FLEXIBLE MECHANISMS OF KYOTO PROTOCOL: AN EXAMINATION ON AUSTRALIA AND MALAYSIA POSITION

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ABSTRACT

This study primarily attempts to outline the concept, importance and implementation of the flexible mechanism under the Kyoto Protocol of 1997.

Flexible mechanisms are market-based approach to achieve the objective of the United Nation Framework Convention On Climate Change (Convention) in accordance with the principle of common but differentiated responsibilities and respective capabilities which produce carbon credit as tools to combat climate change.

For Malaysia, the issue is whether we have implemented the flexible mechanism, and if yes, how far have we achieved and what can be done to further progress. This paper will discuss the Australia position and their initiatives towards this objective.

ABSTRAK

Kertas Projek ini adalah satu inisiatif untuk menjelaskan konsep, kepentingan dan implimentasi mekanisme fleksibel bawah Protokol Kyoto 1997.

Mekanisme fleksibel adalah suatu pendekatan pasaran praktikal untuk mencapai objektif United Nation Framework Convention On Climate Change berdasarkan kepada prinsip bersesama dengan tanggungjawab berbeza mengikut keupayaan masing-masing yang kemudiannya menghasilkan kredit karbon sebagai suatu alat menangani isu perubahan cuaca dunia.

Bagi Malaysia, persoalannya adakah kita telah berjaya merealisasikan pendekatan mekanisme fleksibel, dan jika ya, sejauh manakah kejayaannya dan apakah yang boleh dilakukan untuk terus maju. Kertas projek ini membincangkan situasi di Australia dan inisiatif yang telah dilaksanakan untuk mencapai objektif tersebut.

TABLE OF CONTENTS

TABLE OF STATUTES

MALAYSIA

AUSTRALIA

UNITED KINGDOM

CHAPTER 1

INTRODUCTON

Introduction

'This we know: The earth does not belong to man: man belongs to the earth...All things are connected like the blood which unites one family...whatever befalls the earth, befalls the sons of the earth. Man does not weave the web of life; he is merely a strand in it. Whatever he does to the web, he does to himself.'[1]

Pollution is of global as well as regional and national concern because pollution which originates from a jurisdiction will have similar impact in another jurisdiction. There is no transboundary limitation and thus individual action would be ineffective to address environmental issues.

Global warming is a very critical environmental issue which needs to be addressed prudently by the global community. Over the last decades, the temperature of the earth has risen and majority of scientists worldwide are in consensus that the anthropogenic emissions of the greenhouse gases (GHG) are the major cause of this alarming environmental condition.

Realizing the need to take effective remedial course of action, the international community spearhead by the United Nation have taken positive steps to tackle this phenomena. In 1992 at the Rio Earth Summit, they have negotiated and agreed upon a framework treaty to stabilize the GHG concentrations in the atmosphere at a level that

[1] J. Mc Loughlin and E. G. Bellinger, 'Environmental Pollution Control An Introduction to Principle and Practice of Administration, International Environmental Law and Policy Series, Graham & Trotman/Martinus Nijhoff at page 157 with reference to letter from Chief Seattle patriarch of the Duwanish and Squamish Indians of Puget Sound, to the President of the United States, Franklin Pierce in 1855.

would prevent dangerous anthropogenic interference with the climate system. This framework treaty is called the United Nation Framework Convention on Climate Change (Convention).

Some regard it as a success due to its stronger and more comprehensive provisions compared to the previously framed Vienna Convention for the Protection of the Ozone Layer. Others, for example the United States regard it as failure as it did not contain any binding commitment to reduce emissions of the GHG. Whatever the views were, perhaps it is appropriate to understand that the Convention is a framework agreement which require supplement agreements for implementation and without doubt the Convention has successfully develop a roadmap for future negotiations to come up with a more effective and comprehensive agreement on issues of climate change.

It is obvious that from thereon the United Nations have never looked back on the initiatives to combat climate change. At the United Nation Climate Change Conference held in Kyoto in 1997, the United Nation has formulated an agreement and commitment by the developed nations to reduce the anthropogenic GHG emissions. This agreement is known as the Kyoto Protocol (the Protocol).

Under the Protocol, the developed nations of Annex B countries, being the main industrial countries have committed themselves to reduce their GHG emissions of at least 5% for the period of 2008-2012. This period is known as the first commitment period. The relevant GHG are listed in Annex A of the Protocol. They are Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O), Hydrofluorocarbons (HFC5), Perfluorocarbons (PFC5) and Sulphur Hexafluoride (SF_6).

To achieve the GHG emission reduction, the Protocol has introduced three (3) flexible mechanisms, which is in principle a market-based approach producing carbon credits. They are the Clean Development Mechanism (CDM), Joint Implementation (JI) and Emission Trading (ET) which will be discussed in detailed later in this paper.

Some views the formulation of these mechanisms as a form of a win-win formula as through these mechanisms, the developed nations, as industrial countries are not banned from continuing their major economy activities but with condition that they have to reduce and comply with their committed GHG capped emission amount under the Protocol while at the same time, such reduction and/or controlled GHG emissions would checked the global environmental impact of these GHG emissions to the global climate system.

The Aseam Bankers Malaysia Berhad has expected that trading of Certified Emission Redution (CER) from the CDM projects to increase until 2012 with the Malaysia Energy Centre estimating that the country has up to 100 million tonnes of carbon credit potential, with a RM4.8 billion potential revenue[2]. This fact clearly indicates that carbon credit will and can become an important trading commodity to Malaysia.

To seize the opportunity offered by the carbon credit potential, Malaysia need to keep abreast of international development on the flexible mechanisms and carbon credit issues in view of its huge potential contribution to the nation's economy. In view of its importance, there must be legal framework to regulate issues link with the mechanism under the Kyoto Protocol to ensure that the implementation will be effective and eligible in accordance with the requirements of the Protocol. Besides this economic potential,

[2]ASEAM Bankers Malaysia Berhad, 'Huge Potential in carbon trading' at page 2 accessed on 27 March 2009 available at <http://palmoilprices.net/news/huge-potential-in-carbon-trading/>

the objective to reduce the GHG gas emissions should not be neglected so as to attain the sustainable development envisaged by the Protocol for developing nations.

Without a sufficient and an efficient regulatory framework, adequate and comprehensive contractual terms are required to regulate the relevant and related flexible mechanisms and carbon credit issues between parties. Nonetheless players of the industry realize that it is not possible to sufficiently cover all terms in an agreement, thus making a regulatory framework or at least an effective system of implementation, inevitable and necessary.

As a developing nation, Malaysia will primarily concern with the clean development mechanism under the Protocol. The question now is, where do we stand? Have we taken the necessary action to adopt this mechanism which is acceptable to the international community based on the Protocol's requirements and/or eligibility? If so, how far have we progress? What can be done to further progress? These are some questions I hope to be able to shed some light through this paper.

Importance of Study

Carbon Credit has been transformed from a mere theoretical framework into billions of value of trading commodity. Malaysia may just ignore the significant of this economic prospect or we may play the necessary role to gain the edge and cooperate with other nations to achieve the environmental objective of the Protocol.

After being a signatory to the Protocol and thereafter ratified it on 4th September 2002, it is obvious that we should not ignore but be an effective participant in the implementation of the Protocol. For that, it is important that we looked into the

international communities on their initiatives, in particular by the States, to implement and effectively participate in the mechanisms offered under the Protocol.

For Malaysia, being a developing nation with no emission reduction obligation, we will only be concern with the CDM. In view of this, it is important that we truly understand the framework of the Protocol, its mechanisms the necessary elements needed before we may effectively participate and seize the opportunities offered via the carbon credit trading commodity evolved from the flexible mechanism, in particular the CDM in the context of Malaysia under the Protocol. It is vital to apprehend how far have we progress and whether there is a need for us to take further steps to accelerate our progress to achieve the underlying goals of the mechanisms.

