developers to finance the project, as well as to leverage additional financing from other sources.¹³⁰ For example, the World Bank states that it will not provide debt and/or equity finance for the baseline component of the project, which should be financed by other sources, but will pay on delivery of CERs.¹³¹ However, it can

¹²⁷ Here, the developing country would for example benefit from the use of renewable energy, capacity building, technology transfer and other sustainable development benefits arising from the project.

¹²⁸ See the discussion of the unilateral CDM structure in Section 5.2.6 below.

¹²⁹ See G. Pfeifer and G. Stiles, 'Carbon finance in Africa - a policy paper for the Africa Partnership Forum' (2008) <http://www.africapartnershipforum.org/dataoecd/40/15/41646964.pdf>, www.africapartnershipforum.org (APF, 09/02/2010), 17; A. Michaelowa, 'Unilateral CDM - can developing countries finance generation of greenhouse gas emission credits on their own?' (2007) 7 *Int'l Env'tl Agts* 17, 17; Sieghart, *supra* note 125, at 202; and Oppenorth *et al.*, *supra* Chapter 2, note 60, at 20.

¹³⁰ UNEP and Ecosecurities, *supra* note 78, at 58-61.

¹³¹ See

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0..cont>

pay up to 25% of the CER purchase price upfront, where it can be demonstrated that such upfront payment is necessary.¹³² Although the portion of the price paid upfront is rarely sufficient to cover the entire production costs, as stated, it can contribute to paying the costs and assist the project developer to obtain other financing.¹³³ Sieghart asserts that sourcing of underlying finance is seen as the major obstacle for Yemeni project developers, particularly for public entity project developers.¹³⁴

Just like the transaction costs barrier, this implementation costs barrier undermines the “need” and “potential” factors for achieving equitable distribution of CDM projects.¹³⁵

Mechanisms for Addressing Implementation Costs under the CDM Framework

There are currently no initiatives within the CDM framework to address this problem. The various financing initiatives aim to reduce transaction costs, but do not directly impact or assist with production costs. Yet, implementation costs comprise the bulk of the financing required for CDM projects.¹³⁶ In addition, as already noted, most developed country participants in the CDM market do not provide finance for the underlying projects – local developers must source this finance themselves. Those countries that are the most affected by this barrier are the countries that in fact have the greatest need – the LDCs and many African countries.¹³⁷ In this respect therefore, the CDM regime fails to consider the need of these

[entMDK:21844766~menuPK:5220728~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html](http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,,cont entMDK:21844766~menuPK:5220728~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html)

‘Minimum project requirements’ (World Bank, 03/02/2010).

¹³² See

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,,cont entMDK:21844272~menuPK:5220636~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html> ‘For

project developers’ (World Bank, 03/02/2010).

¹³³ See UNEP and EcoSecurities, *supra* note 78, at 69. Here, the authors also note that “it is rare for any buyer to be willing to pay up front *before* a project is both registered and ready to commence generating CERs...”

¹³⁴ Sieghart, *supra* note 125, at 201.

¹³⁵ See the discussion on pages 200-201 above.

¹³⁶ Transaction costs are estimated to be between US\$ 18,500-610,000, whereas production costs are estimated to run into several million dollars. See the discussion above.

¹³⁷ See Chapter 4 for a classification of countries according to their need.

countries in efforts to promote a more equitable distribution of projects. As proposed in Chapter 3, some form of preferential treatment should be given to these countries to help them overcome this barrier.¹³⁸

5.2.4 Preference for Large-Scale Projects

Description of Barrier

The size of CDM projects has been identified as a barrier to the distribution of projects. Specifically, this has been discussed as investors' preference to invest in projects that will generate a specified minimum quantity of CERs. This is partly in order to ensure that considering the transaction costs of the project, the quantity of CERs generated is enough to make the project worthwhile.¹³⁹ Linked to this barrier is the relatively low level of industrial development of some countries, resulting in limited opportunities for large-scale projects.¹⁴⁰ According to some authors, investors prefer to invest in large projects in order to maximise the economics of scale.¹⁴¹ The smaller the size of the project, the less the amount of CERs such projects will generate. Because the CDM is in part a mechanism to assist developed

¹³⁸ See Chapter 6 for suggested solutions to help promote equitable distribution.

¹³⁹ See the discussion of transaction costs in Section 5.2.3 above and the effect of high transaction costs on small-scale projects.

¹⁴⁰ Ellis and Kamel note that the majority of potential CDM projects in many host countries, particularly in sub-Saharan Africa, are within the small-scale range. See Ellis and Kamel, *supra* Chapter 2 note 50, at 32.

¹⁴¹ For example, K. Capoor and C. Ambrosi, *State and Trends of the Carbon Market 2008* (Washington: World Bank, 2008), 26, state that China is the destination of choice for buyers of credits, because of its large size, economies of scale in origination, and favourable investment climate. See also Ellis and Kamel, *supra* Chapter 2 note 50, at 34-35.

countries to meet their Kyoto targets in a cost-effective way,¹⁴² investors will consider cost-effectiveness in determining the attractiveness of any CDM project.¹⁴³

Some investors therefore have a minimum project size they will invest in, and will not invest in CDM projects that will not generate a specified minimum quantity of CERs.¹⁴⁴ For example, the World Bank requires the volume of emission reductions to be generated from a project to be large enough to make a project viable, and states that for example, a small-scale project should generate at least 50,000 tonnes of CO₂ equivalents (CO₂e) annually.¹⁴⁵ The Netherlands CDM Facility (implemented by the Dutch Ministry of Housing, Spatial Planning and the Environment) states it will only enter into a CDM scheme for larger projects, with the lower limit of approximately 500,000 tonnes of CO₂e for the entire crediting period. This is so that the transactions costs of the project do not amount to too large a proportion of the payments involved in the project.¹⁴⁶

This would particularly be an issue for countries that have more opportunities for small-scale projects than for large-scale projects, due *inter alia* to their low level of industrial development resulting in limited opportunities for large-scale projects. For example, Ellis and Kamel note that the majority of prospective CDM projects in many host countries,

¹⁴² See for example T. Brechet and B. Lussis, 'The contribution of the clean development mechanism to national climate policies' (2006) 28 *J. Policy Modeling* 981, 982 ("lower marginal cost"); Diakoulaki *et al.*, *supra* Chapter 2, note 26, at 1088 ("profiting from the lower abatement costs in the host-country"); and UNESCAP, *supra* note 86, at 1 ("lesser cost").

¹⁴³ See the discussion below about the market-based nature of the CDM, and the need to balance considerations of cost-effectiveness with considerations of sustainable development need and potential.

¹⁴⁴ See Ellis and Kamel, *supra* Chapter 2 note 50, at 34-35.

¹⁴⁵ See the World Bank Carbon Finance website

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,,contentMDK:21844766~menuPK:5220728~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html>

(World Bank, 03/02/2010).

¹⁴⁶ See

http://www.vrom.nl/docs/internationaal/CDM%20Implementation%20document%2029%20May%2003%20def_1.pdf 'Implementation of the clean development mechanism by the Netherlands' 29 May 2003 (Dutch Ministry of Housing, Spatial Planning and the Environment, 03/02/2010), 18.

particularly in sub-Saharan Africa, are within the small-scale range.¹⁴⁷ In his classification of countries by size and types of projects, Huq identifies LDCs as mainly having opportunities for small-scale projects.¹⁴⁸ This also leads to the loss of the potential for emission reductions in these countries. This is because if these countries are overlooked in the CDM because they have limited opportunities for large-scale projects, it means that even though they do have the potential to reduce GHG emissions, albeit through small-scale projects, this potential is largely being lost.

However, although this has been identified as a barrier by some authors,¹⁴⁹ the number of small-scale projects that have been ratified and that are in the pipeline belies this claim, as there are almost as many small-scale, as large-scale projects.¹⁵⁰ As of November 2010, of the 5619 CDM projects in the pipeline (including registered projects and those in the registration process, but excluding those that have been rejected or withdrawn), 2609 (46%) were small-scale and 3010 (54%) were large-scale projects. As of the same date, out of the 2463 registered projects, 1075 (43%) were small-scale and 1388 (47%) were large-scale.¹⁵¹ This

¹⁴⁷ Ellis and Kamel, *supra* Chapter 2 note 50, at 32.

¹⁴⁸ See Huq, *supra* Chapter 2, note 62, at 22; and Silayan, *supra* Chapter 1, note 50, at 44.

¹⁴⁹ See Silayan, *supra* Chapter 1, note 50, at 23-24; Prouty, *supra* Chapter 2, note 50, at 523; and B. Pearson, 'Market failure: why the clean development mechanism won't promote clean development' (2007) 15 *J. Cleaner Production* 247.

¹⁵⁰ According to many authors, small-scale projects are preferable to large-scale projects, because the former generally have much greater sustainable development benefits than the latter. For example, according to Huq, small-scale projects have high sustainable development impacts and large-scale projects have low sustainable development impacts. See Huq, *supra* Chapter 2, note 62, at 22. Michaelowa states that small-scale projects are better suited to contribute to sustainable development. See Michaelowa, (2007), *supra* note 129, at 24. See also Brunt and Knechel, *supra* Chapter 3, note 474. This view is, however, not generally held by all authors. For example, Olsen and Fenhann show that small-scale projects only deliver slightly more sustainable development benefits than large-scale projects, and conclude that small-scale projects cannot be generally assumed to deliver more sustainable development benefits than large-scale projects. See K.H. Olsen and J. Fenhann, 'Sustainable development benefits of clean development mechanism projects: A new methodology for sustainability assessment based on text analysis of the project design documents submitted for validation' (2008) 36 *Energy Policy* 2819. It is consequently difficult to state conclusively what the proportion of small- and large-scale projects should be in the CDM pipeline, but there probably should be more small-scale projects as these authors do all agree that small-scale projects contribute more to sustainable development than large-scale projects, however little or great the difference in contributions may be.

¹⁵¹ See the CDM Pipeline, 1 November 2010.

means that even if investors do prefer to invest in large-scale projects in order to minimise cost and maximise cost-effectiveness, small-scale projects are still being developed and registered at almost the same rate as large-scale projects. A likely explanation for this is that most small-scale projects are unilateral, the host countries themselves are almost solely responsible for the projects, which involve no foreign investment, and therefore what foreign investors want does not directly affect the rate of developing and implementing such projects. Some authors consider that unilateral projects have stimulated registration of many small-scale projects which would ordinarily not be very attractive to foreign investors.¹⁵² According to Michaelowa, most of the registered small-scale projects are unilateral projects which do not involve developed country entities before registration.¹⁵³ It is unfortunately not possible to determine conclusively whether or not this is the case. This is primarily because host countries are not obliged to disclose whether there are developed country entities involved in the project and the kind of involvement of such entities. The project design documents (required to be submitted for all proposed CDM projects) sometimes state whether there are developed country entities involved and sometimes do not. Even where the project design documents specify the involvement of a developed country or its entity, the documents do not always identify whether such entities are investing in the projects or are only purchasing the CERs generated by the projects, as again, there is no requirement to do so. These two

¹⁵² See for example C. Sutter, 'Small-scale CDM projects: opportunities and obstacles - can small-scale projects attract funding from private CDM investors?' (2001) http://www.up.ethz.ch/publications/documents/Sutter_2001_Small-Scale_CDM_Vol1.pdf http://www.ethz.ch/index_EN (05/02/2010), 6; and A. Cosby *et al.*, 'Realizing the development dividend: making the CDM work for developing countries' (2005) http://www.iisd.org/pdf/2005/climate_realizing_dividend_sum.pdf, www.iisd.org (05/02/2010), 5.

¹⁵³ See Michaelowa, (2005), *supra* Chapter 2, note 62, at 12. The paper was published in 2005 and it is possible that the situation has changed since the paper was published.

categories are sometimes lumped together.¹⁵⁴ Without this information, it would be difficult to ascertain the proportion of projects that are unilaterally-developed and implemented. However, given that as of June 2010, about 95% of registered projects were at least unilaterally-developed (that is, developed unilaterally by an host country entity without the participation of a developed country entity),¹⁵⁵ it is logical to assume that most small-scale projects also are at least unilaterally-developed (and probably unilaterally-financed) as well.

The barrier presented by many investors' preference for large-scale projects mainly undermines the "potential" factor for achieving equitable distribution. This is because when countries with limited opportunities for large-scale projects are ignored or overlooked, their emission reduction potential (even though this potential can only be tapped primarily through

¹⁵⁴ An example is the CDM project "La Gloria Hydroelectric Project" hosted by Honduras (the project design document for this project is available at <http://cdm.unfccc.int/UserManagement/FileStorage/1L9M8SVJ034UCQYZF7HE5P6NBTDXRO> (UNFCCC, 20/07/2010)). In the project design document, the UK is identified as a Party involved and EcoSecurities as the UK private entity involved in the project. This however does not mean that EcoSecurities actually invested in the project. In this specific case, it appears that EcoSecurities only contracted to purchase the CERs generated from the project. This is shown in the project design document, where in identifying the investment barriers that had to be overcome, the project proponents explained the difficulty in obtaining investment for small-scale renewable energy projects and that the CERs to be generated from the project provided an additional income assurance for the two local banks that financed the project. In this case, it is obvious that although the project involved a developed country entity, this entity did not actually invest in the project. Rather, the project was locally-financed in the host country and is therefore a unilateral project, as it does not involve foreign direct investment in the project (although the fact that the project was going to generate CERs influenced the local investors to decide to invest in the project).

Compare this to another CDM project "Sahabat Empty Fruit Bunch Biomass Project" hosted by Malaysia, with the UK and Switzerland identified as Parties involved in the project, and again with EcoSecurities identified as the UK and Swiss private entity involved (the project design document for this project is available at <http://cdm.unfccc.int/UserManagement/FileStorage/TRIRK6LJSOZKL1TWDQO5TTM2QY856Y> (UNFCCC, 20/07/2010)). Here however, EcoSecurities' role was not identified and cannot be deduced, as the source of the financing for the project was not identified in the project design document. Consequently for this case, it cannot be concluded whether it was unilaterally-financed or whether the developed country entity invested directly in it.

¹⁵⁵ 95% of projects had only been approved by the host developing country at the time of registration. It is possible that subsequently, the projects were approved by developed countries, which also provide underlying finance in the projects. However this is not known but is unlikely. According to the UNFCCC Secretariat, some of these projects are subsequently approved by one or more developed countries, so that the CERs generated can be distributed to project participants from these countries directly, but even the frequency of such subsequent approval has fallen from 95% to 60%, which means that the CERs are simply purchased from the CDM market. See UNFCCC, "The contribution of the clean development mechanism under the Kyoto Protocol to technology transfer" <https://cdm.unfccc.int/Reference/Reports/TTreport/TTrep10.pdf>, www.unfccc.int (25/11/2010), 11 and 14.

small-scale projects) is basically lost and is not exploited under the CDM. In addition, it also undermines the “need” factor because many of the countries with the greatest need have limited opportunities for large-scale projects and are thereby affected by this barrier.¹⁵⁶

Mechanisms for Addressing the Size of Projects Barrier under the CDM Framework

In order to overcome the size barrier to equitable distribution of projects, two initiatives have been adopted within the CDM framework, specifically to reduce the transaction costs of small-scale projects, therefore making them more financially attractive. Firstly, projects expected to achieve less than 15,000 tonnes of CO₂e emission reductions annually (that is expected to generate less than 15,000 CERs), have been exempted from paying the project registration fee.¹⁵⁷ This is similar to the registration fee exemption granted to projects hosted in LDCs.¹⁵⁸

In addition, and in recognition of the fact that the costs associated with developing small-scale CDM projects may exceed the financial benefits achievable from such projects because of their size, the COP/MOP at its 2nd session adopted simplified modalities for small-scale CDM projects,¹⁵⁹ the aim of which is to reduce the transaction costs associated with this type of projects.¹⁶⁰ The simplified modalities and procedures include: a simplified project design document; simplified methodologies for baseline and monitoring plans; simplified provisions for environmental impact analysis; lower project registration fee; a shorter review period for

¹⁵⁶ See notes 147 and 148 above.

¹⁵⁷ Report of the 37th Meeting of the CDM Executive Board, Annex 20, paragraph 4.

¹⁵⁸ See the discussion above in Section 5.2.3.

¹⁵⁹ Decision 4/CMP.1, Annex II.

¹⁶⁰ See Decision 4/CMP.1, Annex II, paragraph 9. See also the small-scale CDM webpage at http://cdm.unfccc.int/Projects/pac/pac_ssc.html. See the discussion of transaction costs above.

the registration of projects; and permitting the same designated operational entity to validate, as well as verify and certify emission reductions for specific projects.¹⁶¹

Effectiveness of the Size of Projects Mechanisms

As with the exemption from payment of the registration fee, the aim of these initiatives is to reduce the transaction costs associated with such projects, in order to make them more financially attractive than they would otherwise be.¹⁶² If both large- and small-scale projects bore the same transaction costs, this would be disadvantageous to small-scale projects, as a larger percentage (proportionately) of the proceeds of the project would go towards these costs, than for large-scale projects. These simplified modalities and resulting lower transaction costs, together with the registration fee payment exemption, would be particularly beneficial to smaller, less industrialised developing countries, which do not have large industries suitable for large-scale CDM projects, or only have few of such opportunities, and therefore greater potential for small-scale projects. This initiative would in theory improve their chances of attracting CDM investment.

However, these initiatives are not in accordance with the factors for achieving equitable distribution. This is because the two initiatives are available to all developing countries, irrespective of their need and emission reduction potential. All countries can take advantage of the registration fee exemption and the simplified modalities for small-scale projects, together with the reduction in transactions costs these initiatives will achieve. This is not in accordance with the recommendations in Chapter 3, to the effect that countries' emission reduction potential and need should be taken into account in efforts to achieve equitable

¹⁶¹ The simplified modalities and procedures are contained in decision 4/CMP.1, Annex II. See also the small-scale CDM webpage at http://cdm.unfccc.int/Projects/pac/pac_ssc.html.

¹⁶² See UNDP, *supra* Chapter 1, note 28, at Chapter 4, where the authors identify some of the costs associated with small-scale CDM projects.

distribution, and that preferential treatment should be targeted at those countries with the greatest need, in order to enable them to fulfil their CDM potential.¹⁶³

Regarding how effective these initiatives have been in addressing the problem of equitable distribution, although undoubtedly well-intentioned and of benefit to some countries, they have not actually achieved this goal. Even if the measure has contributed to making small-scale projects more financially attractive and resulted in an increase in the number of projects than would otherwise have been implemented, it has not helped achieve a more equitable distribution of projects. Although small-scale projects make up about 46% of the CDM pipeline, the distribution of these projects is nearly identical to the distribution of CDM projects generally. For example out of the 2609 small-scale projects in the CDM pipeline, 999 and 631 are in India and China, respectively, but only a total of 34 in the 49 LDCs and 58 in the entire African region.¹⁶⁴ It does not appear therefore that this initiative has been particularly beneficial to those categories requiring special attention under the CDM (those with the greatest need, such as the LDCs and others identified in Chapter 4),¹⁶⁵ but has rather benefitted those that already had an advantage within the CDM process. The 5 countries with the largest number of projects – China (2260), India (1454), Brazil (356), Mexico (175) and Malaysia (133) are the countries with the largest number of small-scale projects – India (999), China (631), Brazil (153), Malaysia (101) and Mexico (87). These five countries account for 77% of all projects and 75% of all small-scale projects, with India and China hosting by far the largest number of both large- and small-scale projects.¹⁶⁶ This, as noted in Chapter 4, is not equitable. Whereas India has very high CDM potential and China and Brazil

¹⁶³ See the discussion in Chapter 3 above. Chapter 4 identifies those countries with the greatest need.

¹⁶⁴ Statistics correct as of October 2010 and obtained from the CDM Pipeline, 1 November 2010.

¹⁶⁵ See Chapter 4 for the classification of countries according to their need.

¹⁶⁶ Statistics as of October 2010, obtained from CDM Pipeline, 1 November 2010.

have high potential, Mexico has medium potential and Malaysia has low potential. There are many other countries with much higher CDM potential at least than Mexico and Malaysia, and even Brazil. In addition, of these 5 countries, only India is in the high need category. Brazil, Malaysia and Mexico are in the low need category and China is in the medium need category.¹⁶⁷ The inequitable distribution therefore remains the same.

On the face of it therefore, the size of projects does not constitute a barrier to equitable distribution since small-scale projects are still getting registered and are almost as many as large-scale projects. Those countries that have a greater potential for small-scale projects than large-scale projects should therefore not be at a disadvantage. However, because the CDM market is currently dominated by unilateral projects, the benefit has gone to those countries that can unilaterally develop and implement projects, whether small- or large-scale. These unilateral projects appear to be crowding out bilateral projects because given the choice, many investors may opt to buy CERs from unilateral projects rather than invest directly in [bilateral] projects, with the attendant risks and costs.¹⁶⁸

Even to the extent that size *is* a barrier and there are efforts within the CDM regime to address the problem by reducing the transaction costs associated with small-scale projects, these efforts do not appear to have been successful in attracting projects to those countries with the greatest need and a high potential for small-scale projects. Instead, the current inequity has been perpetuated.

¹⁶⁷ See the classification in Chapter 4.

¹⁶⁸ See the discussion below in Section 5.2.6 about the effect of the dominance of unilateral projects on the distribution of projects.

5.2.5 The Market-Based Nature of the CDM

Description of Barrier

As highlighted in Chapter 2, the CDM is a market-based mechanism that allows GHG emission reduction projects implemented in developing countries to generate CERs which can be used by developed country entities to comply with their emission reduction commitments.¹⁶⁹ Developed or developing country entities can invest in these projects¹⁷⁰ and the resulting CERs can either be traded or used directly by the developed country participant (to comply with its emission reduction commitment).

Although the CDM was created as a mechanism that would both generate cost-effective emission reductions and contribute to sustainable development,¹⁷¹ the very nature of the CDM as a market-based instrument is preventing it from achieving these objectives equitably among developing countries. The nature of the CDM means that apart from the necessary environmental constraints,¹⁷² normal market forces, such as risk and cost, largely dictate the location of projects. Investors are generally more interested in lower cost and risk projects, with the cost of a CDM project and the profit to be derived from it being the major considerations.¹⁷³ This has resulted in investment directed mainly towards the larger

¹⁶⁹ See Chapter 2 for the structure of the CDM.

¹⁷⁰ If investment comes from developing country entities, the projects are referred to as unilateral, and if from developed country entities, they are either bilateral or multilateral, depending on the number of developed country entities involved in the project. See Chapter 2 for a discussion of the three CDM models.

¹⁷¹ Protocol, Article 12. See also Prouty, *supra* Chapter 2, note 50, at 522.

¹⁷² Such as rules to ensure that projects result in real, measurable, and long-term benefits related to the mitigation of climate change, and that reductions in emissions are additional to any that would occur in the absence of the certified project activity. See Protocol Article 12.

¹⁷³ See Ellis and Kamel, *supra* Chapter 2 note 50, at 8; Sieghart, *supra* note 125, at 199; and Oppenoorth *et al.*, *supra* Chapter 2, note 60, at 20. On the risks involved in CDM projects, see generally, Lee, *supra* Chapter 2, note 12; Curnow and Hodes, *supra* note 26, at Chapter 9; and Baker and McKenzie, *supra* Chapter 2, note 39, at Chapter 8.

developing countries that can supply these kinds of projects¹⁷⁴ and has led Huq to conclude that left to market forces alone, most projects will go to a few of the larger developing countries, just as with the case of foreign direct investment.¹⁷⁵

According to Ellis and Kamel, “actions by national governments, the international community, multi-lateral and financial organisations can all help prospective host countries tap their CDM potential more efficiently by strengthening weak links in the CDM development chain. These actions will not necessarily lead to an even geographical distribution of CDM projects or credits, as cost-effective emission reduction potential varies widely by country. However, the CDM was designed to seek out market-based – not geographically-balanced – emission mitigation opportunities.”¹⁷⁶ From this excerpt, it is apparent that the authors regard the cost-effectiveness of projects as investors’ primary consideration, and the market-based nature of the CDM and the desire for geographically-balanced opportunities as not being particularly compatible objectives. This is despite the fact that unlike normal foreign direct investment, the CDM is not targeted at enabling investors to make profit from CDM projects. It is a mechanism that has [environmental] objectives of contributing to sustainable development in developing countries and providing cost-effective GHG emission reductions for developed countries.¹⁷⁷

Added to the problem is the fact that the sustainable development element of the CDM, unlike its GHG emission reduction element, has no monetary value put on it, and is therefore

¹⁷⁴ See generally, Prouty, *supra* Chapter 2, note 50.

¹⁷⁵ See Huq, *supra* Chapter 2, note 62, at 7. See also Humphreys *et al.*, *supra* note 96, where the authors note that “since investment requires a certain climate of trust and contacts, countries with pre-existing FDI relations with Annex I countries will be chosen at first”; and Jung, *supra* Chapter 3, note 68, at 2181, where the author asserts that, “it is rather against the general principle of a market-based tool like the CDM to result in an equal geographical distribution of projects.” See also Prouty, *supra* Chapter 2, note 50, at 524.

¹⁷⁶ See Ellis and Kamel, *supra* Chapter 2 note 50, at 8.

¹⁷⁷ See Protocol, Article 12. See also Huq, *supra* Chapter 2, note 62, at 10.

not factored into the cost or profit of the CDM.¹⁷⁸ There is no market incentive to promote sustainable development and no particular benefit to investors of investing in projects with high sustainable development contributions.¹⁷⁹ Because of this, for investors, who are considering cost and profit, the GHG reduction element is usually the paramount consideration, as when calculating profit, investors mainly calculate profit generated from the GHG emission reductions achieved. As a result, countries with the potential for low-cost, low-risk and high-profit projects will be the first option.¹⁸⁰ It is partly because of this barrier of the market-based nature of CDM projects that the size of projects (which partly determine the profit to be achieved from projects) and cost-related issues also constitute barriers to equitable distribution.¹⁸¹

The consequence of this is that those developing countries that are rapidly industrialising, with the attending industries, high emission levels, institutions and possibly project experience or existing foreign direct investment, are better placed to host CDM projects, and investors will therefore gravitate towards these countries.¹⁸² This is compounded by the CDM no longer being used purely as a compliance tool by developed country entities, but also as a

¹⁷⁸ According to the CDM rules, the host developing countries are responsible for determining that projects will contribute to their sustainable development. The host country is required to confirm that the CDM project activity assists it in achieving sustainable development (see paragraph 40(a) of the Annex to Decision 3/CMP.1). Also the host entity usually provides in the project design document, an explanation of the sustainable development contributions of the project. Beyond this, there is no regulation or rule concerning what this means or should constitute. The regulatory tools that have been developed (such as tools for assessing the additionality of the project) are mainly focused on calculating the emission reductions achieved by the project, and not measuring the sustainable development benefits it provides. See K. Capoor and C. Ambrosi, *State and Trends of the Carbon Market 2009* (Washington: World Bank, 2009), 50.

¹⁷⁹ See Ellis *et al.*, *supra* Chapter 2, note 45, at 10 and 12; and C. Sutter and J.C. Parreño, 'Does the current clean development mechanism (CDM) deliver its sustainable development claim? An analysis of officially registered CDM projects' (2007) 84 *Climatic Change* 75, 89.

¹⁸⁰ See Humphreys *et al.*, *supra* note 96; and R.M. Lof, 'Addressing market failures in the CDM: a funding-based approach' (2009) 1 *CCLR* 25, 25.

¹⁸¹ See the discussion of these barriers in Sections 5.2.3 and 5.2.4 above. For more on the linkages between the barriers, see the discussion in Section 5.3 below.

¹⁸² See Prouty, *supra* Chapter 2, note 50, at 523; Silayan, *supra* Chapter 1, note 50, at 41; Huq, *supra* Chapter 2, note 62, at 7; and Humphreys *et al.*, *supra* note 96.

profit-generating mechanism. This means that although many public and private entities invest in the CDM in order to use the CERs generated to meet their emission reduction commitments or to comply with environmental regulations in their jurisdictions,¹⁸³ many invest in the CDM in order to trade the CERs generated and make profit from such trade.¹⁸⁴ Because of this, these entities would not only go for projects that cost the least, they will in particular go for projects that can generate the greatest profit, and most likely follow the normal foreign direct investment trends.¹⁸⁵

It is worth noting that this relates mainly to bilateral projects in which the developed country entity invests directly in the underlying projects and is therefore primarily interested in reducing the cost of the investment and generating the most profit from it. It however also applies to some unilateral projects, particularly where the foreign entity purchaser, although it does not provide financing for the underlying project, is involved in originating the project¹⁸⁶

¹⁸³ Many public entities such as ministries and utilities invest in the CDM in order to comply with the environmental regulations within their jurisdictions or to voluntarily reduce their carbon footprints. Such entities include ENEL (Italy), E.ON (Germany) and Kommunalkredit (Austria). See the CDM Pipeline (www.cdmpipeline.org) for a list of CDM buyers, identified for example as “public” or “utility.” Such buyers are usually compliance buyers (the company websites usually identify the purpose for investing in CDM projects or purchasing CERs).

¹⁸⁴ See for example, Lecocq and Ambrosi, *supra* Chapter 2, note 45, at 141, where the authors note that an increasing number of CER buyers buy for resale, rather than for domestic compliance needs, such as is the case with many UK-based buyers. For example, as of November 2010, Ecosecurities was the largest CDM investor/CER purchaser, with a share of about 12% of all registered CDM projects. See the CDM Pipeline, 1 November 2010. Ecosecurities is however not a compliance buyer, but a CER trader, and is in the business of ‘sourcing, developing and trading emission reduction credits.’ See http://www.ecosecurities.com/Home/EcoSecurities_the_carbon_market/Who_we_are/default.aspx ‘Who we are’ (Ecosecurities, 20/11/2010). See the CDM Pipeline (www.cdmpipeline.org) for an analysis of all CDM projects and the official CDM website (<http://www.cdm.unfccc.int>) for CDM statistics. Other carbon market traders include AgCert, Trading Emissions and First Carbon Fund. Some investors are both compliance buyers and traders - they invest in projects and/or buy CERs both to comply with their emission reduction targets and also to trade in the carbon market. An example is Essent Trading. See <http://www.essenttrading.com/m/our-business/our-sustainable-products/emissions/the-compliance-market/index.lbl> ‘the compliance market’ (Essent Trading, 20/11/2010). See also Lutzeyer, *supra* note 28, at 13.

¹⁸⁵ See Huq, *supra* Chapter 2, note 62, at 10.

¹⁸⁶ This could involve: identifying potential projects; conducting the initial project assessments; compiling full project documentation; and steering the projects through the registration process. See for example, http://www.natsource.com/markets/index_sub.asp?s=177 ‘Origination services’ (Natsource, 21/07/2010); http://www.ecosecurities.com/Home/Developing_CDM_projects/Developing_CDM_projects/default.aspx

and agrees, through a forward contract, to purchase the CERs (before these are generated or even before the project is registered). In this case, the purchaser is interested in projects that will generate sufficient quantities of CERs that would make the transaction worth their while.¹⁸⁷

Although these issues are doubtless important to the CDM and to investors and should be considered, the important point is that market-based indicators are only suitable for one element of the CDM – the GHG emission reduction element. The sustainable development element of the CDM must also be considered if the CDM is to actually achieve its dual objectives but these indicators do not compute this element. It is not suggested that the CDM should no longer operate as a market, or have market characteristics, as these characteristics appear to have so far contributed to the rapid increase in CDM projects and investment.¹⁸⁸

However, it is essential that to ensure achievement of both objectives of the CDM, while investors consider market factors in selecting host countries and projects, they also consider sustainable development factors, such as countries' need and sustainable development potential. A combination of the two, rather than just the cost-effectiveness factor, should guide investors' choices.

The climate change regime appears to support this approach of considering cost-effectiveness above other issues and it can be argued that the structure of the CDM is a result of this. The

'Developing CDM projects' (EcoSecurities, 21/07/2010); and <http://www.firstclimate.com/carbon-investment-management.html> 'Carbon investment management' (First Climate, 21/07/2010).

¹⁸⁷ See for example, Capoor and Ambrosi, *supra* note 141, at 26, where the authors state that China is still the "destination of choice" for CER buyers, because of its large size, economies of scale in origination, and favourable investment climate.

¹⁸⁸ The private sector's ability to participate in, and even profit from, the CDM is perceived as a factor in the CDM's success. See for example, D. Disch, 'A comparative analysis of the 'development dividend' of Clean Development Mechanism projects in six host countries' (2010) 2 *Climate and Development* 50, 51.

Convention supports taking a precautionary approach¹⁸⁹ to climate change mitigation, “taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost.”¹⁹⁰ According to Birnie *et al.*, this emphasis on mitigating climate change at the lowest possible cost “looms large” in the Protocol architecture.¹⁹¹ On the other hand, the climate change regime also places great emphasis on sustainable development.¹⁹² For example, the Convention provides that countries have a right to promote sustainable development¹⁹³ and that they should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development for all.¹⁹⁴ These two elements must therefore be balanced and there is no justification for focusing more on the cost-effective element than the sustainable development element.

The barrier to equitable distribution presented by the market-based nature of the CDM mainly undermines the “need” factor for achieving equitable distribution. This is because by not considering countries’ need and sustainable development potential, investors are not adequately considering the specific circumstances of those countries with the greatest need and a high sustainable development potential. If countries’ need and sustainable development potential were actually considered by investors, then, it follows that those countries with the greatest need and sustainable development potential would be preferred over those countries with less need and sustainable development potential, or at least that they would have the

¹⁸⁹ This requires that precautionary measures should be taken to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects, and that where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures. See UNFCCC, Article 3(3). See also Sands, *supra* Chapter 2, note 19, at 266-279.

¹⁹⁰ UNFCCC, Article 3(3).

¹⁹¹ Birnie *et al.*, *supra* Chapter 1, note 15, at 358.

¹⁹² See the discussion of the climate change regime in Chapter 3.

¹⁹³ UNFCCC, Article 3(4).