Objective

In Malaysia, there is limited academic writing on the flexible mechanism and carbon credit. Apparently, no legislative work has been drafted and discussed by the legislators on this issue. Under such circumstances, among primary objectives of this paper are as follows:-

a) to inform readers the concept of flexible mechanisms which allow the existence of carbon credits, its importance and goal for its creation.

b) to apprehend the significance of flexible mechanism in order to achieve the emission reduction of GHG and sustainable development of the developing nations.

c) to analyze whether there is a need to formulate a legal framework at national level, especially in the context of Malaysia in order to regulate the relevant legal issues surrounding the CDM project activities.

At the end of this paper, it is my intention to share the information and knowledge gathered to prepare this paper with the hope that it would provide a commendable reference and be further extended by future researches on similar and/or related studies.

Limitation and Scope of Study

As was mentioned earlier, there is limited writing on the Protocol flexible mechanisms in Malaysia. The related issues under this regime have not been explored by scholars of various field and this circumstances have created setbacks in the writing of this paper.

At current, there is no legislation in Malaysia which actually addresses the related issues and this further created hurdles as there is no reference of statutory provision to comprehend the regulatory issues concerning the activities associated with the CDM and its carbon credits.

Looking abroad, there are various writings on climate change, with some focuses on the Protocol, but few explore the flexible mechanisms and the related issues of carbon credit in detail.

Under this circumstance, this paper will depends largely on reference to the provisions of the Convention, the Protocol, the provisions of flexible mechanisms under the Protocol, and shall briefly touch on the initiatives by Australia, a developed nations (Annex I Parties) in implementing the flexible mechanisms in order to achieve the environmental goals of the Convention and the Protocol.

Methodology

The methodology of study which has been used for this study is based on qualitative research methodology primarily on library research and field work.

For library research, I have focused on international treaties, conventions, protocols and/or instruments pertaining to climate change issues in particular the Convention and the Protocol which are responsible for the birth of the flexible mechanisms and carbon credits. Further research was required to analyse the statutory provisions of a selected country, Australia relating to the implementation of the flexible mechanisms regime.

As for the field work, I have gathered information from the Ministry of Natural Resources and Environmental in Malaysia entrusted with the duty to oversee the environmental portfolios and on the implementation of CDM project activities in particular to enlighten on the adoption of the concepts, its implementation status, especially whether there is any legal point in issue which hinders such implementation.

It was expected from the field work that I am able to determine, to a certain extent, whether Malaysia has actually adopt the relevant flexible mechanism of the Protocol at the national level, and if so how far have we progress, the legal issues hindering the progress, if any, and whether currently there is any legal framework to regulate such activities producing carbon credits.

Chapter Outline

This research project is divided into six (6) chapters. Chapter 1 consists of the problem statement, research questions, the importance and the objectives of the research. Chapter 2 describes the problem of global warming which resulted the climate change,

the relevant objectives and provisions of the United Nation Framework Convention on Climate Change (Convention) and the Kyoto Protocol 1997 (the Protocol) and the flexible mechanisms. Chapter 3 will be discussing on carbon credit and its selected issues. Chapter 4 will be on the initiatives of Australia to comply with the Protocol commitments and their relevant statutory framework. In Chapter 5 we will look into Malaysia position on the Protocol commitment especially on the CDM implementation. Finally in Chapter 6, I will have some recommendations for effective implementation and adaptation of the CDM regime in Malaysia.

CHAPTER 2

THE CONVENTION, THE PROTOCOL AND THE FLEXIBLE MECHANISMS

Global Warming And Climate Change

What is global warming? Some writers termed it as the greenhouse effect. Greenhouse effect is a natural phenomenon whereby certain gases in the earth's atmosphere, known as greenhouse gases (GHGs), absorb heat that would otherwise escape to space[3]. The GHGs act like a pane of glass in a greenhouse or function as a blanket around the earth, trapping heat within the earth's atmosphere. The heat, originates from visible sunlight that warms the earth's surface. Subsequently, the heat radiates from the surface to the atmosphere, while some is absorbed by GHG and radiates back to and trapped within the earth's surface. [4] This heat warms the earth's surface and atmosphere. It is called the *'natural greenhouse effect'*.

In some writings, the heat from the sunlight, is called the *'incoming solar radiation'* while the heat from the earth surface is called the *'outgoing terrestrial radiation'*. This greenhouse effect, affect the climate change. Without this natural greenhouse effect, it is predicted that the average temperature of the earth surface would be around 33° Celcius (91° Farenheit) lower[5] than it is now making it so cold that it would be near impossible for human life to exist.

The majority of scientists are in consensus that at one time all climate changes occurred naturally. When the Industrial Revolution era came in the middle of 18th century, it all changed. Human activity is increasing atmospheric concentrations of

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[3] Pew Center on Global Climate Change, 'The Causes of Global Climate Change', updated August 2008 at page 1 accessed on 2 April 2009 available at <http://www.pewclimate.org/docUploads/global-warming-science-brief-august08.pdf on 27th March 2009 >.

[4] Please refer note 3 at page 1.

[5] Research Reports International, 'Carbon Investment Funds,' 1st Edition - January 2007 at page 4.

existing GHG especially carbon dioxide and methane. Majority of expert also believes that these man-made or anthropogenic GHG are causing the global warming and climate change. The increase of these gases has enhanced the heat-trapping ability of the earth's atmosphere resulting in the enhanced greenhouse effect, thus making global warming a global environmental concern.

What are these GHGs? Water vapor (H2O) is the most prevalent and dominant GHG in the atmosphere. Besides the water vapor, the atmospheric concentrations of the anthropogenic GHG responsible for the global warming is carbon dioxide which accounts for 50-60%, methane which accounts for about 20% and nitrous oxide, carbon monoxide, nitrogen oxide and other gases such as Perfluorocarbons (PFC5), the Sulphur Hexafluoride (SF6), chlorofluorocarbons and hydrofluorocarbons (HFC5) which account for the rest. [6]

The United Nation Intergovernmental Panel on Climate Change (IPCC) was established by the United Nation Environmental Programme (UNEP) and the World Meteorological Organization in November 1988 with the primary objective was to provide international coordinated scientific assessments of the magnitude, timing and potential impact of climate change[7]. In September 1990 the IPCC issued its three reports on science, impacts and response strategies to be reviewed by delegates to the Second World Climate Conference in November the same year[8]. The reports confirm earlier findings of the expected rate of global warming, the sea-level rise and its likely impact on the living things and the environmental system as a whole. They concluded that, *"In light of new evidence and taking into account the remaining uncertainties, most of the observed*

[6] Donald M. Goldberg 'As the World Burns : Negotiating the Framework Convention on Climate Change', International Environmental Law Volume II Edited by Paula M. Pevato, Ashgate Dartmouth Publishing Co. UK (2003) at pg. 130.
[7] Please refer note 6 at page 134.
[8] Please refer note 6 at page 134.

warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations".[9]

The IPCC indicates that the projected growth of GHG, is likely to cause an increase in global temperatures under a business-as-usual emission scenario ranging from 1°C to 3.5°C by the end of the next century[10]. The prediction for future rate of global warming ranges between 0.1°C and 0.3°C per decade[11].

A physicist at the Technical University of Denmark, Jens Olaf Pepke Pederson has predicated under worst scenario that GHGs will cause global warning and the world temperature to rise around 5 to 7 degrees Celsius over pre-industrial times further causing warmer seas and a slowdown of ocean circulation resulting lower marine oxygen levels, creating 'dead zone' that could not support fish and other higher forms of marine life which may not revive even after 1500 to 2000 years[12]. According to him even if all carbon emissions is stopped, the ocean still needs hundreds of year to cool. This will hamper the future generation from a good and healthy source of food.

Another immediate direct consequence of global warming is the rise of the sea level. Globally sea level has risen 4-8 inches over the past century[13]. The IPCC scientific assessment, report also predicts that sea levels are expected to further rise between 30-110 cm by the year 2100 as the result of thermal expansion and the melting of glaciers with possibility of the melting of the polar caps in the next century which may

[9] Intergovernmental Panel On Climate Change (IPCC) Assessment Report 1990. Also see Research Reports International, 'Carbon Investment Funds,' 1st Edition - January 2007 at page 6.
[10] Peter Duncanson Cameron, 'The Kyoto Process: Past, Present and Future', International Environmental law Series, Kluwer Law International (2002) at page 6.
[11] Thomas M. Socha, M.S., 'The Potential Effects of Global Warming' at page 2 accessed on 22 January 2009 available at <http://healthandenergy.com/potential_effects_of_climate_change.htm>
[12] The Windsor Star, 'Global warming could unleash ocean 'dead zones' study' at page 5 accessed on 5 April 2009 available at http://www.windsorstar.com/Technology/Global+warming+could+unleash+ocean+dead+zones+study/1219371/story.html.
[13] Please refer note 5 at page 6.

cause sea level to rise as much as 6 meters. [14] It is forecasted that a one meter rise would destroy much of the world's cropland, damage many coastal cities, and turn thousands of residents of low-lying coastal and island states into environmental refugees.[15]

On 8th October 2008, two senior German scientist namely Hans Joachim Schellnuber, the head of the Potsdam Institute for Research on Global Warming Effects, and Jochem Marotzke, a leading meteorologist, said that the United Nation-backed data on climate change predicting a rise of 18 to 59 centimeters of sea level was out dated citing that IPCC report was based on data up to 2005 only[16]. They further said that they expect the sea level to rise by a meter in this century which could be linked to the increase of carbon dioxide emission from the Chinese coal-fired power stations which caused ice melting at the Arctic to be doubled or tripled from its usual rate.

The current trends of increase in the atmospheric concentrations of GHG will cause global average temperature to rise and thus having a dramatic and severe impact to the world climate, causing extreme weather condition ranging from drought to violent storm, melting of glaciers at the North and South poles, lengthening and change of growing season thus affecting farming conditions, loss of animal habitat, crop losses leading to international food insecurity, and so on giving a devastated overall impact to the economic, social and ecological system. These changes impact the geographic range of large number of plants and animal species potentially leading to mass extinctions. On

[14] Please refer note 6 at page 131.
[15] Please refer note 6 at page 131.
[16] ENN Environmental News Network 'Sea-Level to rise by one-metre this century: scientists' at page 1, accessed on 22 January 2009 available at <http://www.enn.com/ecosystems/article/38375>

the economic point, for example, the insurance companies have estimated the damages for the El Nino related weather disaster at US$33billion[17].

Realizing the serious destruction effects of unchecked global warming, the international community in the Second World Climate Conference held in Geneva in November 1990 had reviewed and approved the IPCC first assessment report of 1990 and issued a Ministerial Declaration calling for negotiations for a framework treaty. In December 1990, the United Nation General Assembly had approved the beginning of the negotiations with a goal of completing them in time for the Earth Summit in Rio de Janeiro, Brazil in 1992. The outcome was a framework convention of 9th May 1992 and known as the United Nation Framework Convention on Climate Change (Convention) after a mere twenty (20) months from the date of the first IPCC assessment report in 1990.

United Nation Framework Convention on Climate Change (Convention)

The Convention was adopted at United Nations Conference on Environment and Development (UNCED) also known as the Earth Summit in Rio de Janeiro, Brazil held from 3rd to 14th June 1992. As of 22 August 2007 there are 165 countries which are signatory to the Convention with 192 countries have ratified it[18]. This piece of agreement is fundamental as it is the parent international treaty which has paved the way for the formation of the Kyoto Protocol in 1997 from which the flexible mechanisms evolved. For that, it is important for us to know and understand few of its main provisions which are relevant to our discussion. They are:-

[17] Please refer note 10 at page 6.
[18] United Nation Framework Convention On Climate Change: Status of Ratification accessed on 2 April 2009 available at <http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php>

a) Article 2 : Objectives

The ultimate objective of the Convention is clearly stated in this Article[19] as to achieve stabilization of greenhouse gas concentrations in the atmosphere[20] at a level that would prevent dangerous anthropogenic interference with the climate system.

The objective also clearly stated that the primary purpose of such stabilization of greenhouse gas concentration was to ensure food production, addressing the international concern of food security due to adverse effect of global warming, and to achieve sustainable development environmental principle which will be briefly discussed later.

b) Article 3 : Principles

The section provides for a few fundamental environmental principles, setting behavior standards on the states, private and public entities and the rest of the international community.

i) Paragraph 1[21] provides for the principle of *'common but differentiated responsibilities'* acknowledged the need to tackle environmental issues in an equitable way through partnership of international community. It is one of the cornerstone of sustainable development.[22] This principle was earlier recognized

[19] The Article provides, 'to achieve.....stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system...within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in sustainable manner.'

[20] According to the IPCC scientific assessment, in order to achieve stabilization of the GHG gas concentration' will require more than 60% reduction of carbon dioxide emission to allow the ecosystem be able to adapt to climate change.

[21] Paragraph 1 provides, *'The Parties should protect the climate system on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities...'*

[22] Principle 3 and 4 of the Rio Declaration 1992.

in Principle 7[23] of the Rio Declaration on Environment and Development 1992 better known as the Rio Declaration.

The *'common responsibility'* surfaced from the concept of *'common heritage of humankind'* where all of mankind shared the responsibility and obligation to protect the environment and the natural resources irrespective of borders, jurisdiction and economic strength. It is of common concern because any damage to the environment or natural resources would ultimately have a direct adverse impact globally and everyone without exception would face the same consequences anywhere in the world.

The *'differentiated responsibility'* on the other hand is a concept where it acknowledged the fact that notwithstanding all mankind have the obligation to protect the environment and natural resources, each state's special condition i.e. its ability in terms of economy, social, politic and its contribution to the creation of a particular environmental problem must also be considered in determining the level of responsibility on the necessary course of action to remedy the damage. For that, as stated under this Article, the developed country should take the lead in combating climate change and its adverse effects.

ii) Paragraph 2[24] provides for the precautionary principle[25] which requires states to take proportionate precautionary measures to prevent mitigate or

[23] Principle 7 states, *'States shall co-operate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In 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.'*

[24] Paragraph 2 provides, *'The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects...lack of full scientific certainty should not be used as a reason for postponing such measures...'*

eliminate the danger of certain actions or activities which will possibly caused damage to the environment even if there is lack of scientific evidence to prove such possible damage.

iii) Paragraph 4 provides, *'The Parties have a right to, and should, promote sustainable development...'.*

The World Commission on Environment and Development has issued a report entitled *"Our Common Future"* in 1987 where it defines *'sustainable development'* to mean *'a development that meets the needs of the present without compromising the ability for future generations to meet their need'.* This report is better known as the Brundtland Report.

The principle was echoed in Principle 3[26] and further strengthens by Principle 4[27] of the Rio Declaration.

c) Article 4 : Commitments

First of all, this opening of this section again stresses on the principle of common but differentiated responsibilities.[28] Secondly, paragraph 2(a) of this Article expressly states that *'Parties may implement such policies and measures jointly with other Parties.'* This brief provision somehow sowed the seeds for the

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[25] This precautionary principle is also recognized by the Rio Declaration in a similar tone where its Principle 15 states that *'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation.'*

[26] Principle 3 states, *'The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations'.*

[27] Principle 4 states, *'In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it'.*

[28] Article 4 reads, '*Parties shall take into account their respective common but differentiated responsibilities and their national and regional priorities, objectives and circumstances.'*

flexible mechanisms especially through joint implementation under the Protocol which will be discussed in more detailed later.