¹⁹⁴ UNFCCC, Article 3(5).

opportunity to participate more effectively in the CDM.¹⁹⁵ In addition, because these countries (with the greatest need) also have emission reduction potential, their inadequate participation in the CDM due to this market barrier also undermines the “potential” factor for achieving equitable distribution.¹⁹⁶

Mechanisms for Addressing the Market Barrier under the CDM Framework

There are currently no initiatives under the CDM to address this problem. The responsibility to ascertain that CDM projects contribute to countries’ sustainable development belongs to host countries themselves.¹⁹⁷ Developed country entities are not required to consider the sustainable development contribution of projects or potential of countries when investing in projects.¹⁹⁸ There is no added benefit to them (except perhaps goodwill or public policy) of investing in projects with particularly high sustainable development contributions or in countries with high sustainable development potential.¹⁹⁹ There are no real incentives for investors or CER purchasers acting in the CDM market, other than cost or profit. Precisely because the CDM is a market, there may be concerns about the level of regulation that can be

¹⁹⁵ See Table 2 in Chapter 4 for a classification of countries according to their need.

¹⁹⁶ See notes 48 and 74 above.

¹⁹⁷ See Decision 3/CMP.1, Annex, Paragraph 40(a).

¹⁹⁸ There are, however, some voluntary schemes that have developed a premium for projects with high sustainable development benefits. An example of such schemes is the Gold Standard, which has the aim of ensuring that CDM projects foster sustainable development in developing countries, in addition to producing cost-effective emission reductions. See <http://cdmgoldstandard.org/What-we-stand-for.66.0.html> ‘What we stand for’ and <http://cdmgoldstandard.org/What-we-do.64.0.html> ‘What we do’ (Gold Standard, 25/02/2011). Another example is efforts by the European Union to develop its own sustainability criteria. For instance, credits from large-scale hydro and forestry projects, among others, are banned from inclusion in the European Union Emission Trading Scheme, on the grounds of ensuring the environmental integrity of the CDM. See http://ec.europa.eu/clima/consultations/0004/registered/enel_3_en.pdf ‘A view on CDM qualitative restrictions’ (Europa, 21/04/2011); and H. van Asselt, ‘The EU ETS in the European climate policy mix: past, present and future’ (2009) http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1596892, www.ssrn.com (21/04/2011).

¹⁹⁹ See A.M. Halvorsen, ‘The Kyoto Protocol and developing countries – the clean development mechanism’ (2005) 16 *CJIELP* 353, 367. The author notes that this has been criticised as “tipping the balance” to the emission reduction element of the CDM over its sustainable development element.

imposed on the market, including on actors in the market.²⁰⁰ In particular, there may be questions about whether the CDM legal regime can impose restrictions on, for example, which countries investors should invest in, or compel or require them to invest in certain countries. However, the fact is that the CDM *is* a regulated market, and there are already restrictions on the countries²⁰¹ and kinds of projects investors can invest in.²⁰² Some of these rules, such as the additionality requirement,²⁰³ were established to ensure the environmental integrity of the CDM and ensure it actually fulfils its objective of real GHG emission reductions.²⁰⁴ In the same manner, it should be possible to regulate the CDM market to enable the CDM to meet its objective of contributing to sustainable development in developing countries, and not limiting this to just some developing countries.²⁰⁵

5.2.6 The Unilateral CDM Structure

Description of Barrier

The above discussions show that many of the barriers to equitable distribution, such as lack of capacity, as well as lack of financing and other cost-related barriers, constitute barriers to equitable distribution of projects primarily because of the unilateral nature of many CDM projects. Hence, one of the major barriers to equitable distribution of CDM projects is the

²⁰⁰ For example, during the negotiations at COP/MOP 5 in December 2009 (at which the author was in attendance), some countries objected to the idea of establishing country quotas, questioning the suitability of such a solution for a market-based instrument.

²⁰¹ See the discussion of the CDM participation requirements in Chapter 2.

²⁰² CERs generated from nuclear activities cannot be used by developed countries to meet their emission reduction targets. See Decision 17/CP.7, Preamble, paragraph 5. In addition, with regard to land use, land-use change and forestry activities, only afforestation and reforestation project activities are eligible. So for example, projects involving avoided deforestation are currently not eligible under the CDM. See Decision 17/CP.7, Paragraph 7(a).

²⁰³ According to the additionality requirement, reductions in emissions must be additional to any that would occur in the absence of the certified project activity. See Protocol Article 12(5)(c).

²⁰⁴ See Curnow and Hodes, *supra* note 26, at 33. See also the discussion in Chapter 2.

²⁰⁵ There should be no real reason why this cannot be done, especially for compliance investors, where the ultimate aim is to ensure that they are able to meet their Kyoto commitments in a more cost-effective way than they can in their own jurisdictions, and not necessarily to make profit.

predominance of unilateral CDM projects in the CDM market. This is a barrier mainly because unilateral projects require the developing country hosts to have sufficient financial and technical capacity to undertake such projects, and those that lack such capacity are unable to undertake unilateral projects.²⁰⁶ They are consequently sidelined in the CDM market that is dominated by unilateral projects.

The Kyoto Protocol defines the CDM as a mechanism under which non-Annex I Parties (developing countries) will benefit from project activities resulting in CERs and Annex I Parties (developed countries) may use these CERs to comply with part of their Protocol emission reduction targets.²⁰⁷ This definition does not identify what structure CDM projects should have, and indeed the structure is now largely determined by the entities involved and their financial and technical capabilities.²⁰⁸

Although the Kyoto Protocol and the CDM rules left open the question of which structure the CDM should take, the CDM was originally conceived as a mechanism under which developed country entities would invest in projects in developing countries and use the CERs generated to meet their emission reduction commitments.²⁰⁹ As several authors have noted, the expectation was that the CDM would follow a mainly investment model, whereby developed country entities would provide direct investment of equity or debt in projects in

²⁰⁶ One of the barriers identified during a public call for inputs to identify barriers to equitable distribution of CDM projects was that, “multilateral and bilateral support has moved from CDM project financing to activities linked to purchasing CERs.” See Annex 4 to the Annotated Agenda of the 26th Meeting of the CDM Executive Board, Equitable distribution of clean development mechanism project activities - Analysis of submissions, available at <http://cdm.unfccc.int/EB/026/eb26annagan4.pdf> (UNFCCC, 11/02/2010), 8. See also Michaelowa, *supra* note 129, at 26.

²⁰⁷ See Kyoto Protocol, Article 12(3). See generally the discussion of the CDM in Chapter 2.

²⁰⁸ Baumert *et al.*, *supra* Chapter 2, note 51, outline the various options possible.

²⁰⁹ See A. Muller, ‘How to make the clean development mechanism sustainable - the potential of rent extraction’ (2007) 35 *Energy Policy* 3203, 3205; Jahn *et al.*, (2003), *supra* note 42, at i; M. Jahn *et al.*, ‘Measuring the potential of unilateral CDM - a pilot study’ (2004) http://papers.ssrn.com/sol3/papers.cfm?abstract_id=508343 www.ssrn.com (04/02/2010), 13; and Krey, *supra* Chapter 2, note 52, at 2387.

developing countries.²¹⁰ After the Kyoto Protocol was agreed and during the negotiation of the rules, there was some debate about whether or not unilateral projects would be allowed under the CDM.²¹¹ The Executive Board formally resolved this debate at its 18th meeting when it agreed that a CDM project can be registered without involvement of an Annex I Party at the registration stage.²¹² This effectively permitted the registration of unilateral CDM projects²¹³ and consequently, the CDM has moved from its original conception and is now also a mechanism under which developing countries themselves implement projects and sell the CERs generated to developed country entities, which these entities can then further trade or use to meet their emission reduction commitments.²¹⁴ In this latter model, the host developing country entity itself develops, finances and implements the CDM project.²¹⁵ It involves no direct investment by the developed country entity. This model is referred to as the unilateral CDM.²¹⁶

²¹⁰ See Lecocq and Ambrosi, *supra* Chapter 2, note 45, at 143; Paulsson, *supra* note 126, at 71; and Muller, *supra* note 209, at 3205.

²¹¹ See Jahn *et al.*, (2003), *supra* note 42, at 1-2; and G.R. Timilsina and R.M. Shrestha, 'A unilateral clean development mechanism scheme for a developing country: a general equilibrium analysis' (September 2007) <http://www.usace.org/usace2007/submissions/OnlineProceedings/Full%20Paper%20-%20Timilsina.pdf> <http://www.usace.org/> (15/02/2010). In the Co-Chairs' Note prepared for the negotiation of the rules, three options regarding whether there should be explicit reference to unilateral CDM projects were presented: no provision regarding unilateral projects, and in the absence of such provision, unilateral projects would not be excluded; explicit reference requiring projects to be bilateral; or explicit reference making it optional. See Preparations for the First Session of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol (Decision 8/CP.4), Note by the Co-Chairmen of the Negotiating Groups, FCCC/CP/2001/CRP.8, 20 July 2001, 19. Eventually the rules, as contained in the Marrakesh Accords (Decision 17/CP.7) were silent on the structure the CDM would take, and on whether or not unilateral projects would be allowed.

²¹² See Report of the 18th Meeting of the CDM Executive Board (CDM-EB-18), 25 February 2005, <http://cdm.unfccc.int/EB/018/eb18rep.pdf> www.unfccc.int (UNFCCC, 15/02/2010), paragraph 57. See generally Michaelowa, (2007), *supra* note 129.

²¹³ According to the UNFCCC Secretariat, the share of projects that had been approved only by the host country at the time of their entry into the CDM pipeline rose from 70% in 2004 to almost 95% in 2010. In addition, fewer subsequent approvals by developed countries of participation in projects are being made, with the share of projects with developed country involvement falling from over 95% in 2004 to 60% in 2010. See UNFCCC, *supra* note 155, at 11.

²¹⁴ See for example the definition of the CDM in Boyd *et al.*, *supra* note 28, at i and 1.

²¹⁵ See Sutter, *supra* note 152, at 16; and Muller, *supra* note 209, at 3205.

²¹⁶ See the discussion of the structure of the CDM in Chapter 2. See also Krey, *supra* Chapter 2, note 52, at 2387.

In the unilateral CDM structure, the CDM project is developed and implemented by local project developers with financing obtained usually from local investors/financial institutions, and the resulting CERs are then sold to developed countries, developed country private entities or market traders. The sale of CERs could be through a forward contract, where the agreement between buyer and seller is reached and signed even before the CERs are generated (it could even be before the project is registered).²¹⁷ On the other hand, the sale of CERs could happen after they are generated, on the “spot” market.²¹⁸ The key element here is that the purchaser of CERs does not invest in the underlying project – the only finance provided is for the purchase of the CERs.²¹⁹ This is the case even though under some forward contracts (usually referred to as emission reduction purchase agreements or ERPAs), some purchasers will advance part of the purchase price ahead of the actual performance of the contract, usually to enable the project developer to cover the transaction costs associated with the project.²²⁰

The main distinction between unilateral and bilateral CDM projects is that for bilateral projects, the developed country entities provide direct investment in the underlying projects,

²¹⁷ See Curnow and Hodes, *supra* note 26, at 78. CERs sold on a forward basis do not yet exist.

²¹⁸ *Ibid*, at 77.

²¹⁹ See Sutter, *supra* note 152, at 16.

²²⁰ For example, the World Bank states that it can advance funds for the preparation of the necessary CDM documentation and recover the costs of preparing the documentation from future payments. Also, it states it can make upfront payments of up to 25% of the value of the purchase contract. See <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,,contentMDK:21844272~menuPK:5220636~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html> ‘For project developers’ (World Bank, 03/02/2010).

Contrast this with Michaelowa, (2007), *supra* note 129, at 21, where the author states that CDM projects which involve forward contracts may not qualify as unilateral projects, *inter alia* because the contracts may have a strong influence on the financial closure of the project. He states further that where the purchase agreement is reached before the project is registered, such a project should be regarded as bilateral or multilateral, *inter alia* because the buyer assumes some of the risk and also because the buyer would probably participate in the registration process to reduce the risk of non-registration. However because even if the contract influences the financial closure of the project, such as providing leverage for obtaining the financing for the underlying project, the purchaser still does not invest in the actual project and the project developer has to obtain other local financing for the project, this thesis regards such projects as unilateral. They do not fit the description of the “bilateral” structure envisaged under the CDM. See Krey, *supra* Chapter 2, note 52, at 2387; and Baumert *et al*, *supra* Chapter 2, note 51, at 4-5.

as was originally envisaged. Bilateral as used in this sense refers to those projects that not only involve foreign entities, but in which the foreign entities participate in the development and financing of the projects, rather than just in the purchase of the CERs generated from the projects.²²¹ The unilateral structure does not provide this. Even the multilateral structure has turned out to be very similar to the unilateral structure, with the only distinction being that in the multilateral structure, several developed country entities act through the fund or portfolio manager.²²² Baumert *et al*, when outlining the various options for the CDM structure, envisaged that a multilateral structure would involve investment in the underlying project, with the fund providing “ideas, capacity and financing” and being involved in the

²²¹ An example of a bilateral project is the “Zafarana Wind Power Plant Project” hosted by Egypt and financed by the Japanese government through the Japan Bank for International Cooperation (JBIC), via debt financing (loan). The CERs generated by the project were contracted to be purchased by Japan Carbon Finance acting as JBIC’s indirect financial instrument. These two Japanese entities worked in collaboration, with JBIC providing the underlying finance for the project and Japan Carbon Finance purchasing the CERs generated by the project. See the project design document for the project at <http://cdm.unfccc.int/UserManagement/FileStorage/Q1OEHEZG9WGW44Q7R6W0HYKCMNZCNF> (UNFCCC, 22/07/2010), 5 and 9.

An example of a unilateral CDM project is the La Gloria Hydroelectric Project hosted by Honduras. In the project design document, the UK is identified as the Annex I Party involved and EcoSecurities is identified as the private entity involved in the project. This on the face of it suggests that this was a bilateral project. However, the project design document identifies that the financing for the project was provided by two local banks in Honduras (Bamer and Ficohsa). The project therefore does not qualify as a bilateral project because it was unilaterally funded by the host country itself. See the project design document for the project at <http://cdm.unfccc.int/UserManagement/FileStorage/1L9M8SVJ034UCQYZF7HE5P6NBTDXRO> (UNFCCC, 22/07/2010), 8 and 10.

For some projects, the project design documents clearly identify them as unilateral projects. See for example, the 1.5 MW Biomass/Bagasse Based Co-generation Power Project hosted by India. Although on the CDM website, the UK (Annex I Party) and the CarbonNeutral Company Limited (private entity) are identified as parties involved, this is likely only through a CER purchase, as the project design document clearly states that “the project has not received any public funding from Annex I countries and Official Development Assistance (ODA). The project is a unilateral project.” See the project design document for the project at <http://cdm.unfccc.int/UserManagement/FileStorage/YY0VUKSCL3J4HIRKUC934NUQ2W5IEF> (UNFCCC, 22/07/2010), 10.

²²² See the discussion in Chapter 2. An example of a multilateral project is the Uganda Nile Basin Reforestation Project hosted by Uganda. The main investor in the project was Uganda’s National Forest Authority, with other Ugandan community groups also providing some investment. The National Forest Authority retained all rights to the CERs generated and entered into an emission reduction purchase agreement for the sale of the CERs. The CER buyer was the International Bank for Reconstruction and Development, as trustee of the BioCarbon Fund. This is an example of a multilateral project (as it involved an investment fund – the BioCarbon Fund, acting on behalf of public and private sector participants) that was actually unilaterally funded by the host country itself. See the project design document for the project at <http://cdm.unfccc.int/UserManagement/FileStorage/E3A6TBOQ9RDM0KZ47WFJH5LPCYS2GU> (UNFCCC, 22/07/2010), 3.

development of the project directly.²²³ This has turned out not to be the case. The multilateral structure often operates the same as unilateral projects, as the developing country hosts usually need to source the financing for the underlying projects. The multilateral funds tend to only purchase the CERs generated, possibly with some upfront/advance payment.²²⁴

These commodity-style purchase transactions are now very common and some estimate them to be the most common form of CDM projects.²²⁵ According to Ellis and Kamel, many CDM projects are developed entirely or with a majority stake by the host country, with no foreign investment component.²²⁶ Sieghart reports that over 90% of the expressions of interest received by Yemen's DNA Secretariat are to purchase CERs from unilateral CDM projects rather than to directly invest in/finance projects.²²⁷ Hence, the CDM is rapidly moving away

²²³ See Baumert *et al*, *supra* Chapter 2, note 51, at 4-5.

²²⁴ For instance, the World Bank, through its various carbon funds is one of the top 20 CER buyers/investors in the CDM market. It currently acts as Trustee for 12 carbon funds/facilities on behalf of several governments and private entities. However, generally, these funds or facilities do not invest directly in the underlying projects but only purchase the CERs generated by the projects, just like with unilateral projects. The World Bank states on its site that it will only purchase the CERs generated from projects, with payment on delivery [of the CERs]. See <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,,contentMDK:21844766~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html> 'Minimum project requirements' (World Bank, 22/07/2010).

²²⁵ See Lecocq and Ambrosi, *supra* Chapter 2, note 45, at 143-144. See also Niederberger and Saner, *supra* note 43, at 6, where the authors note that the most common form of transaction is forward contracts to purchase CERs; R.K. Chung, 'How to redefine the role of CDM after 2012?' (2007) http://www.climateanddevelopment.org/ap-net/docs/17th_seminar/chung2_unescap.pdf, www.climateanddevelopment.org (04/02/2010), 3, where the author estimates that unilateral projects comprised 70% of the 1600 registered CDM projects at that time; and Michaelowa, (2005), *supra* Chapter 2, note 62, at 13, where the author shows that there are more unilateral than bilateral projects. See also Krey, *supra* Chapter 2, note 52, at 2388; Ellis and Kamel, *supra* Chapter 2 note 50, at 17; and T. Sudo *et al.*, "Challenges for financing clean development mechanism project in Asia: case studies from Indonesia and India" (2005) <http://enviroscope.iges.or.jp/modules/envirolib/upload/870/attach/challenges.pdf>, <http://www.iges.or.jp/en/index.html> (04/02/2010).

However because project proponents are not required to disclose their source and style of funding, it is not possible to determine precisely how the market is divided among the various structures available. It is possible that although in some PDDs, it is not stated that the foreign entity is investing directly in the project, or that a contract has been signed for the purchase of CERs, that this is actually the case.

²²⁶ See Ellis and Kamel, *supra* Chapter 2, note 50, at 17.

²²⁷ Sieghart, *supra* note 125, at 201.

from the envisaged foreign investment and involvement-based mechanism to one which mainly involves local developers and financiers.²²⁸

This dominance of unilateral CDM projects in the CDM market constitutes a barrier to equitable distribution because of the inability of many countries, particularly the poorer developing countries, to undertake such projects. In the unilateral CDM structure, the developing country host must itself raise the required funds for the underlying project, rather than the financing being provided by the developed country entity in exchange for CERs. This ability to unilaterally host projects is not in itself inequitable. On the contrary, it is very beneficial particularly to those [usually larger] developing countries that can raise the necessary financing locally and that have the capacity to unilaterally develop and implement projects. The benefits of the unilateral CDM structure include the fact that it enables developing countries to participate in the climate change regime on their own terms, without the need for a developed country sponsor. It also enables them to reap all the benefits of the CDM, including climate change mitigation, the sustainable development benefits and the CERs generated by the projects. In addition, developing countries would be able to focus more on projects that align with their sustainable development objectives, rather than those projects that are more financially-attractive to a developed country sponsor.²²⁹

However because unilateral CDM projects now dominate the CDM market, this is disadvantageous to those low income developing countries which do not have the necessary capacity to unilaterally develop and implement projects and also cannot obtain the required

²²⁸ See Niederberger and Saner, *supra* note 43, at 6; Chung, *supra* note 225, at 3; Michaelowa, (2005), *supra* Chapter 2, note 62, at 13; Jahn *et al.*, (2003), *supra* note 42, at 2; and UNDP, *supra* Chapter 1, note 28, at 71.

²²⁹ For more on the benefits of unilateral CDM projects, see Michaelowa, (2007), *supra* note 129, at 22-24; Sieghart, *supra* note 125, at 199; and Jung, *supra* Chapter 3, note 68, at 2173-2174, footnote 4.

financing locally and rely on foreign support.²³⁰ While noting the possibility of promoting unilateral projects as an opportunity to promote equitable distribution of projects, Paulsson also notes that research has shown that the Asian and Latin American countries that are already major beneficiaries of bilateral investment are also the most likely countries to undertake unilateral projects, and that this suggests that unilateral CDM projects might not be feasible for the poorest countries.²³¹ To be able to take advantage of the unilateral CDM, developing countries would require the capacity to manage the implementation of CDM activities and the sale of the CERs generated,²³² as well as access to sufficient project finance in the domestic capital market.²³³

Oppenoorth *et al* give the example of a proposed CDM project in Kenya. Due to the upfront costs required and the risks involved, all the potential buyers approached were only willing to buy the CERs generated after project registration and implementation. The project was therefore not able to generate the required financing and could not be registered.²³⁴ In this example, had this country (Kenya) being able to raise sufficient local capital to register and implement the project unilaterally, this project would have been one additional project for the country.²³⁵

As noted above, the ability for countries to unilaterally develop and implement CDM projects is not in itself inequitable, and is actually promoted by some authors.²³⁶ For example, some

²³⁰ Michaelowa concludes that, “Whereas several countries from Asia and Latin America can design and implement projects autonomously, most of the Sub-Saharan countries rely on foreign support.” See Michaelowa, (2007), *supra* note 129, at 17. See also Sudo *et al.*, *supra* note 225.

²³¹ See Paulsson, *supra* note 126, at 73. See also Baumert *et al.*, *supra* Chapter 2, note 51, at 7; and Sieghart, *supra* note 125.

²³² See Sudo *et al.*, *supra* note 225; and Michaelowa, (2007), *supra* note 129, at 25

²³³ Michaelowa, (2007), *supra* note 129, at 26.

²³⁴ See Oppenoorth *et al.*, *supra* Chapter 2, note 60, at 20.

²³⁵ Kenya currently has two registered projects and 14 in the pipeline. See CDM Pipeline, 1 July 2010.

²³⁶ See Cosby, *et al.*, *supra* note 152, at 5. See the advantages outlined in Michaelowa, (2007), *supra* note 129, at 22-24.

authors consider that unilateral projects have stimulated registration of many small-scale projects which would ordinarily not be very attractive to foreign investors.²³⁷ Some have also suggested that unilateral projects should be promoted as a way of improving the distribution of projects, stating this would benefit those countries that would ordinarily not be able to attract bilateral investment due, for example, to country risk or a poor investment climate within the countries.²³⁸ The disadvantage arises specifically because both unilateral and bilateral CDM projects compete in the same market and for the same developed country entities. There is a finite demand for CDM projects/CERs – they are primarily targeted at contributing to meeting developed countries’ emission reduction commitments.²³⁹ If there is preference for unilateral projects over bilateral projects (as there appears to be in the CDM market, given the prevalence of unilateral projects), then the demand for bilateral projects ultimately will be reduced, as developed countries only need a certain amount of CERs to contribute to meeting their emission reduction commitments. And because unilateral projects currently dominate the market, the share of bilateral projects is inevitably reduced.

For example, Sieghart reports that although there is mounting interest by the carbon community in CDM projects from Yemen, this interest is mostly limited to the purchase of CERs.²⁴⁰ This could be as a result of the fact that for many, or even most, developed country

²³⁷ See for example Sutter, *supra* note 152, at 6; Cosbey, *et al.*, *supra* note 152, at 5; and Michaelowa, (2007), *supra* note 129, at 24.

²³⁸ See for example Paulsson, *supra* note 126, at 73; and Jahn *et al.*, (2003), *supra* note 42, at 6-7. See generally Michaelowa, (2007), *supra* note 129, for advantages and disadvantages of unilateral CDM projects.

²³⁹ See the discussion in Chapter 2 for more about the CDM. There is also the voluntary carbon market, which caters to entities that voluntarily decide (for example for public relations or policy reasons) to reduce their carbon footprint using offsets. CERs can also be sold in the voluntary market and this market could therefore stimulate some extra demand. However, the voluntary carbon market is very small compared to the regulated carbon market, and comprises different kinds of projects including for example, carbon sequestration and avoided deforestation projects that are currently not eligible under the CDM. See generally, K. Hamilton *et al.*, ‘State of the voluntary carbon markets 2007: picking up steam’ (July 2007) http://ecosystemmarketplace.com/documents/acrobat/StateoftheVoluntaryCarbonMarket18July_Final.pdf [www.ecosystemmarketplace.com](http://ecosystemmarketplace.com) (23/07/2010).

²⁴⁰ Sieghart, *supra* note 125, at 199.

entities participating in the CDM, the key consideration is cost – either in terms of achieving their emission reduction commitments at the lowest possible cost, or in terms of making profit from trading in CERs.²⁴¹ Even the option of concluding forward contracts is often by-passed in favour of the less-risky option of buying CERs on the spot market.²⁴² As highlighted above, even though under forward contracts there is no direct investment provided, some foreign entities will provide upfront payment of part of the purchase price which can then be used to cover transaction costs and/or leverage finance for the underlying project. However, even this option is being by-passed, making the situation even worse for those countries that rely on foreign involvement in projects.²⁴³

Many countries, especially LDCs and African countries, rely on foreign investment and capacity building to be able to develop and host projects. For example, Pfeifer and Stiles point out that mechanisms for local financing of small-scale projects in Africa are very limited at present and that this limits the opportunities to develop unilateral projects.²⁴⁴ Sieghart concludes that a key barrier to unilateral CDM projects in LDCs like Yemen is difficulties in procuring underlying finance and emphasized the need to address this problem in the interest of LDCs.²⁴⁵ Although there is no doubt that host country entities will benefit from unilateral projects through the associated CER revenues,²⁴⁶ some countries lack the financial and technical capability to exploit their CDM potential and will thus be unable to enjoy the sustainable development benefits (such as direct investment, capacity building and

²⁴¹ See the discussion above of the market-based nature of the CDM and the fact that the sustainable development objective of the CDM is not monetised meaning that only the cost-effectiveness element has real value attached to it.

²⁴² See Capoor and Ambrosi, *supra* note 178, at 32.

²⁴³ See also Capoor and Ambrosi, *supra* note 141, at 26, where the authors note the likelihood of higher volumes of spot primary transactions which could result in inclination away from stand-alone ERPAs.

²⁴⁴ See Pfeifer and Stiles, *supra* note 129, at 17. See also Michaelowa, (2007), *supra* note 129, at 17.

²⁴⁵ Sieghart, *supra* note 125, at 202.

²⁴⁶ Ellis and Kamel, *supra* Chapter 2, note 50, at 17.

technology transfer) the CDM is meant to contribute to. These countries are likely to be those most in need of these benefits because of their low human development.²⁴⁷ Consequently, this barrier created by the unilateral CDM structure mainly undermines the “need” factor for achieving equitable distribution. However, as already highlighted several times, because those countries with the greatest need also have emission reduction potential, this barrier also undermines the “potential” factor.²⁴⁸

Mechanisms for Addressing the Unilateral Structure Barrier under the CDM Framework

There are currently no initiatives to address this problem under the CDM Framework. There is no limit to the percentage of unilateral projects in the CDM pipeline or any kind of requirement for a minimum share or percentage of bilateral projects.

Unilateral projects undoubtedly have their advantages.²⁴⁹ They, however, have many disadvantages which may outweigh the advantages. One particular disadvantage relating to the distribution of projects is that only those developing countries that already have the financial and technical capacity to identify, develop and implement projects will be able to do so, and this will exclude, and probably already has excluded, many of the poorer developing nations.²⁵⁰ Due to its current structure, although the CDM may stimulate sustainable development in some developing countries, some countries will still be left behind, because of their inability to compete with the larger industrialising developing countries in terms of

²⁴⁷ Such as sub-Saharan African countries and the LDCs. See for example, Michaelowa, (2007), *supra* note 129, at 17; and Pfeifer and Stiles, *supra* note 129, at 17. See the classification of countries according to their need, in Chapter 4.

²⁴⁸ See notes 48 and 74 above.

²⁴⁹ See page 233 and note 229 above.

²⁵⁰ See Paulsson, *supra* note 126, at 73, where it is noted that unilateral projects may not be feasible for the poorest countries.

the capacity and expertise to develop and implement projects, as well as the availability of local financing and/or the ability to raise the financing for the underlying project.

5.3 Analysis and discussion of barriers

This chapter has analysed the barriers to the equitable distribution of CDM projects arising from the nature or operation of the CDM, together with the various initiatives to address these barriers. The main barriers identified within the CDM are lack of capacity and local expertise, finance and cost-related barriers, the size of projects, the market-based nature of the CDM, and the prevalence of unilateral projects in the CDM market. All these barriers undermine both the “need” and “potential” factors for achieving equitable distribution. For example, the barriers presented by lack of capacity, finance and cost-related issues, the market-based nature of the CDM and the prevalence of unilateral CDM projects primarily affect those countries with the greatest need, and so, mainly undermine the “need” factor. These barriers nonetheless also affect the “potential” factor because most of the countries with the greatest need also do have emission reduction potential, and by overlooking them in the CDM, their potential is likewise overlooked and not exploited. The barrier presented by the preference for large-scale projects mainly undermines the “potential” factor, because by neglecting small-scale projects, the emission reductions achievable by these projects are also neglected. The barrier also affects the “need” factor to the extent that many of the countries with the greatest need have more opportunities for small-scale projects, because of their low levels of industrial development and, hence, limited opportunities for large-scale projects.²⁵¹

Generally, the initiatives to address the inequitable distribution of projects aim to provide financial and capacity building support to specific groups of countries, particularly LDCs,

²⁵¹ See the text at note 156 above.

African countries and countries with fewer than 10 CDM projects, although there are a few initiatives aimed at all countries generally. As already highlighted, LDCs are those countries with the lowest human development and most African countries also fall in this category. However, not all countries with fewer than 10 CDM projects fall in this category, although some of them do.²⁵² It appears therefore that in trying to ensure a more equitable distribution of projects, the main consideration is for those countries that have a higher degree of need because of their low human development. These countries have limited financial and technical capacity, which is why most of the initiatives undertaken by the CDM regime aim to support countries by providing them with financial and capacity building assistance, through the capacity building initiatives and payment exemptions. This is in accordance with the conclusion reached in Chapter 3, that in order to ensure an equitable distribution of projects, countries' need should be considered and preferential treatment should be given to those countries with the greatest need to help improve their participation in the CDM.

Regarding whether the CDM regime can support an equitable distribution of projects, the answer is that two of the main elements of the CDM regime constitute the main barriers to equitable distribution of projects. These two elements in fact lead to those countries with the greatest need being unable to effectively participate in the CDM. These elements are the market-based nature of the CDM and the prevalence of unilateral CDM projects in the CDM market. Because of the prevalence of unilateral CDM projects and the availability of CERs for purchase, developed country entities have less of an incentive to directly invest in CDM projects, with the attendant risks and financial commitments required. This is because they

²⁵² For example, Singapore, Qatar, Malta and Kuwait, all of which have fewer than 10 CDM projects, all have very high human development. See the classification of countries according to their need and number of CDM projects in Chapter 4, Tables 2 and 3. See the discussion in Section 5.2.3 above for criticisms of initiatives extending preferential treatment to all countries with fewer than 10 projects irrespective of their need or emission reduction potential.

can more easily purchase CERs on the CDM market. This is a major disadvantage to the countries with the greatest need because of their dependence on foreign investment and capacity support to help them effectively participate in the CDM. Without these, they are constrained in their ability to participate. If there were no unilateral projects, or if there was a limit on unilateral CERs, developed country entities would have to invest directly in host developing countries to generate the CERs they need, if they want to take full advantage of the CDM and the cost-effective emission reductions it could provide (and they would still do so provided the marginal abatement costs of such investment made it more cost-effective than their domestic reductions). If this were the case, developing countries would only have the barrier of the market-based nature of the CDM to overcome. This is however not the case – there is no limit to the share of unilateral projects in the CDM market, and these currently dominate the CDM market.²⁵³

Again, the barrier to equitable distribution created by the market-based nature of the CDM mostly affects those countries with the greatest need, and this barrier is not being addressed by the regime. Generally, even where developed country entities invest directly in projects, or where they simply purchase CERs, these entities prefer to transact with larger, rapidly-industrialising developing countries, mainly because of their greater potential and financial and technical capacity, to the detriment of the smaller, less-industrialised developing countries, who are often those with the greatest need.²⁵⁴ Investors also likely prefer to re-invest following initial successes, so success breeds success. This means that even bilateral

²⁵³ See Chapter 6, Section 6.2.4 for proposals on how to address this barrier.

²⁵⁴ As noted above, internal barriers such as lack of good governance cannot completely explain the distribution of CDM projects. Some countries (such as Botswana, Uruguay and Qatar) that can be considered to be doing well in terms of good governance are not doing well under the CDM, while others (such as China and Mexico) are performing well under the CDM, despite their relatively (compared to other countries) poor governance performance. See the discussion on pages 179-180 above.

projects will often by-pass smaller developing countries because the CDM is a market-based instrument where cost-effectiveness, profit maximisation and risk minimisation are key and larger developing countries are thereby more attractive than the smaller, less-industrialised, ones. This problem is exacerbated by the fact that the sustainable development contributions of the CDM, unlike the GHG emission reduction contributions, are not monetised. As a result, there is no added incentive for developed country entities to invest in those countries with the greatest need and sustainable development potential, as the higher sustainable development benefits the CDM can bring to smaller countries do not make up for the higher costs or lower profits associated with projects in such countries. Even those with relatively high levels of emissions and therefore emission reduction potential, are being sidelined, *inter alia*, because of their lack of capacity and local expertise, and greater country risk.