After the Convention, the COP in its first meeting at Berlin from 28th March to 7th April 1995 has agreed that the Rio emission targets were insufficient and called for negotiation for clearer and stronger commitments for Annex I Parties which was needed for the post 2000 period. In the meantime, the Second IPCC Assessment Report was issued in December 1995 which states that '*the balance of evidence suggests that there is a discernible human influence on global climate*[29]'. Based on this report in July 1996, the Second COP was held and parties agreed that there is a serious need to require '*action by Annex I Parties to limit and reduce emissions of GHG*'[30]. About 17 months later, pursuant to Article 17 of the Convention, a Protocol to the Convention, better known as the Kyoto Protocol was adopted by the international community with the same general principles and objective of combating global warming.

The Kyoto Protocol (Protocol)

The Kyoto Protocol to the United Nations Framework Convention on Climate Change was adopted at the Third Conference of the Parties held in Kyoto, Japan on 11th December 1997. Pursuant to Article 24 of the Protocol, it was opened for signature from 16th March 1998 to 15th March 1999 at the United Nations headquarters, New York which saw 84 countries having signed the Protocol.

[29] Please refer note 10 at page 10.
[30] Please refer note 10 at page 10.

Iceland was the first Annex I Party to have accepted the Protocol on 23rd May 2002 and the Protocol finally came into force[31] on 16th February 2005, following ratification by the Russian Federation on 18th November 2004[32]. Until this day, the United States has not ratified the Protocol even though they are the largest emitter of global anthropogenic GHGs.

Categories of Parties to the Convention and Protocol

Parties to the Convention are basically divided into three categories which in a way reflect their respective rights and duties under the Convention[33]. These categories of parties also extend to the Protocol in defining their rights and duties thereunder.

Annex I Parties are the developed industrialized countries listed in the Convention that have the commitment to ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the GHGs listed in Annex A of the Protocol do not exceed their assigned amounts, calculated pursuant to their respective quantified emission limitation and reduction commitments inscribed in Annex B of the Protocol in accordance with the provisions of the Protocol. Annex I Parties are divided further into two groups, the Annex I parties listed in the Convention as members of the Organisation for Economic Cooperation and Development (OECD) and other developed industrialised countries with economies in transition to a market base economy.

Non-Annex I Parties which are the developing countries which reflect their less advanced economic development and their lower GHG emissions, even though some of

[31] Article 25 provides that the Protocol will only come into force on the 90th day after the date of not less than 55 Parties to the Convention, comprising of the Parties included in Annex I of the Convention which account for at least 55% of the total carbon dioxide emission of the base year of 1990 level, have ratified the Protocol.

[32] The Kyoto Protocol: Status of Ratification accessed on 2 April 2009 available at <http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php>

[33] Please refer note 5 at page 7.

these countries, especially China, India and Brazil are currently becoming major emitters due to their rapid economic growth.

In practice, Annex I Parties and Annex B countries are used in the same context and almost interchangeably. Strictly speaking it is the Annex I Parties (countries) which can invest in CDM and JI projects, and host JI projects while non-Annex I Parties (countries) can host CDM projects, even though it is the Annex B countries which have the emission reduction obligation under the Protocol.[34]

Main features of the Protocol.

The main features of the Protocol which are directly related to the implementation of he flexible mechanisms may be summarised as follows:-

i. The Parties to the Protocol have agreed to the legally binding commitments to achieve its objectives.[35]

ii. The developed industrial countries listed in Annex I of the Convention have committed to reduce their overall emissions of the GHGs listed in Annex A of the Protocol by at least five percent (5%) below the 1990 levels in the commitment period of 2008 to 2012 (this specific period is better known as the first commitment period). [36] The base year of 1990 in particular applies to carbon dioxide, methane and nitrous dioxide being the three (3) most important GHGs. As for the other three (3) GHGs listed in Annex A of the Protocol,

[34] Belarussia and Turkey are listed in Annex I but not Annex B while Croatia, Liechtenstein, Monaco and Slovania are listed in Annex B but not Annex I.
[35] Please refer note 10 at page 10.
[36] Article 3(1) of the Kyoto Protocol.

hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride, the Annex I Parties may use the base year of 1995.[37]

iii. No quantitative commitment is set for the developing countries, Non-Annex I Parties, reflecting the guiding principle of common but differentiated responsibility, under which the industrialized countries are required to take the lead in measures to combat climate change, as mentioned earlier.

iv. The Protocol again stresses on two (2) key environmental principles as contained in the Convention. The first is the principle of *'common but differentiated responsibilities'* which is provided in Article 10[38] of the Protocol. Second is the principle of *'sustainable development'* which is mentioned in Articles 2, 10 and 12 of the Protocol.

This Article reiterates the international agreement and commitments by the Annex I Parties and Non-Annex I Parties, to employ measures in order to achieve the common primary goal of stabilizing the GHGs concentration in the atmosphere as envisaged by the Convention. The developing countries are expected to continue implementing the commitments by taking into account their specific national and regional development priorities, objectives and circumstances in order to achieve sustainable developments. In other words, there are two folds of objective for the developing countries to implement measures to honour the commitment, i.e. first to achieve the primary objective of Article 2 of the Convention and secondly, to achieve sustainable development simultaneously with economic growth and national development.

[37] Article 3(8) of the Kyoto Protocol.
[38] Article 10 reads, "*All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, without introducing any new commitments for Parties not included in Annex I,... and continuing to advance the implementation of these commitments in order to achieve sustainable development,.....*".

v. The introduction of the so-called flexible mechanisms which consist of the Emission Trading (ET), Joint Implementation (JI) and Clean Development Mechanism (CDM). These market-based mechanisms are created as a tool for the developed industrialized countries to achieve its emission reduction target at a lower compliance cost, resulting in the evolution of the carbon credits from these flexible mechanisms.

vi. Annex I Parties are allowed to fulfill their commitments to ensure that their GHGs emissions do not exceed the assigned amounts in their individual capacity or jointly with another Annex I Parties.

Article 3 reads:-

'The Parties included in Annex I shall, individually or jointly…', and

Article 4 reads:-

'Any Parties included in Annex I that have reached an agreement to fulfill their commitments under Article 3 jointly, …'.

The reading of both Articles implies that an Annex I Party may elect to have a joint agreement to achieve their emission target under the Protocol. Perhaps the European Union is a very good example of this joint effort.

vii. Article 5 provides that Annex I Parties are required to establish a national system not later than a year prior to the start of the first commitment period for the estimation of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.

viii. Article 7 provides that Annex I Parties are required to submit annually information relating to its annual inventory of anthropogenic emissions by

sources and removal by sinks of GHGs and any other supplementary information for the purpose of ensuring compliance with the commitments of the Protocol. Under Article 8, these reports shall be reviewed and comprehensive technical assessment will be conducted by experts whom shall be coordinated by the secretariat, composing experts selected by the Parties to the Convention and by intergovernmental organization.

The Protocol is also said to be a unique international law instrument in at least three (3) aspects:-

a. First, Protocol set out clear and legally binding targets for the reduction of emissions of GHGs in Annex A of the Protocol by the Annex I Parties which are unprecedented in an environmental agreement and which all involve the commitment of substantial financial resources of the private or public entities of the Annex I Parties.[39]

b. Second, the Protocol is the first international agreement to include economic instruments to assist Annex I Parties to achieve the emission reduction targets[40]. These economic instruments are flexible mechanisms, market-based approach to have a lower marginal abatement cost in compliance of the Protocol's emissions reduction targets whereby the emissions reduction project may be implemented in another Annex I Party country or a country with its economy in transition or a non-Annex I Parties where the implementation financing cost is much lower.[41]

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[39] Markus W Gehring and Charlotte Streck, "Emission Trading : Lessons From 80(X) and No (X) Emissions Allowance and Credit Systems Legal Nature, Title, Transfer, and Taxation of Emission Allowances and Credits," Environmental law Reporter April 2005 35 ELR 10219 at page 2.
[40] Please refer note 39 at page 2.
[41] Please refer note 39 at page 2.

c. Third, under the Protocol, the Annex I Parties are set with a fixed assigned amount of emissions allowed for the first commitment period. Countries are allowed to trade these assigned amount units with another country if its projected emission would be lower than the assigned amount limit in the first commitment period. These trading of emission reduction units better known as carbon credits may take place through any of the flexible mechanisms.