For example, taking a developed country entity that requires an extra 100,000 CO₂e to contribute towards meeting its compliance target, and decides to obtain 100,000 CERs from the CDM for this purpose. This entity has the option of purchasing the CERs from a unilateral project or investing in a project and using the CERs generated to meet its target, or a mixture of both. If the entity decides to use CERs generated from a unilateral project, odds are that it would purchase the CERs from a larger developing country, because as shown, such a country would be in the best position to offer unilaterally-generated CERs. If however the entity decides to invest directly in a CDM project and use the CERs generated to meet its target, then it could choose any developing country to invest in. However, due to the market nature of the CDM, in which risk and cost are key and sustainable development benefits are not quantified, again the odds are that the entity would choose to invest in a larger, rapidly-industrialising developing country, because, again, such a country would have greater

capacity to host projects, greater potential for larger projects (and therefore greater economies of scale), probably a more favourable and better-developed investment climate, and less risk. Either way, the smaller developing country is at a disadvantage. Michaelowa for example concludes that sub-Saharan African countries are at a double disadvantage because they would be unable to attract foreign investors for bilateral or multilateral projects due to perceived country risk, and they would also be unable to carry out unilateral projects due for example to lack of human capacity and availability of domestic capital.²⁵⁵

Most of the barriers to equitable distribution identified above actually constitute barriers because of these two issues. For example, lack of capacity and local expertise, as well as lack of access to financing for the underlying CDM project and for transaction costs are barriers because as the CDM currently operates, most countries develop and implement projects themselves, with no or limited foreign involvement. They therefore require sufficient capacity, together with access to sufficient local financing to cover the transaction and production costs. The barriers themselves are not created by this fact – countries lack capacity and adequate access to financing because of their low human development levels. However, these facts constitute barriers to CDM participation because, rather than the CDM operating bilaterally as originally envisaged, the CDM market is currently dominated by unilateral projects. Lack of capacity would be less of a barrier if developed country entities participated actively in the identification, development and implementation of CDM projects, as developing country entities would gain experience and capacity from the participation of these (that is, developed country) entities, and would be able to “learn by doing.” However, it would still be a barrier in relation to bilateral projects, because, as noted above, investor entities would generally prefer to invest in countries that have the required technical capacity

²⁵⁵ See Michaelowa, (2007), *supra* note 129, at 28.

to implement CDM projects. Likewise, access to financing for the production costs of the project would not constitute a barrier if, as originally intended, developed country entities actually invested in the CDM project, rather than simply buying the CERs generated from such projects.

In order to address the barriers created by these two structural issues, some capacity building assistance is provided by the CDM regime, aimed at helping build the capacity of countries to develop and implement CDM projects. However, the capacity building provided within the framework appears to be inadequate. Firstly, it does not target all the right countries – the Nairobi Framework, which targets sub-Saharan African countries, is the only targeted capacity building provided. The other capacity building initiatives of the regime, such as the DNA Forum and the CDM Bazaar, do not consider the needs of any specific group of countries, but are directed towards all developing countries generally. LDCs, for instance, do not receive specific capacity building support that takes their special circumstances into consideration, even though as a group, they have the lowest human capacity and highest need.

In addition, the preferential treatment provided to address the finance-related barriers is also inadequate, considering the extent of the finance barriers. Specifically, LDCs are given preferential treatment in the form of exemption from payment of the share of proceeds levy, in order to help reduce the transaction costs associated with projects hosted by these countries. However, there is no financial support provided within the regime for the underlying project itself, which as discussed above, is one of the main barriers to CDM participation, particularly for those countries with the lowest human development and greatest need. This is particularly important because the project operations costs are by far the

largest costs involved in implementing projects, possibly running into millions of dollars, depending on the size of the project and the capital investment required.²⁵⁶ The loans to be made available by the regime are only to cover transaction costs – they will not cover the underlying project itself. Sieghart, for example, notes that project developers do not perceive transaction costs as the major financial barrier, but that developers face difficulties in securing underlying finance.²⁵⁷ As highlighted above, lack of access to finance for the underlying project is one of the main barriers to CDM participation, especially by LDCs and African countries. Failure to address this barrier is therefore another major shortcoming of the CDM regime.

As it currently operates, the CDM regime, with its market-based nature and primacy of market forces, and the prevalence of unilateral CDM projects, does not and will probably be unable to support an equitable distribution of CDM projects.

5.4 Equitable Distribution Prospects Post-2012

So far, this Chapter has focused on the current CDM structure, and the initiatives discussed above have been or will be implemented for the Kyoto Protocol first commitment period. As highlighted in Chapter 1, the Kyoto Protocol first commitment period ends in 2012 and negotiations for the second commitment period are currently underway. Under these negotiations, various proposals have been made to address the lack of equitable distribution of CDM projects and to help promote CDM participation. This section examines the various proposals for the post-2012 period and determines whether any of them will contribute to a

²⁵⁶ See the discussion above. See also UNEP and EcoSecurities, *supra* note 78, at 219; and Ellis and Kamel, *supra* Chapter 2 note 50, at 30.

²⁵⁷ See Sieghart, *supra* note 125, at 201.

more equitable distribution of projects, considering the barriers to equitable distribution discussed above.

Negotiations for the operation of the CDM post-2012 are being undertaken by the *Ad hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP).²⁵⁸ Currently, the AWG-KP is considering issues relating to the commitments of developed countries in the second and subsequent commitment periods. The CDM is being considered in the context of determining possible improvements to the Kyoto Protocol flexibility mechanisms, as means available to developed country Parties to meet their emission reduction commitments.²⁵⁹ At COP/MOP 5 in December 2009, when the AWG-KP was meant to conclude its work, countries were unable to reach agreement on the issues the Group was mandated to discuss. As a result of this, the COP/MOP extended the mandate of the AWG-KP and requested it to deliver the results of its work to COP/MOP 6 in November 2010. The AWG-KP was still unable to conclude its work at COP/MOP 6, and countries agreed that the AWG-KP should aim to complete its work “as early as possible.”²⁶⁰ Consequently, the final decisions regarding the CDM for the post-2012 period have not yet been agreed upon. Although the AWG-KP has not yet concluded its work, countries agreed to continue working on the flexibility mechanisms on the basis of the draft text prepared by the AWG-KP Chair.²⁶¹ This section focuses on this text, specifically the provisions on improving equitable distribution.²⁶² Two proposals for improving equitable distribution are currently being considered. The first proposal is for establishing standardised baselines for the

²⁵⁸ See the UNFCCC AWG-KP webpage http://unfccc.int/kyoto_protocol/items/4577.php (UNFCCC, 03/03/2010).

²⁵⁹ See Report of the First Part of the Fifth Session of the AWG-KP (FCCC/KP/AWG/2008/2, 15 May 2008), paragraph 18.

²⁶⁰ See Decision 1/CMP.6, Paragraph 1.

²⁶¹ *Ibid.*, Paragraph 6(b). The draft text is contained in Revised proposal by the Chair (FCCC/KP/AWG/2010/CRP.4/Rev.4, 10 December 2010), Chapter III.

²⁶² Document FCCC/KP/AWG/2010/CRP.4/Rev.4, Chapter III, Paragraphs 12-17.

determination of additionality and the calculation of emission reductions and removals. This proposal is discussed above, as it is one of the initiatives that have been adopted for the current commitment period.²⁶³ The second proposal is regarding the use of CERs from projects in certain host countries/increasing the number of projects in certain countries, and this is examined below.

This proposal for the use of CERs from projects in certain host countries has evolved over time. The previous proposal considered by countries was to either “require” or “encourage” developed countries to “take reasonable measures” to ensure that at least 10% of CERs used to comply with their reduction commitments are generated from projects in either LDCs and African countries, or in countries with fewer than 10 registered project activities.²⁶⁴ The current proposal, which parties began considering during COP/MOP 6 in November 2010, is that developed countries should take reasonable measures to increase the number of project activities either: in LDCs, SIDS, African countries and countries with fewer than 10 registered projects; or in those developing countries defined in Convention Article 4.8.²⁶⁵

²⁶³ See the discussion in Section 5.2.3 above.

²⁶⁴ See Documentation to facilitate negotiations among Parties: Emissions trading and the project based mechanisms (FCCC/KP/AWG/2010/6/Add.3, 29 April 2010), Paragraph 12. See also Draft proposal by the Chair (FCCC/KP/AWG/2010/CRP.2, 6 August 2010), Chapter III, Paragraph 12. The text is still in brackets and contains several alternatives (such as whether to require the action or to encourage it) - the exact language has not been agreed on. Many countries have objected to this option. According to some, establishing a quota is not appropriate for a market-based mechanism. During the discussions of this issue at COP 15 in December 2009 (at which the author was present), Grenada expressed reservations to the appropriateness of establishing quotas within a market-based system. One country preferred the option of “encouraging” countries to take reasonable measures, and several countries opposed prescribing a specific percentage of CERs to be generated from countries with fewer than 10 registered projects. See generally, T. Akanle *et al.*, ‘Summary of the Copenhagen Climate Change Conference’ (22 December 2009) <http://www.iisd.ca/download/pdf/enb12459e.pdf> www.iisd.ca (29/04/2010), 20-21.

²⁶⁵ See Document FCCC/KP/AWG/2010/CRP.4/Rev.4, Chapter III, Paragraph 12. Convention Article 4(8) identifies certain groups of developing countries requiring particular consideration. These groups of countries are: small island countries; countries with low-lying coastal areas; countries with arid and semi-arid areas, forested areas and areas liable to forest decay; countries with areas prone to natural disasters; countries with areas liable to drought and desertification; countries with areas of high urban atmospheric pollution; countries with areas with fragile ecosystems, including mountainous ecosystems; countries whose economies are highly

It is difficult to conclusively state how effective this proposal, if adopted, will be in promoting equitable distribution, because unlike the case with initiatives to reduce transaction costs, there is no precedent under the CDM to compare this with. However, what is clear is that the current proposal (to increase project activities) is a significant improvement to the former proposal (to use CERs generated from project activities). This is because the former proposal would merely require developed countries to use CERs generated from projects in these countries, rather than requiring developed countries to generate CERs from projects in these countries. The difference is that the first option only requires developed countries to purchase generated CERs (which can be as a result of unilateral projects), and the second requires more than this – it would require developed countries to actively seek to increase the number of projects hosted by these countries. The latter is the option that would benefit the countries that are least advantaged, who are not able to effectively undertake unilateral projects. The current proposal would probably go some way in achieving this and so goes beyond the former proposal.

The language of the current proposal should result in developed countries actually taking steps to ensure that more countries host projects. The nature of the measures to be undertaken is not prescribed, but could vary widely. The measures should be targeted at overcoming the barriers to equitable distribution, including those identified above. They could include increased capacity building for those countries that need it the most and very importantly, increased direct investment in the underlying projects, which is one of the main barriers to CDM participation, especially by the smaller, poorer developing countries.

dependent on income generated from the production, processing and export, and/or on consumption of fossil fuels and associated energy-intensive products; and land-locked and transit countries.

If adopted and properly implemented, this proposal can go some way in ensuring a more equitable distribution of projects, but this would depend on the measures adopted and the manner in which they are implemented. If for example, it is taken to mean that developed countries have to proactively seek projects in specific countries, this could help overcome the market barrier to equitable distribution.²⁶⁶ This is because developed countries might be obliged to overlook cost and risk, and invest in these countries anyway, despite the projects being slightly more risky and costly, or less profitable. However, just as with the Nairobi Framework discussed above (in Section 5.2.2), without concrete action in support of the proposal, it will be ineffective in achieving its objective of promoting equitable distribution.

Regarding the possible effectiveness of this proposal, the proposal aims to target a wide group of countries with no real justification for targeting them in the context of the CDM. For example, as a group, SIDS are among the countries that are most vulnerable to the adverse impacts of climate change. This, however, does not qualify them for special attention in terms of the CDM because they are actually among those with the lowest GHG emission reduction potential. In addition, as a group, they are not the countries with the greatest need because some SIDS (such as Barbados and Singapore) are among the developing countries with the highest human development.²⁶⁷ In the context of the CDM therefore and considering the elements of equitable distribution identified in Chapter 3, there is no justification for singling out SIDS as requiring special attention or preferential treatment. This applies also to extending the preferential treatment to all countries with fewer than 10 registered CDM

²⁶⁶ An example of such a measure could be that under the new European Union Directive on its Emission Trading Scheme, to the effect that only credits from projects in LDCs will be automatically eligible under the Scheme. See Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009, online at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0063:0087:EN:PDF> (Europa, 21/04/2011), pages 68 and 77; and <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/796> 'Questions and Answers on the revised EU Emissions Trading System' (Europa, 21/04/2011), Question 20.

²⁶⁷ See the classifications of countries according to need and potential, in Chapter 4.

projects. This is not in accordance with the objectives of the CDM and the elements of equitable distribution identified in Chapter 3, because the preferential treatment would be extended to all countries hosting fewer than 10 projects, regardless of their need and their emission reduction potential. The classification covers a wide variety of countries, from those with very low GHG emission reduction potential (such as Cape Verde and Maldives) to those with high potential (such as Iran and Egypt), and from those with very low need (such as Kuwait and Cyprus) to those with very high need (such as Togo and Ethiopia).²⁶⁸ This proposal would therefore probably be even more effective if limited to those countries with the greatest need, especially those which also have reasonable GHG emission reduction potential, as they are the ones that most need support to effectively participate in the CDM.²⁶⁹

In addition, the proposal is for voluntary action - it merely states that countries “in a position to do so” “should” take “reasonable” measures. This is qualifying language and does not actually mandate any action. However, the proposal also goes further to state that measures taken should be reported or listed, and that the CDM Executive Board should provide an update of such measures.²⁷⁰ This would at least make visible the actions being taken and make it possible to measure their sufficiency and effectiveness. The conclusion therefore is that it is difficult to accurately measure how effective this initiative will be, but that if properly implemented, it could go a long way in promoting a more equitable distribution of projects.

²⁶⁸ See Chapter 4 for these classifications.

²⁶⁹ See Chapter 4 again for a classification of countries according to their CDM potential.

²⁷⁰ See Document FCCC/KP/AWG/2010/CRP.4/Rev.4, Chapter III, Paragraphs 12 and 13.

5.5 *Conclusion*

This Chapter has examined the barriers to the equitable distribution of CDM projects, together with the various initiatives that have been adopted and those proposed to address the problem. All these barriers undermine both the “need” and “potential” factors for achieving equitable distribution. Lack of capacity, finance and cost-related issues, the market-based nature of the CDM and the prevalence of unilateral CDM projects primarily undermine the “need” factor, but also affect the “potential” factor. The preference for large-scale projects mainly undermines the “potential” factor, but also affects the “need” factor.²⁷¹

The overall conclusion reached in this chapter is that the main barriers to equitable distribution of CDM projects are: the market-based nature of the CDM market, in which cost-effectiveness, risk minimisation and profit maximisation are key, and the sustainable development contributions of CDM projects are not monetised; and the dominance of unilateral CDM projects in the CDM market, the potential for which those countries with the greatest need do not have or are unable to access. These two barriers are not currently being addressed within the CDM regime.

The various efforts to address the lack of equitable distribution, such as efforts to reduce the transaction costs of smaller projects or introduce simplified modalities for such projects and the various capacity building initiatives, have not resulted in a more equitable distribution. This is primarily because these barriers are merely symptomatic of the real problem – the basic design of the CDM regime. Slightly lower transactions costs will not result in projects in smaller developing countries being as attractive as those in larger developing countries, as long as the only considerations remain market indicators. Likewise, as long as investors

²⁷¹ See the text at note 156 for a more detailed explanation of this.

continue to have the option of simply buying CERs rather than investing in CDM projects, particularly since there is no added benefit or incentive to provide direct investment, larger developing countries with the necessary financial and technical capacity will continue to dominate the CDM market.

Unless and until these two issues are addressed, the chances of achieving a truly equitable distribution of CDM projects are very slim. However, as noted above, the proposal for the post-2012 period regarding developed countries taking measures to increase the projects in certain countries, if properly implemented, can help achieve a more equitable distribution of projects than currently exists.

CHAPTER SIX

Recommendations

6.1 Introduction

The purpose of this chapter is to address the issue of what can be done within the CDM regime to remove the barriers to equitable distribution and contribute to a more equitable distribution of CDM projects.

Chapter 4 concluded that the current distribution of projects is inequitable because it is not compatible with the definition of equitable distribution provided in Chapter 3, and cannot be explained by countries' GHG emission reduction potential or their need.¹ Thereafter, Chapter 5 identified the barriers to equitable distribution of CDM projects, as follows: lack of capacity and local expertise; finance and cost-related barriers; size of projects; the market-based nature of CDM projects; and the prevalence of unilateral CDM projects in the CDM market. It determined, based on the review of literature and analysis of the barriers to equitable distribution, that the two main barriers are the market-based nature of the CDM regime and the prevalence of unilateral CDM projects in the CDM market. Some of these barriers are being addressed by the CDM regime.² However, there are currently no initiatives within the CDM regime to address the two key barriers.

The purpose of this chapter is to provide some recommendations for addressing these barriers and for promoting a more equitable distribution of CDM projects. It also concludes as to

¹ Many countries with relatively high levels of GHG emissions are underperforming, whereas some countries with relatively low GHG emission levels are performing well under the CDM. Likewise, most of the countries with the highest need are underperforming, while some countries with the lowest levels of need are actually doing well under the CDM. See the discussion in Chapter 4, particularly the conclusions in Section 4.6.

² See Chapter 5 for the discussion of these barriers together with the various initiatives established to overcome them.

whether considering the nature and structure of the CDM, an equitable distribution of projects can be achieved. This chapter answers the final two research sub-questions, which are: “what steps can be taken within the CDM regime to address the inequitable distribution of projects?” and “can the CDM regime achieve an equitable distribution of projects?”

6.2 Recommendations for Promoting Equitable Distribution in the CDM

6.2.1 Capacity Building

To address the barrier of lack of capacity as identified in Chapter 5, there is firstly a need for a comprehensive study to determine countries’ capacity, *inter alia* to enable targeted and effective capacity building. This comprehensive study will have two aims. Firstly, Chapter 5 highlighted that one of the barriers to equitable distribution might be a perception of lack of capacity, rather than an actual lack of capacity. Such a comprehensive study will therefore help to dispel any uncertainty regarding countries’ capacity to participate in the CDM. Secondly, the comprehensive study should identify which countries lack CDM capacity and in what areas they require capacity support (such as capacity to undergo the project registration process or technical capacity to develop and implement projects). This will enable targeted capacity building support to be given to these countries. Without such a study, capacity building efforts may simply amount to “shots in the dark” as they will be taken without a real knowledge of the areas or issues on which such efforts are required.³

³ All UNFCCC Parties, including developing country Parties, are required to report on their implementation of the Convention. In these reports, called national communications, some developing countries also outline their capacity needs, including in relation to the CDM. However, not all do, as they are not required to do so. In addition, most of the submitted national communications are very outdated, with some of them having been submitted before the CDM became operational (for example, Micronesia submitted its national communication in 1997, Mauritius and Argentina in 1999, Bhutan in 2000 and Ghana in 2001). Some of the national communications, particularly the earlier ones, do not even refer to the CDM at all (such as those of Malaysia and Kiribati) or refer to the CDM in general terms but not for the purpose of identifying capacity needs (such as that of Ghana). As of 14 January 2011, 140 developing countries have submitted their first national

Chapter 5 outlines that some capacity building initiatives have been undertaken within the CDM regime and highlights the difficulty of measuring the effectiveness of these initiatives. Nevertheless, to the extent that lack of capacity and local expertise remains a barrier to CDM participation by some countries, especially those with the lowest human development, more targeted capacity building is needed to help these countries improve their participation in the CDM. As highlighted in Chapter 5, most of the capacity building initiatives taken so far (with the exception of the Nairobi Framework) are not targeted – they are given to all developing countries generally. However, Chapter 3 concludes that certain countries, specifically those with the greatest need, require preferential treatment to enable their effective participation in the CDM and achievement of their CDM potential. What is required is capacity building that is targeted specifically at these countries (identified in Chapter 4) and that is designed to respond to specific capacity needs (such as those identified through a comprehensive study of countries' capacity).

This research recognises that some developing countries, other than those developing countries with the greatest need, do lack sufficient capacity to effectively participate in the CDM. This research is not advocating depriving these countries of the opportunity to receive the required capacity building. However, because the countries with the greatest need are the ones least able to help themselves and most in need of external support, this research supports targeting them for capacity building support. Therefore, in addition to any general capacity building provided to all developing countries, targeted capacity building should be given to

communications, 40 have submitted their second, two have submitted their third and one has submitted its fourth. See http://unfccc.int/national_reports/non-annex_i_natcom/items/2979.php 'Non-Annex I national communications' (UNFCCC, 31/01/2011) and http://unfccc.int/national_reports/non-annex_i_natcom/submitted_natcom/items/653.php 'Submitted National Communications from non-Annex I Parties' (UNFCCC, 31/01/2011) for more information about countries' national communications. These national communications are therefore inadequate to rely on as a source of information about countries' CDM capacity needs.

those countries with the greatest need, designed specifically to address their identified capacity needs.

In providing targeted capacity building to countries with the greatest need, it is also necessary to consider the GHG emission reduction potential of such countries. For example, there are several countries that have very low emission reduction potential. Although such countries should still receive some capacity building to help them fulfil this potential, care must be taken to ensure that they do not continue to receive capacity building to help them host CDM projects even when they no longer have the potential to host projects. That is why countries' need *and* emission reduction potential must both be taken into consideration in efforts to address the problem of inequitable distribution.

Some of the issues that should be determined when undertaking capacity building efforts include: whose capacity needs to be built (for example, project developers, financial institutions and industry representatives); what capacity needs to be built (for example, project origination, design, documentation and implementation capacity); and what form the capacity building should take (for example, training workshops, pilot programmes and awareness raising). Such issues can be determined through the comprehensive study suggested above. The nature of the capacity building efforts should depend on the specific capacity need being addressed (for instance, training programmes to address lack of technical capacity and pilot projects to address lack of project implementation experience).

6.2.2 Financial Assistance

Building on the decision to provide loans to all countries with fewer than 10 projects to pay for their project transaction costs, such loans should be limited to countries with the greatest need (identified in Chapter 4). This is because these are the countries that most need the

financial assistance and limiting the countries eligible for the loans will then increase the amount available to these countries. However, as discussed above, such loans are only intended to cover the project transaction costs, but this is not one of the key barriers to equitable distribution.⁴ The key barrier in terms of financing is lack of finance to implement the project itself, that is, lack of finance for the project implementation costs.⁵ To address this key barrier, a mechanism similar to the loans scheme could be established, but should help finance the project implementation costs, rather than just project transaction costs. Such a mechanism should be limited to those countries with the greatest need.

This latter proposal to provide access to underlying finance could be in the form of a proposal made by the CDM Executive Board to COP/MOP 5, which was eventually not adopted in its original form by the COP/MOP. The proposal was for the creation of a CDM project development fund using part of the administrative proceeds of the CDM, as well as voluntary contributions from donors.⁶ This fund was only to cover project transaction costs and capacity building, and the decision regarding providing loans to countries was probably borne out of this proposal. The fund should be created, but rather than just providing loans for project transaction costs, should provide loans sufficient to cover the cost of implementing the CDM project. However, it is recognised that given the large amount of finance required for projects, this solution may not go a very long way in addressing this problem, unless enough voluntary donations are made to the fund.

One possible solution is to make donations to the fund mandatory, on the basis that the aim of equitable distribution might justify requiring mandatory contributions to the fund by some

⁴ See the discussion in Chapter 5, Section 5.2.3.

⁵ Ibid.

⁶ See Annual report of the CDM Executive Board to COP/MOP 5 (FCCC/KP/CMP/2009/16, 4 November 2009), Annex III, paragraph 7(c).

parties, particularly developed country parties. It is however unlikely that making financial contributions mandatory would be acceptable to parties, as within the climate change regime generally, the usual practice is to “encourage” or “invite” contributions, usually on a voluntary basis.⁷ Therefore, depending on the size of the fund and the amount of money available, it may be better for the fund to retain its original intention and be limited to funding transaction costs (that is, if there will not be enough money available in the fund to cover project implementation costs).

A second recommendation to address the barrier of lack of implementation costs is for the establishment of a “matchmaking” service, similar to the CDM Bazaar,⁸ but targeted specifically at matching potential investors with projects in the countries with the greatest need. The objective of such a service would be to ensure that available CDM investment funds (as opposed to monies for purchasing CERs) are directed at, or give preference to, projects in the countries with the greatest needs. In this regard, the service could maintain an up-to-date list of developed country entities seeking to invest directly in CDM projects (rather than merely seeking to purchase CERs) and link such entities to host country developers (in the countries with the greatest need) seeking financing for their projects. For example, the CDM Bazaar currently contains a list of projects, from different countries, seeking CER purchasers or investors (some of the projects are unilateral projects that have

⁷ See for example, Decision 10/CP.7, Funding under the Kyoto Protocol (FCCC/CP/2001/13/Add.1, 21 January 2002) and Decision 7/CP.7, Funding under the Convention (FCCC/CP/2001/13/Add.1, 21 January 2002), which relate to the Adaptation Fund, the Special Climate Change Fund and the LDC Fund, and under which developed countries (Annex II Parties and other Annex I Parties “in a position to do so”) are “invited” to contribute to these funds. See also Decision 3/CP.11, Further guidance for the operation of the Least Developed Countries Fund (FCCC/CP/2005/5/Add.1, 30 March 2006); and Decision 5/CP.15, Work of the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention (FCCC/CP/2009/11/Add.1, 30 March 2010), paragraph 8.

⁸ The CDM Bazaar is a web-based information platform that provides information on CDM buyers, sellers and service providers, including information about specific CDM projects and project ideas. See Section 5.2.2 above for more about the CDM Bazaar.

already been registered and are merely seeking purchasers for CERs generated). The Bazaar also contains a list of CER buyers wishing to buy CERs. The Bazaar however does not go beyond this – it is merely an information sharing tool, making CDM information readily available to interested stakeholders.

A matchmaking service will go beyond this. It should seek both to actively source investment funds from developed country entities and also to actively match such potential investors with host country entities with CDM project ideas. For example, one of the project ideas listed on the CDM Bazaar is for a small-scale compact fluorescent lamp (CFL) distribution project to be hosted in Pakistan (which is classified as having “high need”). This project is listed as seeking buyers and project finance sources.⁹ A CDM matchmaking service would match this project developer with an investor seeking to invest directly in projects. Multilateral funds or investors with large portfolios (such as EcoSecurities, Tricorona Carbon Asset Management Sweden and EDF Trading, which are the top 3 buyers) would be best placed to participate in such a service, due to the large number of projects they are involved in. They can allocate a specific percentage of their CDM funds to be used to invest directly in projects (through the matchmaking service), rather than simply to purchase CERs. But participation should not be restricted to such funds or investors, and all investors should be encouraged to go through the matchmaking service, in order to ensure that more countries are able to participate in the CDM, particularly those with the greatest need, in order to promote a more equitable distribution of projects.

⁹ See <http://www.cdmbazaar.net/repo/projects/project-85553406.1> ‘CDM Project’ (CDM Bazaar, 24/02/2011). The project was uploaded in February 2010, so it is unclear if it has obtained the required financing, but as of February 2011, it had not been registered as a CDM project, nor is it listed in the CDM pipeline (which lists projects at the validation and registration request stages). See CDM Pipeline, February 2011.

6.2.3 Market-based nature of the CDM

This thesis does not suggest that the CDM should no longer operate as a market mechanism. Rather, it recommends that the CDM should not operate only as a typical market, with the main considerations being risk, cost and profit. It should operate as a mechanism that was created to fulfil environmental objectives, not market objectives. Due consideration should therefore be given to its environmental objectives of reducing GHG emissions and contributing to sustainable development, and to achieving these objectives equitably among developing countries. Consequently, this thesis recommends that even as investors consider market factors such as risk and cost, they should also consider both of the CDM's environmental objectives of achieving GHG emission reductions and sustainable development equitably among developing countries.

This thesis noted above that market factors only contribute to achievement of reducing GHG emissions (albeit not equitably among developing countries).¹⁰ This is because when calculating the cost of, and profit from, CDM projects, the sole consideration is the GHG emission reductions achieved by projects, as the sustainable development benefits of the CDM currently do not have a market value. There is no market incentive to promote sustainable development. However, the need to achieve the sustainable development objective of the CDM, and the fact that this objective cannot be met through reliance solely on normal market forces, justifies intervention in the market. Consequently, it is recommended that investors be required to take countries' sustainable development potential into consideration when selecting countries to invest in.

¹⁰ See the discussion in Section 5.2.5.

This should go beyond considering the sustainable development potential of projects, as this could just lead to more sustainable projects in the same countries already dominating the market.¹¹ Instead, in keeping with the factors to be considered for achieving an equitable distribution of projects,¹² countries' need should be considered and preference given to those countries with the greatest need. When investing in countries, investors should consider why that particular country is the most appropriate, given its human development level and need.

Currently, before a CDM project can be registered, the host country DNA must confirm that the project will contribute to its sustainable development.¹³ In addition, information is also provided in the project design documents (PDDs), outlining how the project contributes to the host country's sustainable development. Generally, PDDs contain all information relevant to the project, such as information about how the project will result in reduced GHG emissions and the environmental impacts of the project, including transboundary impacts.¹⁴ Similarly, investors can be required to provide information on the reason for their choice of host country (considering the country's level of development) and explain how they have taken the country's sustainable development potential into consideration. This information should be reported in the PDDs.

This can be done on the basis of the proposal currently being considered by countries for the post-2012 CDM regime, to the effect that developed countries should take reasonable

¹¹ There is nothing wrong with this. The issue is that those countries that are underperforming should also have the chance to fulfil their CDM potential.

¹² See Section 3.6 above.

¹³ See Decision 3/CMP.1, Annex, paragraph 40(a).

¹⁴ See PDD Form (Version 03 – in effect as of 28 July 2006) http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/PDD_form04_v03_2.pdf www.unfccc.int (UNFCCC, 23/11/2010); and Guidelines for completing the project design document and the proposed new baseline and monitoring methodologies (Annex 12, Report of 41st meeting of the CDM Executive Board) http://cdm.unfccc.int/Reference/Guidclarif/pdd/PDD_guid04.pdf www.unfccc.int (UNFCCC, 23/11/2010).

measures to increase the number of project activities in certain developing countries.¹⁵ In selecting and implementing such measures, the focus should be on countries' with the greatest need, rather than all LDCs, SIDS, African countries, countries with fewer than 10 registered projects or countries defined in Convention Article 4.8, as is the current proposal. By doing this, developed countries will then be specifically considering the sustainable development objective of the CDM, rather than just normal market considerations.

Multilateral funds (such as the various carbon funds of the World Bank) or investors with large portfolios (such as EcoSecurities) are probably in the best position to invest in a spread of countries, because of the large number of projects they are involved in. These should be required or strongly encouraged to ensure their projects are spread equitably across many countries, rather than sticking to just a few countries (as some of them appear to).¹⁶

If investors are required to consider not only countries' GHG emission reduction potentials, but also their sustainable development potentials, the question is how this would benefit investors. The benefit of considering the emission reduction potential is fairly obviously. A country with greater emission reduction potential will have more potential to generate large amounts of CERs and investors can, for example, take advantage of greater economies of scale. If this is combined with better capacity and institutions, then the investor would benefit from less risk and more profit. However, taking account of a country's need will not produce any of these benefits. How then can this be made attractive for investors, particularly those that are in the CDM market to make profit (as many of the market participants appear to be)?

¹⁵ See the discussion in Section 5.4, pages 246-249, above. See Document FCCC/KP/AWG/2010/CRP.4/Rev.4, Chapter III, Paragraph 12.

¹⁶ For example, Burkett notes that two-thirds (in value) of the CDM deals signed by the World Bank between January 2005 and March 2006 were with China. See M. Burkett, 'Just solutions to climate change: a climate justice proposal for a domestic clean development mechanism' (2008) 56 *Buffalo L. Rev.* 169, 211. Even if there was no other evidence to this effect, the fact that so few countries host so many projects, while many countries host no project at all, is evidence of the fact that investors keep returning to the same countries to invest in.

This research cannot come up with any feasible suggestion in this regard, other than the satisfaction of knowing that both objectives of the CDM are being fulfilled.

Considering that there is no real benefit to investors of taking sustainable development potential into consideration, especially when this may necessitate investing in countries that can only produce less profitable projects, there is a risk that a requirement of this sort may drive investors away from the CDM market. This is particularly likely considering the fact that the biggest players in the CDM market are market traders who are in the market to make profit, not to comply with Kyoto Protocol commitments.¹⁷ This would be an undesirable outcome, as this would obviously not help achieve either objective of the CDM.

The reason why this requirement (to take sustainable development potential into consideration) may drive investors away is because of the particular focus of this market – to make the most profit at the least cost (as is the case with many markets). However, having a market that has a different focus may result in a different outcome. Or to put it more accurately, the CDM market needs the right focus. It needs to focus, not on maximisation of profit (and minimisation of risk and cost), but on ensuring achievement of its environmental objectives of reducing GHG emissions and promoting sustainable development, which should be done equitably among developing countries. Although making profit and reducing risk and cost could be part of the focus of the market, it should not be, as it is now, the primary focus. One way of addressing this issue is by promoting the practice of socially-responsible investing (SRI) within the CDM.

Although there is no generally-acceptable definition of SRI, socially-responsible investments can, for example, be said to refer to investments that incorporate social, environmental or

¹⁷ See the text at Chapter 5, notes 184 and 185 above.

ethical criteria with financial objectives.¹⁸ In addition to their desire to minimise cost and make profit (which desire is typical of most markets), socially-responsible investors also desire to, through their investments, make improvements, among other things, to the environment and social issues. Specifically, they aim to ensure that their investments do not conflict with their social, moral, ethical or other values.¹⁹ For these investors, making a return on their investments, though an important aim, is not the overriding concern.²⁰ The situation with CDM investors should be similar – the overriding concern of CDM investors should not be making profit, but achieving the objectives of the CDM, which are to achieve GHG emission reductions and promote sustainable development, rather than to generate profit for investors. According to Sjöström and Welford, SRI “entails that investors complement financial analysis with environmental and social criteria in order to evaluate companies for possible inclusion in an investment portfolio.”²¹ Likewise, when including CDM projects in their CDM portfolio, CDM investors should not only use financial criteria (of minimising cost and maximising profit), but also the environmental criteria of reducing GHG emissions and promoting sustainable development equitably in developing countries.

An example of SRI within the CDM could be said to be that facilitated by the CDM Gold Standard Foundation.²² The Gold Standard Foundation operates the Gold Standard certification scheme, which was established to ensure that CDM projects not only produce

¹⁸ See P. Waring and T. Edwards, ‘Socially responsible investment: explaining its uneven development and human resource management consequences’ (2008) 16 *Corporate Governance: An International Review* 135, 135.