The Flexible Mechanisms

The Protocol introduces flexible mechanisms which allow the creation and transfer of emission reduction permits between countries. These flexible mechanisms are primarily designed to minimize the cost of reducing GHG emissions by the developed industrial countries while at the same time providing opportunities to the developing countries to develop in a sustainable manner. These flexible mechanisms are as follows:-

a) **Joint Implementation (JI)**

Joint Implementation (JI) is a project-based mechanism introduced by Article 6[42] of the Protocol. This mechanism is designed to assist Annex I Parties in meeting their emission reduction targets through joint projects with another Annex 1 Parties.

This mechanism however can only be implemented between the Annex I Parties. An investor from Annex I Party will form an agreement with a partner of a host country in another Annex I Party to participate in project activities which will generate Emission Reduction Units (ERU) for use in compliance with targets

[42] Article 6 reads,'...any Party included in Annex I may transfer to, or acquire from, any other such Party emission reduction units resulting from projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases...'.

fixed under the Protocol. The project activities must be carried aimed at reducing anthropogenic GHG emission or enhancing the anthropogenic GHG removals by sink located in the host country of another Annex 1 Party.

Projects starting as of year 2000 may be eligible as Joint Implementation project under the Protocol if they meet the relevant requirements as provided in Article 6 (1) (a) to (d). However, the ERU generated may only be issued for crediting after the beginning of year 2008[43].

As envisaged under Article 6 (1) of the Protocol, these projects need to be approved by the parties involved in the project and the ERU may not be acquired if it is not in compliance with the obligation stated in Articles 5[44] and 7[45] of the Protocols.

There are two types of procedure which enables ERU to be issued under the JI[46]. First, if a host country meets all the eligibility requirements to transfer and acquire the ERU, the host country may verify emission reduction or enhancements of removals by sinks from a JI project as being additional to that would otherwise occur. Upon verification, the host country may issue the appropriate ERU. This is called *'Track 1 Procedure'*.

[43] Please refer note 5 at page 11.

[44] Article 5 is regarding the formation of a national system for the estimation of anthropogenic emissions by sources and removals by sinks of all GHG and the methodologies for estimation and to calculate the carbon dioxide equivalence of anthropogenic emissions and removals whichever maybe, must be accepted by the Intergovernmental Panel on Climate Change and agreed upon by the COP at its third session.

[45] Article 7, among others deals with the annual submission of inventories of the anthropogenic GHGs emissions by sources and removal by sinks and the communication of information necessary for the purpose of ensuring compliance with reduction commitments under Article 3 of the Protocol.

[46] United Nation Framework Convention On Climate Change website, 'The Mechanism under the Kyoto Protocol: Emissions Trading, the Clean Development Mechanism and Joint Implementation' accessed on 27 March 2009 available at http://unfccc.int/kyoto_protocol/mechanism/item/1673.php

Second, if a host country does not meet all, but only the limited of the eligibility requirements, such verification process must be done by an independent accredited entity of the Joint Implementation Supervisory Committee which has to determine whether the relevant requirements have been satisfied before the host country can issue and transfer any ERU. This is called *'Track 2 Procedure'*. A host country which has fulfilled the eligibility requirement may also choose Track 2 Procedure if they wish.

Finally the ERU to be acquired must be supplemental to domestic actions to achieve the reduction commitment. In other words, these Annex I Parties must employ the necessary initiatives to reduce their GHGs emissions at the domestic level before going beyond their boundaries to achieve the emission targets.

(b) Clean Development Mechanism (CDM)

The Clean Development Mechanism (CDM)[47] is also a project-based mechanism introduced by Article 12[48] of the Protocol. This mechanism can only be implemented between the Annex I Parties with non-Annex I Parties.

An investor from Annex I will form an agreement with a partner of a host country in a non-Annex I Party to participate in project activities which will generate Certified Emission Reduction (CER) for the use of Annex I Parties to contribute part of their compliance in achieving their quantified emission limitation and reduction commitments. Again, emission credits issued from projects under the

[47] The mechanism has been operational since early 2006 and as at 1 April 2009, CDM registered projects are estimated to be around 1541. The first project registered by the CDM Executive Board was in November 2004 and in October 2005, the first CER was issued to a project participant account. These information may be retrieved from http://cdm.unfccc.int/Projects/registered.html. (Last visited 4 April 2009) and at http://cdm.unfccc.int/Issuance/CER's iss.html (Last visited 2nd February 2009).

[48] Article 12 reads:-

1. *A clean development mechanism is hereby defined.*

mechanism may only supplement the emission reduction target of an Annex I Party. Hence, Annex I Parties must employ domestic initiatives to achieve their assigned limit of emissions of GHGs before going abroad to acquire additional emission credits.

There are a few ways that this mechanism can be employed. The most common is by Annex I Parties sponsoring actual GHG offset projects as equity investor or other is by way of actual transfer of environmentally-friendly technology in or to a developing country of non-Annex I Parties. The mechanism is to be supervised by an executive board which operates under the authority and guidance of the COP.[49] The executive board is better known as CDM Executive Board.

The CDM is being introduced for three main objectives[50]. First, it aims at achieving the primary goal of the Convention itself namely stabilising the anthropogenic GHGs in the atmosphere to prevent dangerous interference with the climate system. Second, it aims to encourage sustainable development in the Non-Annex I Parties and contribute to the ultimate objective of the Convention. The non-Annex I Parties will also benefit from the project activities which result in CER. In reality, even though the project does not yield any CER, the non-Annex I Parties will still benefit from the project activities because the project must be initiated first and fulfill all other conditions before the CER is issued.

Third, it provides assistance to the Annex I Parties to comply with the Protocol emission reduction commitment at the lowest possible cost in two ways; first,

[49] Article 12(4) of the Kyoto Protocol.
[50] Article 12(2) of the Kyoto Protocol.

majority of new energy capacity located in the developing world where rates of economic growth are highest and energy infrastructure is least developed; and second, the relative cost of prematurely retiring high carbon emission intensity power plants is significantly higher than building new zero or low intensity carbon emission power plant. This modus to lower the cost of treaty compliance is apparently possible due to the fact that the location of the emission reduction has no bearing on impact to the environment.

Another pertinent point for discussion is Article 12(5)[51] of the Protocol which provides:-

i. For the CDM to function and accepted by the CDM Executive Board it must be by certified operational entity to be designated by the Conference of the Parties (COP).

ii. The project activities of the CDM must be approved by both the investor country and the host country and the parties must have engaged together in the project activities voluntarily, not being imposed by any other party. Usually the state ministry or its departments or agencies which is responsible for environmental or energy portfolios, which is termed as Designated National Authority (DNA), will be authorised to issue such approval.

[51] Article 12(5) reads:
Emission reductions resulting from each project activity shall be certified by operational entities to be designated by the Conference of the Parties serving as the meeting of the Parties to this Protocol, on the basis of:
(a) Voluntary participation approved by each Party involved;
(b) Real, measurable, and long-term benefits related to the mitigation of climate change; and
(c) Reductions in emissions that are additional to any that would occur in the absence of the certified project activity.

iii. The emission reduction from the project activities must be real, measurable and for the long term benefits to mitigate climate change.

iv. The emission reduction achievable from the project activity of the CDM must be below the emission that would have occurred in the absence of the CDM project activity. There are projects that reduce the GHGs emission which would have happen regardless of the existence of the GHGs reduction programmes and without any concern for climate mitigation. Such *'would have happened anyway'* projects are not eligible for any set-offs under the emission reduction unit certification. This is the concept of additionality which is required for CDM project activity before the emission reduction is certified by the CDM Executive Board. Additionality is thus critical to the success of the CDM objectives.