¹⁹ See M. O’Brien Hylton, ‘Socially responsible’ investing: doing good versus doing well in an inefficient market’ (1992-1993) 42 *American University Law Review* 1, 7; and M.S. Rapaport and J. Peebles, ‘Socially responsible investment’ (1992) 6 *Probate and Property* 58, 58.

²⁰ Waring and Edwards, *supra* note 18, at 135.

²¹ E. Sjöström and R. Welford, ‘Facilitators and impediments for socially responsible investment: a study of Hong Kong’ (2009) 16 *Corporate Social Responsibility and Environmental Management* 278, 278.

²² This is a Swiss-based non-profit organisation backed by 51 NGOs and charitable organisations. See www.cdmgoldstandard.org.

cost-effective emission reductions, but also foster sustainable development in the host developing countries, thereby producing high quality projects. To achieve this, project developers are required to use Gold Standard method and tools, including a bottom-up and integrated approach that puts particular emphasis on incorporating feedback from local stakeholder consultations, and the Sustainable Development Matrix.²³ Although the Gold Standard has a good objective and contributes to ensuring that the CDM achieves its sustainable development objective, its objectives do not necessarily including ensuring an equitable distribution of projects (although it does aim at ensuring “equality of access for all market participants”²⁴). What is required within the CDM regime is more than this – there is a need for efforts not only to ensure that the CDM achieves its sustainable development objective, but that this is done equitably among all developing countries, including those with the greatest need, which have, to date, been mostly left out of the CDM market.²⁵ The Gold Standard model can be improved upon to achieve this objective.

Research shows SRI does not necessarily have a negative impact on investors’ financial returns. While not necessarily giving investors a better return for their money, SRI does not automatically result in under-performing investments.²⁶ Other research has shown that SRI can only be as financially profitable as traditional investing in an inefficient market.²⁷

Whatever the case may be, the fact remains that for the CDM, the only consideration cannot be financial, as that is not the sole purpose of the CDM. In fact, some could say the purpose

²³ See <http://cdmgoldstandard.org/What-we-stand-for.66.0.html> ‘What we stand for’ and <http://cdmgoldstandard.org/What-we-do.64.0.html> ‘What we do’ (Gold Standard, 25/02/2011).

²⁴ See <http://cdmgoldstandard.org/What-we-stand-for.66.0.html> ‘What we stand for’ (Gold Standard, 25/02/2011).

²⁵ See the analysis of the distribution of CDM projects in Section 4.5, which concludes that countries with the greatest need are actually hosting the least number of projects, with most of them not hosting any project.

²⁶ See Rapaport and Peebles, *supra* note 19, at 59; B.F. Camey, ‘Socially responsible investing: is it successful?’ (November 1994), <http://www.chausa.org/authorindex.aspx?year=1994>, www.chausa.org (28/02/2011), 23; and S. Schueth, ‘Socially responsible investing in the United States’ (2003) 43 *J. Bus. Ethics* 189, 193.

²⁷ See, for example, O’Brien Hylton, *supra* note 19, at 35.

of the CDM *does not* include profit-making, but that, in terms of cost, it only aims to help developed countries to reduce GHG emissions more cost-effectively than they can achieve domestically. Because investing in some of the countries currently under-performing could involve taking on greater risk and higher costs, it is possible that the overall financial profitability of projects in such countries may be lower than in the countries currently doing very well. But, as noted above, for socially-responsible investors, the financial returns are not the overriding concern, and should not be in the case of the CDM, which has other, non-financial, objectives.

There have been several attempts to promote SRI, both at the national and international levels, mainly through voluntary regulations, instruments or standards, particularly reporting requirements.²⁸ For example, investors that claim to invest in a socially responsible manner have been required to disclose their SRI policies.²⁹ In this case, investors may choose not to invest in a socially-responsible way, as long as they disclose this fact.³⁰ This solution would be similar to that proposed above – requiring CDM investors to disclose the reasons for their choice of host country, considering the countries’ sustainable development potential and human development level.³¹ Noting the need for stronger regulation, Richardson proposes reforms such as redefining fiduciary duties for SRI and a variety of financial incentives to encourage SRI. He also recommends improving the quality of corporate environmental and social reporting. Fiduciary duties are not appropriate in the context of the CDM (Richardson was speaking mainly about financial institutions which invest on behalf of others, such as

²⁸ See B.J. Richardson, ‘Financing sustainability: the new transnational governance of socially responsible investment’ (2006) 17 *YBIEL* 73, for an overview of some of these regulations.

²⁹ See B.J. Richardson, ‘Keeping ethical investment ethical: regulatory issues for investing for sustainability’ (2009) 87 *J. Bus. Ethics* 555, 559. Examples of such regulation are found in the UK (such as the UK’s Occupational Pension Schemes (Investment) Regulations (No 3378), S.I. 2005/3378) and Australia (such as Australia’s Corporations Act, 2001).

³⁰ See Richardson, (2009), *Ibid*.

³¹ See pages 259-260 above.

pension funds and mutual funds).³² In addition, as noted above, there are also no real financial incentives that can be provided to CDM investors, other than the CERs generated from projects, which investors will get from projects regardless of which countries they invest in. It appears therefore that the difficulty is the same – the most feasible [legal] solution may be requiring investors to report on the reasons for their choices and hope that this reporting requirement will spur investors to choose countries based on their human development levels and sustainable development potential, rather than simply based on where they will bear the least cost or make the most profit.

In conclusion, if the concept of SRI is introduced into the CDM market, with an emphasis on effectively considering the sustainable development objective of the CDM and ensuring that more countries are able to participate in the CDM, this could reduce the focus of the market on financial incentives and refocus the market more effectively on the CDM's environmental objectives of promoting sustainable development (and GHG emission reductions) equitably among developing countries. Whereas there is possibly no legal solution to effectively ensure consideration of this, practical solutions include investors or groups taking the initiative to build on the CDM Gold Standard model, but specifically with the aim of ensuring that those countries that are underrepresented in the CDM, particularly those with the greatest need, are helped to increase their level of CDM participation.

6.2.4 Prevalence of unilateral projects

The most obvious solution to this problem, which is one of the key barriers to the equitable distribution of projects, is requiring that a specific percentage of all registered projects must be bilateral in the real sense and, where the projects are multilateral, they should be funded by

³² See generally G. Djurasovic, 'The regulation of socially responsible mutual funds' (1996-1997) 22 *J. Corp. Law* 257 for an analysis of some of the regulatory issues relating to socially-responsible mutual funds.

the multilateral investor, rather than by the host country entity itself.³³ Essentially, this means requiring that in a specific percentage of registered projects, the developed country counterparty must invest directly in the underlying project, rather than simply purchasing CERs generated from the projects.

There are different ways this can be achieved. One way is requiring that x% of registered projects must be bilaterally-funded. This can be done, for example, by taking the average number of projects registered monthly or annually, and requiring that at least x% of this number must be bilaterally-funded. A second way is requiring that x% of CERs used by developed countries to fulfil their emission reduction objectives are obtained from bilaterally-funded projects. This option is similar to, yet fundamentally different from, a proposal previously considered by countries. This proposal was to “require” or “encourage” developed countries to “take reasonable measures” to ensure that at least 10% of CERs used to comply with their reduction commitments are generated from projects in either LDCs and African countries, or in countries with fewer than 10 registered project activities.³⁴ However, as noted already, this proposal would not effectively address the equitable distribution problem.³⁵ This is because in implementing this proposal, the CERs used could be CERs generated from unilaterally-developed and funded projects – this proposal does not imply that these CERs must be from bilaterally-funded projects. What is therefore required is a way of ensuring that

³³ See Chapters 2 and 5 for an explanation of the unilateral, bilateral and multilateral CDM structures.

³⁴ See Documentation to facilitate negotiations among Parties: Emissions trading and the project based mechanisms (FCCC/KP/AWG/2010/6/Add.3, 29 April 2010), Paragraph 12. Many countries objected to this option. According to some, establishing a quota is not appropriate for a market-based mechanism. During the discussions of this issue at COP 15 in December 2009 (at which the author was present), Grenada expressed reservations to the appropriateness of establishing quotas within a market-based system. One country preferred the option of “encouraging” countries to take reasonable measures, and several countries opposed prescribing a specific percentage of CERs to be generated from countries with fewer than 10 registered projects. See generally, T. Akanle *et al.*, ‘Summary of the Copenhagen Climate Change Conference’ (22 December 2009) <http://www.iisd.ca/download/pdf/enb12459e.pdf> www.iisd.ca (29/04/2010), 20-21.

³⁵ See the discussion in Chapter 5, Section 5.4 above.

more bilaterally-developed and funded projects enter into the CDM market than currently obtains. This proposal provides a third way of ensuring more bilateral projects – requiring that x% of CERs used by developed countries are from projects developed and financed by these countries themselves (rather than by host country entities) in the countries with the greatest need (identified in Chapter 4).

This last option will indirectly ensure that there are more bilaterally-developed and funded projects in the CDM market and will in any event, directly improve the CDM participation of these countries and ensure a more equitable distribution of projects, which is the ultimate objective.

These three options (requiring that x% of registered projects must be bilaterally-funded; requiring that x% of CERs used by developed countries to fulfil their emission reduction objectives are obtained from bilaterally-funded projects; and requiring that x% of CERs used by developed countries are generated from projects hosted in the countries with the greatest need) will greatly help to address the problem of inequitable distribution of projects, specifically by overcoming the barrier of the dominance of unilateral CDM projects in the CDM market.

The question is whether these options, or any of them, would be acceptable to countries. The first two options are probably the ones that can be designed in a way that would be most effective and most acceptable to countries. This is because firstly, these options are not directly prescriptive and do not directly contradict the market nature of the CDM. They do not directly provide that there must be a limit to the number of unilateral projects or unilateral CERs, or that developed countries must invest in certain developing countries (or restrain from investing in certain countries). Rather these options would require a certain minimum

number of bilateral projects or amount of bilateral CERs in the CDM market. Particularly considering that the CDM was originally intended as a mechanism under which projects would be bilaterally-developed and funded, these options do not appear to be very extreme or contrary to the intention or ethos of the mechanism. They would merely be to the effect that the CDM should operate more in the way it was originally intended to operate, than the way it currently operates.

These options however may not directly improve the participation of those countries with the greatest need, as developed countries, in complying with the options, may simply increase their investments in the countries already performing well under the CDM. There is a real chance of this happening and that is why these options should be used in conjunction with that proposed above, under the market-based nature of the CDM – requiring investors to consider countries’ sustainable development potential and need, to encourage them to increase their investments in those countries with the greatest need.

The last option, that of requiring investment in certain countries, may be less appealing to investors, because of its more prescriptive nature. This option is a stronger version of that proposed in Section 6.2.3 above (relating to the market-based nature of the CDM), which is to the effect that developed countries should consider developing countries’ sustainable development potential when selecting countries to invest in. An outright prescriptive proposal may be less acceptable. This does not mean such an option should not be considered, as were it to be accepted, it would definitely go a long way in ensuring a more equitable distribution of projects than the current distribution.

6.3 *Other Case Scenario*

There does not appear to be very much that can be done to address the problems created by the market-based nature of the CDM: the emphasis on cost-effectiveness and lack of consideration of sustainable development. There is no real incentive that can be given to investors to make it really worth their while to take sustainable development into consideration and there is the risk that requiring them to do so may drive investors away from the market. Addressing the problem of unilateral CDM projects should go some way in correcting the skewed distribution of projects. There is however the very real possibility that if investors cannot purchase enough CERs and need to invest directly in projects, they will simply do this in the countries where it makes the best market sense. So the problem may not be solved at all. The questions that this thesis cannot run away from therefore are as follows: is there any point in continuing efforts to achieve equitable distribution, as these do not appear to be having much effect on the distribution of projects. Should the CDM continue to attempt to achieve sustainable development and GHG emission reductions equitably among countries? Or should it be streamlined to be simply a market mechanism to achieve cost-effective emission reductions, with no significance attached to where the reductions are achieved?

As Boyd *et al.*, noted, “it is logical that private investors focus their efforts on countries with low political and economic risks for their projects, and the CDM is no different in this regard from other forms of foreign investments.”³⁶ They conclude that, “it may simply be too much

³⁶ Boyd *et al.*, *supra* Chapter 5, note 28, at 28.

to ask of one mechanism to achieve such diverse goals simultaneously, and sustainable development goals might more appropriately be funded through different channels.”³⁷

In reality, CERs are issued for emission reductions achieved in countries, and not for sustainable development contributions. This is how it has to be in order to maintain the environmental integrity of the CDM, considering that these CERs are then used to offset the emission reduction objectives of developed countries. Although it is possible to issue CERs for sustainable development contributions, these CERs cannot be used to offset emission reductions in developed countries (as such CERs would not be a result of emission reductions in developing countries) and they would not therefore be of value to developed countries (except, as already stated, possibly for public relations purposes). The final conclusion is that the CDM regime, given its market-based nature, may not be able to achieve a truly equitable distribution of projects, and that there is no legal solution to this problem.³⁸ The only option would be to accept that the CDM cannot continue to operate as a simple market mechanism and to introduce regulations that are not really suitable for a typical market mechanism, but which would help the CDM to achieve its dual objectives. On the other hand, countries could simply accept that there will be no truly equitable distribution of projects and turn their attention elsewhere in efforts to contribute to sustainable development in developing countries.

³⁷ Ibid. See also Sutter and Parreño, *supra* Chapter 5, note 179, at 89, where the authors identify a trade-off between the two objectives of the CDM in favour of the cost-efficient emission reductions goal.

³⁸ As noted above, there could be practical solutions, which could, for example, involve investors taking the lead to address investment in the countries with the greatest need, in the same way that charities and private companies have taken the lead in providing micro finance. This could be done by building on the CDM Gold Standard model. In addition, by promoting the practice of socially-responsible investing within the CDM could also ensure that investors take countries’ sustainable development potential into consideration when selecting countries to invest in. These are, however, not necessarily legal solutions.

CHAPTER SEVEN

Conclusion

The purpose of this thesis was to ascertain whether the international CDM regime can support an equitable distribution of CDM projects. Specifically, this thesis sought to: determine whether the current distribution of CDM projects is equitable; if inequitable, identify the reasons for the inequitable distribution; and establish if the CDM regime can actually support an equitable distribution of projects, and provide recommendations for achieving this.

Chapter 1 established the need for this research. It identified that although the CDM has been operating for close to 7 years, the distribution of projects across countries and regions is very uneven and apparently inequitable, despite the various initiatives that have been taken to address the apparent problem. The purpose of the research was to identify what is missing in terms of addressing the perceived problem, and to offer solutions.

Chapter 2 presented an overview of the CDM and its operation, so as to provide the background for the research and to explain the terms and institutions that would be referred to throughout the research. Very importantly also, the Chapter explained the need to have an equitable distribution of projects. It outlined three major reasons. The first reason is based on the objectives of the CDM, which are to contribute to GHG emission reductions and sustainable development in developing countries. As one of the key principles of sustainable development is equity, including in the distribution of resources, an equitable distribution of projects is required to truly achieve the sustainable development objective of the CDM. It would also give all developing countries the opportunity to enjoy the social and economic benefits of CDM projects, and also enable them to contribute to climate change mitigation

through the GHG emission reductions achieved by the projects. The second reason is that equity is one of the key principles of the climate change regime, and the CDM, as an instrument of this regime, was established to contribute to the objectives of the regime and must also follow the principles of the regime. The third reason for seeking a more equitable distribution of projects is that this is obviously important to countries, considering that at every meeting of the COP/MOP, countries adopt resolutions calling for equitable distribution.

Having established that there is a need for equitable distribution of CDM projects, Chapter 3 then went on to identify the meaning of equitable distribution in the context of the CDM. The need for this arose because despite all the decisions and actions that have been taken to promote a more equitable distribution of projects, the actual meaning of the term has never been defined nor have the contents of the goal been identified. This chapter answers the first and second research sub-questions: what is the meaning of equitable distribution of CDM projects; and what criteria should be applied to determine if a distribution is equitable and what factors should be used in efforts to achieve equitable distribution of CDM projects? It states that equitable distribution of CDM projects is the result of a process that takes certain elements into consideration. These elements are countries' GHG emission reduction potential and sustainable development potential (need), which should both be considered when determining whether a distribution of projects is equitable. Efforts to achieve a more equitable distribution of projects should, in addition, be backed up with preferential treatment, which should be given to those countries with the greatest need.

To help determine the meaning of equitable distribution, this thesis examined general theories of distributive justice (egalitarianism, the difference principle and utilitarianism), as well as distributive justice in international law generally, and determined whether the approaches

taken are applicable to the CDM. It found that in international law, distributive justice does not have a specific outcome, but takes a “process-based” approach, in which all factors relevant to the particular issue are taken into consideration. There is therefore no “one-size-fits-all” outcome, but rather, the outcome depends on the specific issues being considered.