Basically any CDM project under the Protocol will need to go through few processing stages before any CER can be verified and issued which will be discussed later in Chapter 5. As preliminary, each project intended to be registered as a CDM project must prepare a PDD. This PDD explains on how its future emissions will be voluntary, real, measurable, additional and the monitoring methods to be utilised to monitor, estimate and measure the emission reductions generated by the project during the implementation stage which is called Monitoring Plan.

'Voluntary' means that the project activities are undertaken not due to any obligation imposed by any regulation or by the state. *'Real'* and *'Measurable'* refers to the emission reduction that actually occurs and it must be measurable through the approved methodology adopted. *'Additional'* means that the emission reduction must be, in essence, occurs and generated in addition to that

which would occur in the absence of the CDM scheme due to at least one of the following barriers:[52]

i. Investment barrier – an alternative project which is more financially affordable would have led to higher emission.

ii. Technology barrier – non-advanced or less-advanced technology process is an alternative due to lower risk, but with higher emission.

iii. Prevailing practice barrier – prevailing market practice or existing regulatory or policy on implementation of a technology with higher emission rate.

iv. Other barriers, among others, are know-how capacity, and limited information and technical resources.

Without doubt, CDM will generate foreign investment in the developing countries and in many ways it may accelerate the growth of the economy, transfer of new environmental-friendly technologies and create employments in this part of the world. Moreover parties to the CDM may involve private and/or public entities.[53] An encouraging factor for the Annex I Parties to invest in CDM project activities in non-Annex I Parties is because the Protocol allows the Certified Emission Reduction obtained during the period from year 2000 onwards up to the beginning of the first commitment period to be used in achieving compliance in the first commitment period by the Annex 1 Parties.[54] The emission reduction credit acquired in excess of its assigned amount would allow the Annex I Parties to emit over its reduction emission limit as inscribed by Annex B of the Protocol.

[52] Clean Development Mechanisms for Energy Sector in Malaysia, under 'Additionality', accessed on 27 March 2009 available at <http://cdm.eib.org.my>
[53] Article 12(9) of the Kyoto Protocol.
[54] Article 12(10) of the Kyoto Protocol.

CDM is a unique and significant mechanism at least as far as the combating climate change issue is concerned because the international community especially the drafters of the Protocol realized that the long term success for the international community to stabilize the GHGs concentration in the atmosphere is not possible without the developing countries participation. This is in particular due to the fact that the developing countries are projected to be the major contributor of GHGs emission in a few years. Therefore, industrialised countries efforts alone will not be sufficient to deal with the problem of global warming.

(c) Emissions Trading (ET)

Emission Trading (ET) is expressly mentioned in Article 17[55] of the Protocol. It can be legitimately regarded as a policy instrument at the national, regional or international level to assist Annex I Parties to achieve its emission assigned amount. Under these schemes, states will set emissions limit to be adhered by identified entities, which primarily consist of the industrial sectors whom are the major emitters of GHGs.

Similar to the JI mechanism, ET can only be employed by Annex I Parties. An Annex I Parties may transfer part of it's assigned amount to another Annex I Parties in order assist the latter to achieve its emission target. In other words, the Annex I Parties may purchase and/or acquire the emission reduction unit from another Annex I Parties whose emissions is lower than the assigned amount inscribed by Annex B of the Protocol. Each credit (unit) is equal to one metric tonne of carbon dioxide equivalent emissions. The emission reduction units

[55] Article 17 reads:-
'...The Parties included in Annex B may participate in emissions trading for the purposes of fulfilling their commitments under Article 3. Any such trading shall be supplemental to domestic actions for the purpose of meeting quantified emission limitation and reduction commitments under that Article.'

which are tradable and transferable under the emission trading scheme, may be in the following forms:-

i) Assigned Amount Unit (AAU) pursuant to Article 3(7) and 3(8) of the Protocol.

ii) Removal Unit (RU) pursuant to Article 3(3) and 3(4) of the Protocol.

iii) Emission Reduction Unit (ERU) pursuant to Article 6 of the Protocol.

iv) Certified Emission Reduction (CER) pursuant to Article 12 of the Protocol.

The difference of these units will be discussed in the next chapter.

A registry system would be required to monitor, track and record the trading of these carbon units. Otherwise, these carbon units traded may not be genuine and involves manipulation and deception. In this regards, it is vital that a national registry be set up to regulate and keep proper record of the trading i.e. transfer and acquisition.

Two basic forms of emission trading systems are[56]:-

i) Cap-and-trade system. In this system parties are allocated with emissions ceiling, that is a defined amount of pollutant which can be released by the party in a specified compliance period. The regulatory authority will create and allocate the emission allowance for free or by auction. Examples of these systems are the United States Acid Rain Programs of Sulphur Dioxide Allowance Trading Scheme and the European Union European Trading Scheme (EU ETS).

ii) Baseline-and-credit system. In this system parties are given emission reduction target which is a specific ceiling on emission for a specified

[56] Please refer note 39 at page 4.

compliance period. The Parties are required to reduce their emission against certain fixed baseline. Those who are able to reduce their emissions as compared to the baseline are allowed to sell their emission reduction unit equaling the difference between the baseline and the actual emissions.

According to Markus W. Gehring and Charlotte Streckin in their article,[57] the Kyoto Protocol emission trading system constitutes such a combine feature of both systems, which is called a hybrid. Perhaps it is true as looking at the whole trading mechanism, it allocates an assigned amount of emission units to Annex I Parties and at the same time allow Annex I Parties to sell the surplus emission reduction units from the assigned amount or generated by projects activities in the Non-Annex I Parties.

Eligibility Requirements

To participate in the flexible mechanism, an Annex I Parties must satisfy the eligibility requirement under the Protocol. Each and every mechanism has its own detailed eligibility requirements set out by the Compliance Mechanism Parties (CMP). Among the eligibility requirements are[58]:-

i) Parties must have ratified the Protocol.

ii) Parties must measure their assigned amounts in metric tones of carbon dioxide equivalent gas emission.

iii) Parties must establish a national system to estimate emissions and removals of GHGs in their respective jurisdiction.

[57] Please refer note 39 at page 4.
[58] Please refer note 46 under 'Eligibility requirement'.

iv) Parties must establish a national registry to record and keep track of the carbon credits and must submit annual report to the Secretariat.

v) Parties must submit annual report on the relevant information related to emissions, removals and actions taken in implementing the Protocol, to the Secretariat.

Transfer and acquisitions of these units are tracked and recorded through a registry system to be established as required under the Protocol. Parties are required to hold a minimum level of credits in its national registry in order to avoid possible risk that they are not able to achieve their own assigned amount emissions limit. This minimum holding of credits is known as *'commitment period reserve'*[59].

Compliance Mechanism[60]

An important initiative to facilitate and to ensure compliance with the Protocol commitments is the formation of the Kyoto Protocol Compliance Mechanism. It is designed to strengthen the Protocol's environmental integrity, support the carbon market's credibility and ensure transparency of accounting by Parties to the Protocol[61].

Without doubt, the success of the Protocol is much dependent on an effective compliance rules and procedures adopted for enforcement. A Compliance Committee has been set up to enforce the compliance mechanism. Pursuant to Article 18 of the Protocol, a detailed rules and procedures of the Compliance Committee have been formulated and is called the 'Rules of Procedure of the Compliance Committee of the Kyoto Protocol' and was adopted by the COP.

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[59] Please refer note 46 under 'The commitment period reserve'.

[60] United Nation Framework Convention On Climate Change website, 'An Introduction to the Kyoto Protocol Compliance Mechanism' accessed on 27 March 2009 available at <http://unfccc.int/kyoto_protocol/compliance/introduction/item/3024.php>

[61] Please refer note 60 at page 1.

The Compliance Committee is made up of two branches, a facilitative branch with the duty to provide advice and assistance to Parties in order to promote compliance while the enforcement branch has the duty to determine whether Annex I Parties comply with its emission targets, methodological and reporting requirements for GHG inventories and the eligibility requirements under the respective mechanisms and to determine the consequences of any of the parties not meeting their commitments.