This definition (of equitable distribution) is different from that drawn out from general theories of distributive justice. For example, egalitarianism requires an equal distribution of goods, irrespective of countries’ specific circumstances or the specific circumstances of the issue being considered. Under international law however, relevant factors or circumstances are required to be considered and these factors or circumstances would prevent the application of equal distribution where appropriate. The difference principle requires consideration of countries’ specific circumstances, but then tries to compensate for those who are worse off in terms of these circumstances, whereas under international law, there is no such attempt to compensate for natural attributes (“natural attributes” in the CDM, for instance, equate to limited potential to generate CERs and in maritime boundary delimitation, refer to issues such as the length of countries’ coastlines). In addition, the difference principle would also try to maximise the potential of the worst off, to the detriment of those that are better off (there is no attempt to simultaneously improve the situation of all countries, except to the extent that improving the situation of the better off directly improves the situation of the worst off). Finally, the utilitarian theory requires maximisation of the “happiness” of society, which, in the context of the CDM, refers to ensuring that the largest number of countries hosts the largest number of projects possible. This theory would require individual countries, irrespective of their particular circumstances (such as their need), to sacrifice their hosting potential if this would increase the overall number of CDM projects possible. None

of these definitions is used in international law generally, and they also cannot be applied to the CDM without negatively impacting on the CDM's ability to achieve its two objectives of reducing GHG emissions and contributing to sustainable development in developing countries.

Chapter 4 answered the next two research sub-questions, which are: what should an ideal distribution of projects be; and does the current distribution of CDM projects meet this ideal distribution of projects? To answer these questions, the chapter examined the current distribution of CDM projects to determine if it is equitable or inequitable. It first of all identified what the distribution of projects should be, based on countries' emission reduction and sustainable development potentials, and compared this to the current distribution. Chapter 4 concluded that the current distribution of projects is, in fact, inequitable.

Chapter 5 then went on to identify some of the reasons for this inequitable distribution, together with the solutions adopted within the CDM regime, therefore answering the next two research sub-questions: if the distribution of projects is deemed inequitable, what are the main reasons for the inequitable distribution of CDM projects; and are there any barriers to equitable distribution being addressed within the CDM regime, and if so, how? It identified lack of capacity, the size of projects, as well as CDM transaction and implementation costs as some of the barriers to equitable distribution of projects, all of which affect and undermine both the emission reduction potential and need factors for achieving equitable distribution. It concluded that the two key barriers to equitable distribution are the market structure of the CDM and the prevalence of unilateral CDM projects in the CDM market, and highlights that these barriers, unlike the other barriers identified, are not being addressed by the CDM regime.

Finally, Chapter 6 answered the last two research sub-questions, which are: what steps can be taken within the CDM regime to address any inequitable distribution of projects; and can the CDM regime achieve an equitable distribution of projects? With regard to capacity building, this thesis proposed that a comprehensive study of countries' CDM capacity and capacity needs should be undertaken and capacity building should be provided to those countries with the greatest need. Such capacity building should be designed specifically to address the identified capacity needs. Regarding the financial barrier, the proposal is that those countries with the greatest need should be given greater access to finance for the underlying CDM project itself, possibly through a CDM project development fund established for that purpose.

With regard to the two key barriers to equitable distribution – the market-based nature of the CDM and the prevalence of unilateral projects – the proposals are slightly more complicated. To address the barrier of the prevalence of unilateral projects, this thesis proposed that there should be a requirement that x% of all registered projects should be bilateral or that x% of CERs used by developed countries should be from bilateral projects. The third option, which is to require that x% of CERs should be generated from bilaterally-developed and funded projects in the countries with the greatest need, is likely to be less acceptable, because of its prescriptive nature. Nevertheless, this thesis recognised that even the first two options would still not properly address the problem, unless the issue of the market-based nature of the CDM is addressed. This is because if required to invest directly in developing countries (rather than simply buying unilateral CERs), developed country entities could simply increase their investments in the countries already doing well in the CDM, because of their greater investment attractiveness (less investment and country risk, and greater profit and technical experience and capacity). As there is no direct benefit to developed countries of taking

countries' sustainable development potential into consideration and investing in countries with greater need rather than more attractive countries, there may be no real solution to the problem. The ultimate conclusion therefore is that the CDM may be unable to achieve a truly equitable distribution of projects, as long as it remains a market mechanism, where risk, cost and price are the only considerations that come with benefits attached.

Enabling all countries to participate effectively in the CDM and helping those with the greatest need to increase their level of participation will contribute to achievement of both objectives of the CDM. It will not affect the GHG reduction objective, as even if the projects are small scale projects, the projects will still reduce GHG emissions in these countries.³⁹ It will also contribute to the sustainable development objective, as it will result in more countries, particularly those that need it most, being able to participate in the CDM and enjoy its sustainable development benefits. However the CDM may not be able to achieve this in its current form. If countries want the CDM to actually achieve both GHG emission reductions and sustainable development, there might be a need to accept that a pure market mechanism may not be the best way to achieve this. Introducing some regulations that may not be suitable for a typical (free) market mechanism, but that are suitable for a market mechanism with these two objectives, may be necessary. Such regulations could include mandatory requirements for investors to spread their CDM portfolio more equitably among countries, ensuring that all eligible countries have the opportunity to participate in the CDM and requiring them to consider countries' need when selecting host countries to invest in.

³⁹ As noted in Chapter 5, Section 5.2.4, small scale projects currently account for almost half of all CDM projects, but they are mostly situated in the same group of countries that have been dominating the CDM. Having smaller countries hosting more of this type of projects will not negatively impact on the GHG reduction objective of the CDM.

Appendix A – List of Eligible Developing Countries

Eligible countries are those that have ratified the Kyoto Protocol and established DNAs

Total – 123 (November 2010)

1. Albania
2. Algeria
3. Angola
4. Antigua and Barbuda
5. Argentina
6. Armenia
7. Azerbaijan
8. Bahamas
9. Bahrain
10. Bangladesh
11. Barbados
12. Belize
13. Benin
14. Bhutan
15. Bolivia
16. Botswana
17. Brazil
18. Burkina Faso
19. Burundi
20. Cambodia
21. Cameroon
22. Cape Verde
23. Chad
24. Chile
25. China
26. Colombia
27. Costa Rica
28. Côte d'Ivoire

29. Cuba
30. Cyprus
31. Democratic Republic of the Congo
32. Djibouti
33. Dominican Republic
34. Ecuador
35. Egypt
36. El Salvador
37. Equatorial Guinea
38. Eritrea
39. Ethiopia
40. Fiji
41. Gabon
42. Gambia
43. Georgia
44. Ghana
45. Grenada
46. Guatemala
47. Guinea
48. Guinea-Bissau
49. Guyana
50. Honduras
51. India
52. Indonesia
53. Iran
54. Israel
55. Jamaica
56. Jordan
57. Kenya
58. Kuwait
59. Kyrgyzstan
60. Laos
61. Lebanon

62. Lesotho
63. Liberia
64. Macedonia
65. Madagascar
66. Malawi
67. Malaysia
68. Maldives
69. Mali
70. Malta
71. Mauritania
72. Mauritius
73. Mexico
74. Moldova
75. Mongolia
76. Montenegro
77. Morocco
78. Mozambique
79. Myanmar
80. Namibia
81. Nepal
82. Nicaragua
83. Niger
84. Nigeria
85. North Korea
86. Oman
87. Pakistan
88. Panama
89. Papua New Guinea
90. Paraguay
91. Peru
92. Philippines
93. Qatar
94. Republic of Korea

95. Rwanda
96. Saint Lucia
97. Samoa
98. Saudi Arabia
99. Senegal
100. Serbia
101. Sierra Leone
102. Singapore
103. South Africa
104. Sri Lanka
105. Sudan
106. Suriname
107. Swaziland
108. Syria
109. Tajikistan
110. Tanzania
111. Thailand
112. Togo
113. Trinidad and Tobago
114. Tunisia
115. Turkmenistan
116. Uganda
117. United Arab Emirates
118. Uruguay
119. Uzbekistan
120. Viet Nam
121. Yemen
122. Zambia
123. Zimbabwe

Appendix B – Eligible Developing Countries and their 2005 Emissions

GHG emissions values of all CDM eligible developing countries, but Serbia and Montenegro calculated jointly not separately.

	Country	GHG Emissions (2005)
1.	China	7,187.00
2.	Brazil	2,841.90
3.	Indonesia	2,041.90
4.	India	1,866.10
5.	Mexico	683.4
6.	Republic of Korea	568.7
7.	Iran	555.9
8.	Nigeria	455.3
9.	South Africa	422.8
10.	Saudi Arabia	376.6
11.	Malaysia	358.4
12.	Thailand	351.1
13.	Argentina	349.5
14.	Democratic Republic of the Congo	269.3
15.	Myanmar	261.7
16.	Pakistan	240
17.	Egypt	222.8
18.	Philippines	208.9
19.	Bolivia	201.9
20.	Uzbekistan	180.9
21.	Vietnam [1]	177.8
22.	Colombia [1]	176.8
23.	Zambia [2]	157.5
24.	United Arab Emirates [1]	156.9
25.	Peru	145.7
26.	Bangladesh [1]	142.2
27.	Algeria [1]	137.2
28.	Angola [1,2]	133.3
29.	Ecuador	127.3
30.	Sudan [1,2]	122.6
31.	North Korea	118.4
32.	Tanzania	109.9
33.	Cambodia	106.8
34.	Cameroon	106.7

35.	Turkmenistan	91.4
36.	Guatemala	89.4
37.	Kuwait [1]	88.2
38.	Chile [1]	84
39.	Israel [1]	81.7
40.	Ethiopia [1]	73.5
41.	Syria [1,2]	70.4
42.	Zimbabwe [2]	65.6
43.	Honduras [2]	62.9
44.	Serbia & Montenegro [1,2]	62.9
45.	Morocco [1,2]	60.8
46.	Qatar [1,2]	58.9
47.	Papua New Guinea [2]	52.6
48.	Oman [1,2]	48.4
49.	Singapore [1]	48.4
50.	Azerbaijan [1]	47
51.	Uruguay [1]	42
52.	Kenya [1,2]	41.3
53.	Cuba [1,2]	40.8
54.	Nepal [1]	40.4
55.	Trinidad & Tobago [1,2]	36.1
56.	Tunisia [1,2]	33.5
57.	Côte d'Ivoire [1,2]	31
58.	Madagascar [1,2]	30.7
59.	Uganda [1]	30.6
60.	Mongolia [1]	30.3
61.	Yemen [1,2]	29.3
62.	Paraguay [1,2]	28.2
63.	Dominican Republic [1,2]	26.8
64.	Sri Lanka [1,2]	25.1
65.	Mozambique [1,2]	24.4
66.	Jordan [1]	22.6
67.	Mali [1,2]	22.3
68.	Senegal [1]	21.6
69.	Ghana [1,2]	21.3
70.	Bahrain [1,2]	21.3
71.	Chad [1,2]	20.9
72.	Lebanon [1,2]	19.6
73.	Guinea [1,2]	19.2
74.	Burkina Faso [1,2]	17.9
75.	Laos [1]	17.3
76.	Gabon [1,2]	14

77.	Nicaragua [1,2]	13.5
78.	Moldova [1]	12.5
79.	Jamaica [1,2]	11.9
80.	Botswana [1,2]	11.7
81.	Namibia [1,2]	11.6
82.	Macedonia [1]	11.2
83.	Benin [1,2]	10.9
84.	El Salvador [1,2]	10.9
85.	Panama [1,2]	10.5
86.	Costa Rica [1,2]	10.2
87.	Tajikistan [1]	9.8
88.	Kyrgyzstan [1]	9.7
89.	Equatorial Guinea [1,2]	9.3
90.	Albania [1]	9.1
91.	Georgia [1]	9
92.	Mauritania [1,2]	8.9
93.	Cyprus [1,2]	8.7
94.	Armenia [1]	7.4
95.	Niger [1,2]	7.3
96.	Malawi [1,2]	6.9
97.	Togo [1,2]	6
98.	Guyana [1,2]	5.3
99.	Eritrea [1,2]	4.2
100.	Rwanda [1,2]	3.8
101.	Mauritius [1,2]	3.8
102.	Sierra Leone [1,2]	3.6
103.	Suriname [1,2]	3.6
104.	Malta [1,2]	2.8
105.	Fiji [1,2]	2.7
106.	Swaziland [1,2]	2.7
107.	Burundi [1,2]	2.6
108.	Bahamas [1,2]	2.3
109.	Guinea-Bissau [1,2]	2
110.	Liberia [1,2]	1.9
111.	Bhutan [1,2]	1.7
112.	Lesotho [1,2]	1.6
113.	Barbados [1,2]	1.5
114.	Gambia [1,2]	1.3
115.	Djibouti [1,2]	1.2
116.	Belize [1,2]	1.1
117.	Maldives [1,2]	0.7
118.	Cape Verde [1,2]	0.5

119.	Antigua & Barbuda [1,2]	0.5
120.	Saint Lucia [1,2]	0.4
121.	Samoa [1,2]	0.3
122.	Grenada [1,2]	0.3

[1] Data from Land Use Change & Forestry not available.

[2] PFC, HFC & SF6 data not available.

Source: CAIT, 2007

Appendix C – Eligible Developing Countries and their 2007 HDI

HDI values of all eligible developing countries (except North Korea and Zimbabwe)⁴⁰

	Country	HDI
1.	Singapore	0.944
2.	Republic of Korea	0.937
3.	Israel	0.935
4.	Kuwait	0.916
5.	Cyprus	0.914
6.	Qatar	0.910
7.	United Arab Emirates	0.903
8.	Barbados	0.903
9.	Malta	0.902
10.	Bahrain	0.895
11.	Chile	0.878
12.	Antigua and Barbuda	0.868
13.	Argentina	0.866
14.	Uruguay	0.865
15.	Cuba	0.863
16.	Bahamas	0.856
17.	Mexico	0.854
18.	Costa Rica	0.854
19.	Saudi Arabia	0.843
20.	Panama	0.840
21.	Trinidad and Tobago	0.837
22.	Montenegro	0.834
23.	Malaysia	0.829
24.	Serbia	0.826
25.	Saint Lucia	0.821
26.	Albania	0.818
27.	Macedonia	0.817
28.	Grenada	0.813
29.	Brazil	0.813
30.	Colombia	0.807
31.	Peru	0.806
32.	Ecuador	0.806
33.	Mauritius	0.804
34.	Lebanon	0.803
35.	Armenia	0.798
36.	Azerbaijan	0.787

⁴⁰ The HDI of Zimbabwe and North Korea was not calculated (by UNDP) due to insufficient data. See <http://hdr.undp.org/en/statistics/faq/>, <http://hdr.undp.org/en/> 'Frequently asked questions' (UNDP, 27/10/2010).

37.	Thailand	0.783
38.	Iran	0.782
39.	Georgia	0.778
40.	Dominican Republic	0.777
41.	China	0.772
42.	Belize	0.772
43.	Samoa	0.771
44.	Maldives	0.771
45.	Jordan	0.770
46.	Suriname	0.769
47.	Tunisia	0.769
48.	Jamaica	0.766
49.	Paraguay	0.761
50.	Sri Lanka	0.759
51.	Gabon	0.755
52.	Algeria	0.754
53.	Philippines	0.751
54.	El Salvador	0.747
55.	Syria	0.742
56.	Fiji	0.744
57.	Turkmenistan	0.739
58.	Indonesia	0.734
59.	Honduras	0.732
60.	Bolivia	0.729
61.	Guyana	0.729
62.	Mongolia	0.727
63.	Viet Nam	0.725
64.	Moldova	0.720
65.	Equatorial Guinea	0.719
66.	Uzbekistan	0.710
67.	Kyrgyzstan	0.710
68.	Cape Verde	0.708
69.	Guatemala	0.704
70.	Egypt	0.703
71.	Nicaragua	0.699
72.	Botswana	0.694
73.	Tajikistan	0.688
74.	Namibia	0.686
75.	South Africa	0.683
76.	Morocco	0.654
77.	Bhutan	0.619
78.	Laos	0.619
79.	India	0.612
80.	Cambodia	0.593
81.	Myanmar	0.586

82.	Yemen	0.575
83.	Pakistan	0.572
84.	Swaziland	0.572
85.	Angola	0.564
86.	Nepal	0.553
87.	Madagascar	0.543
88.	Bangladesh	0.543
89.	Kenya	0.541
90.	Papua New Guinea	0.541
91.	Sudan	0.531
92.	Tanzania	0.530
93.	Ghana	0.526
94.	Cameroon	0.523
95.	Mauritania	0.520
96.	Djibouti	0.520
97.	Lesotho	0.514
98.	Uganda	0.514
99.	Nigeria	0.511
100.	Togo	0.499
101.	Malawi	0.493
102.	Benin	0.492
103.	Côte d'Ivoire	0.484
104.	Zambia	0.481
105.	Eritrea	0.472
106.	Senegal	0.464
107.	Rwanda	0.460
108.	Gambia	0.456
109.	Liberia	0.442
110.	Guinea	0.435
111.	Ethiopia	0.414
112.	Mozambique	0.402
113.	Guinea-Bissau	0.396
114.	Burundi	0.394
115.	Chad	0.392
116.	Democratic Republic of the Congo	0.389
117.	Burkina Faso	0.389
118.	Mali	0.371
119.	Sierra Leone	0.365
120.	Niger	0.340

Source: UNDP Human Development Index, 2007

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