The facilitative branch may provide *'early warning'* of potential non-compliance with any requirements of the Protocol, including, but not limited to emission targets, methodological and reporting commitments relating to GHGs inventories and the submission of other annual or periodical reports and information[62]. Being an important enforcement tool, the enforcement branch will have to determine a specific type of consequence for each type of non-compliance.

In cases where parties fail to comply with its emission commitment and exceeded the assigned amounts, the party will have 100 days after the expert review has finished their annual emission inventory, to make up any shortfall in compliance. If after this period, the emissions are still greater than the assigned amount, then the enforcement branch will make a declaration that the respective party is in non-compliance and require the party to make up the difference between its emissions and its assigned amount during the second commitment period, plus an additional emission deduction of 30%[63].

In addition, it shall require the party concerned to submit a compliance action plan and suspend the eligibility of the party to effect transfer under the emission trading until the

[62] Please refer note 60 at page 1.
[63] Please refer note 60 at page 1 and 2.

party is reinstated. If a party's eligibility is withdrawn or suspended, it may request, either through an expert reviews team or directly to the enforcement branch, to reinstate its eligibility once the party has comply with all the requirements and/or commitment under the Protocol.

CHAPTER 3

CARBON CREDIT

Carbon Credit

"As human-caused biodiversity loss and climate disruption gain ground, we need to keep our sights clear and understand that the measure of a threat is not a matter of whether it is made on purpose, but of how much loss it may cause. It's an ancient habit to go after those we perceive to be evil because they intended to do harm. It's harder, but more effective, to "go after", meaning to more effectively educate and socialize, those vastly larger numbers of our fellow humans who are not evil, but whose behavior may in fact be far more destructive in the long run"(Ed Ayres, editor of Worldwatch Magazine November/December 2001)[64]

Although the above statement was issued after the Convention and the Protocol, perhaps, it does, some way or another, reflects the intention and the true spirit for which the Convention and the Protocol were drafted. In many ways, these international agreements educate and socialize with those larger numbers of fellow humans, who are not evil, but whose behavior tends to result more destructive in a long run.

The concept of carbon credits, arguably came into existence as a result of the IPCC Fourth Assessment Report which states:-

'Policies that provide a real or implicit price of carbon could create incentives for producers and consumers to significantly invest in low-GHG (greenhouse gases)

[64] Ecobridge, 'Causes of Global Warming' at page 1 accessed on 22 January 2009 available at <http://www.ecobridge.com/content/g-sce.htm>.

products, technologies and processes. Such policies could include economic instruments, government funding and regulation.'

Carbon credit is the brain-child of the Protocol. The Protocol creates the concept of carbon credit especially through the flexible mechanisms. It has become a key component of national and international instruments for the implementation of the emission reduction regime in achieving the objective of the Convention.

Creation of carbon credits under the Protocol is a modus to reduce greenhouse effect by capping the amount of total emission for a specified compliance period and allowing the market to assign monetary value to any shortfall through trading. A party may sell carbon credits to customer in order for the customer to be able to lower their carbon emissions total amount (carbon footprint) to fulfill its commitment of emission reduction. The seller and the purchaser (customer) of carbon credits may be public or private entities. Even states may sell or purchase carbon credit in order to assist the purchaser state to achieve its capped assigned amount of emissions units, especially for the Annex I Parties, in compliance with the Protocol.

By giving monetary value to the carbon credit is in a way imposing cost on pollution. From the economic perspective, imposing cost on pollution is in actual fact makes GHG or carbon emission capable of being translated as internal cost of doing business similar to other liabilities and assets. On the other hand, from the environmental perspective, it is similar to an environment principle of *'polluter pays principle'*. There is no agreed definition of the term *'polluter pays principle'*[65]. In brief, the principle requires

[65] Please refer note 1 at page 145. At page 146, the author cited the explanation given by The Organisation for Economic Co-operation and Development (OECD) on the principle as, *'The Polluter Pays Principle...implies that in general it is for the polluter to meet the cost of pollution control and prevention measure, irrespective of whether these cost are incurred as a result of the imposition of some charge on*

the polluter to be responsible and to pay for the cost to remedy or reduce the impact of the pollution.

Notwithstanding that this principle is not expressly mentioned in the Convention and the Protocol, but it is obvious that carbon credit, under the Protocol in many ways resemble this *'polluter pays principle'*. The only significant difference is the approach under the Protocol is a market-based approach, a kind of commercial scheme whereas the traditional employment of *'polluter pays principle'* might be more towards the imposition of regulatory obligation or punitive policy.

Perhaps, the gist of creating such a market-based approach mechanism offered by the flexible mechanism is based on the fact that carbon emission level will keep rising in view of the economy growth of countries around the globe. With the implementation of the Protocol, parties must adhere to their respective capped amount of emissions and if their carbon emission level surpasses their capped assigned amount, they need to buy or acquire carbon credits from other parties to control the emission levels at the committed capped amount. This would result trading and thus the rule of supply and demand will inevitably push the market price. Again this scenario is expected to encourage more parties, in particular industrial based companies or states to undertake and use environmental-friendly activities and technologies that can reduce carbon emissions and in addition create carbon credits for sale as a trading commodity.

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pollution emission or are debited through some other suitable economic mechanism, or are in response to some direct regulations leading to some enforced reduction in pollution.' In addition the European Commission defined *'polluter'* as *'someone who directly or indirectly damages the environment, or who creates conditions leading to such damage.'* As regards the principle, the Commission further stated that *'...cost connected with the protection of the environment against pollution should be allocated according to the same principles throughout the Community. To achieve that, the European Communities..., and the Member States... must apply the principle, under which natural or legal persons must pay the costs of such measures as are necessary to eliminate that pollution or reduce it so as to comply with the standards or equivalent measures which enable quality objectives to be met...so as to comply with the standards or equivalent measures laid down by the public authorities.'*

Under the Protocol there are four different types of carbon credits and its sources and acceptance value also differs. They are as follows:-

i) **Assigned Amount Units (AAU)**

Assigned Amount Units (AAU) is carbon credit units which reflect the total amount of GHGs that each Annex I Parties is allowed to emit during the first commitment period. It is the capped amount of emission based on the Annex B of the Protocol. In other words, assigned amount are quotas, i.e. the total amount of emission allowances for the period of 2008 to 2012 and these units are issued by the states that have emission reduction commitment under the Protocol. Each unit is equal to one metric tonne of carbon dioxide equivalent gas. Since these units are allocated by the states in advance and thus they can be traded, transferred or acquired between countries or entities pursuant to Article 3(10) and 3(11) of the Protocol from the start of the first commitment period provided that these countries are eligible to transact the units under the Protocol.

These units can be allocated for free or by auction. At current, most country allocates these carbon credit units for free in order to assist parties to reduce abatement cost of compliance and perhaps will auction after a few years when parties have adopted the carbon credit regime and in a better financial position. Once allocated, these units are owned by the entities and transferable. As in all other trading transaction, the State would need to have a central registry to record the assigned amount units and to keep track of the trading and/or transfer of these units between parties.

The allocation of the units in advance would also helps the parties and/or entities to plan ahead their project activities so as to ensure that their GHGs emissions are within their assigned amount, besides having better financial planning should these entities purchase or acquire additional carbon credits to cover the excess emissions level. The Protocol allows any unused AAU, if not sold or transfer to any other parties, to be added to the subsequent assigned amount for the respective party for subsequent commitment period.[66]

As will be discussed later, all other carbon credits under the Protocol are project based, not originates from allocation. Project based reduction emission credits derived from the difference between the baseline and the actual emission reduction level achieved after implementing the GHG reduction project[67]. In this respect project based reduction emission credits would have to go through several verification and approval processes before being certified and accepted under the Protocol. As for AAU credits, they are not subject to these verification and approval processes. For this reason, its market price would be considerably lower that the project based carbon units for having lesser transaction and processing cost.

ii) **Emissions Reduction Units (ERU)**

Emission Reduction Units (ERU) is carbon credit units generated from JI projects which reduce emissions of GHGs or enhance the removal sinks pursuant to Article 6 of the Protocol. These units need to be verified by external United Nation accredited third party and issued by the host country before the

[66] Article 3(13) of the Protocol.
[67] Please refer note 5 at page 21.

credits are valid for use of GHG emission reduction commitments under the Protocol.

As was mentioned earlier, the JI is a type of a project-based mechanism where Annex I Parties may implement an emission reduction project or a project that enhances removals by sinks in another Annex I Parties jurisdiction and the carbon credit generated from the project will be used to satisfy it's own commitment or target under the Protocol. ERU is equal to one metric tonne of carbon dioxide equivalent gas. Article 3(10) and 3(11) of the Protocol allows the transfer and acquisition of ERU by Parties.

Pursuant to Article 6(3) of the Protocol, besides the State as Parties to the ERU, the State can also authorize legal entities to participate in the ERU trading. Legal entities may cover any public or private entities especially companies. Notwithstanding that other legal entities are allowed to participate in ERU trading, each Annex I Parties are still liable to fulfill its reduction commitments under the Protocol, hence a national registry level is very important for the operation of the JI project and to record the movement and validity of the carbon credit units generated therefrom. However only ERU generated within the first commitment period can be validly accepted as ERU under the Protocol and account for meeting emission target.

iii) **Carbon Emissions Reduction (CER)**

Carbon Emissions Reduction (CER) is carbon credit units generated from CDM pursuant to Article 12 of the Protocol. The measuring unit is also equal to one metric tonne of carbon dioxide equivalent gas. The CER will be issued by the

CDM Executive Board established pursuant to Article 12(4) of the Protocol only if all the conditions, among others, those provided in Article 12(5) are satisfied.

Pursuant to Article 12(10) of the Protocol, the CER obtained from the year 2000 onwards can be used to fulfill the reduction commitment limit for the first commitment period and this implies that the CER generated from year 2000 are valid for trade even before the beginning of the first commitment period. However, the amount of CER that a party may carry forward is limited to less than 2.5% of the respective parties assigned amount units[68].

iv) **Removal Units (RMU)**

Under Article 2(1)(a)(ii) of the Protocol, Parties to the Protocol have agreed for *'protection and enhancement of sinks and reservoirs of greenhouse gases...; promotion of sustainable forest management practices, afforestation and reforestation;...'*

Further Article 3(3) of the Protocol allows GHGs to be reduced from the atmosphere by offsetting these emissions through carbon sink in land use, land-use change and forestry (LULUCF) sector. This mode carbon reduction is termed as *'removals by sink'* but not all activities in the LULUCF sector are recognized as carbon sinks for the purpose of meeting the Protocol reduction commitment. Among the acceptable activities under the LULUCF eligible for the carbon credit units under the Protocol are afforestation, reforestation, deforestation and forest management.

[68] Please refer note 5 at page 21.

These eligible carbon-sink activities generate carbon credit units, known as Removal Units (RMU). These RMU cannot be carried forward to the next commitment period and are not accepted under the European Union Emission Trading System (EU ETS)[69]. At present, RMU is not available due to its complexities in implementation and the monitoring reporting and verification mechanisms, and some analyst, view that it may only be available after 2013.

Carbon Credit : A Trading Commodity

The creation of carbon credit by the Protocol has resulted in the emergence of carbon market. It is considered as a key tool of the flexible mechanism for reducing GHGs emissions worldwide. The Protocol came into force on 16th February 2005 but the world community especially the parties to the Protocol were quite skeptical in the success of the Protocol is flexible mechanism.

However, on approaching the first commitment period the support and implementation rate accelerate and this is reflected by the volumes in value of the global carbon trading market. The World Bank estimates the global carbon credit market was worth around USD 30 billion in 2006[70]. United States, though has not ratified the Protocol until this date, is planning to adopt a federal trading scheme which if implemented would result in the creation of a market twice the size of the European Union Commission Trading Scheme (EU ETS). The EU ETS at the present moment is the largest, emission trading scheme in the world.

The potential of carbon market is very huge. This is induced by the fact that globally, GHGs are emitted from many sources which are considered a necessity for human

[69] Please refer note 5 at page 22.
[70] Please refer note 2 at page 2.

beings to continue livelihood. Every use for building, household, transportation and mass production of food supply are examples which shows that GHGs emissions are inevitable and necessary for us to continue living. The United States alone, being the largest consumer of oil was consuming approximately over 20.4 million barrels a day[71].

Due to its most promising economic potential, states, public and private entities, and even local council is now selling carbon credits to potential buyers. For example, in 2007, Palmerston North City Council, a local council in New Zealand was selling carbon credits from Awapuni Landfill gas project on online commerce site, *'Trade me'*.[72] In the same year, Japan has announced that they intends to buy carbon credits from Hungary with potential similar deal with Poland and Czeck Republic. If this is realized, Japan may become the world's biggest buyer of carbon credits. [73]

As mentioned before, the European Union Emission Trading Scheme is presently the largest in the world. The European Union trading system has been operational since 2005 and accounting for USD 24 billion (about 80% of total trades) in 2006[74]. It may possibly be an acceptable trend setter or a practical guide and set the benchmark for the carbon price globally and in particular within the member States of the European Union. In 2008, the European Union carbon dioxide emission permit are trading at around Euro €21.45 or USD 29.22 a tonne which is 47 percent more then the price for the United Nation's carbon credit which was trading at around Euro €14.54[75]. A Fortis

[71] Please refer note 64 at page 1. The Article also stated that during the year 2000 United States Presidential campaign, Senator Joseph Lieberman said, *"If we can get 3 miles more per gallon from our cars, we'll save 1 million barrels of oil a day..."* This indicates the large volume of oil consumption in the United States and the great impact should they ratify the Protocol and adhere to the binding commitment.

[72] Malaysia Sun, 'New Zealand to sell community carbon credits,' 13th November 2007 accessed on 22 January 2009 available at <http://www.MalaysiaSun.com/>.

[73] Malaysia Sun, 'Japan announces carbon credit deal with Hungary', 23rd November 2007 accessed on 22 January 2009 available at <http://www.MalaysiaSun.com/ >.

[74] Please refer note 2 at page 2.

[75] International Harold Tribune Business Bloomberg News, 'Price difference between EU and UN carbon credits offers 'huge' profit opportunity', published on 3rd July 2007 at page 1 accessed on 27 March 2009 available at <http://www.iht.com/articles/2007/07/03/business/carbon.php>.

analyst said that due to the price difference between European Union permits and the United Nations credits the European Union industry may make approximately USD 1 billion profit a year.[76]

Due to its market rapid demand, hence pushing up prices for biofuels, many tropical countries have taken this opportunity to accelerate their initiatives on deforestation[77] for raw materials for the production of biofuels, timber, pulp, paper and wood products while at the same time the oil palms would also be able to generate carbon credits designed to protect the environment and accounted for under the Protocol's flexible mechanism. Simone Lovera, the managing coordinator of the Global Forest Coalition, an environmental NGO based in Paraguay, has stated that *'biofuels are rapidly becoming main cause of deforestation in countries like Indonesia, Malaysia and Brazil.'*[78]

Oil from African palm oil trees is regarded as one of the best and cheapest sources of biofuels and energy companies worldwide are investing huge amount of money into acquiring or developing oil palm plantation in tropical developing countries like Indonesia and Malaysia[79]. Thus, besides reducing pollution rates, biofuels is offering economic viability and growth to the developing countries.

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[76] Please refer note 75 at page 2.

[77] Environmentalist argues that deforestation is also becoming a major contributor to the global warming as it has resulted vast areas of forest in these tropical countries to be cleared in order to grow alternative plants which provide more monetary value for economic growth. For example, the State of the World's Forest 2007 has released a report in March 2007 which stated that the net forest lost is estimated at 20,000 hectares per day, equivalent to an area twice the size of Paris. A report also stated that between 20% to 25% of all GHGs emissions worldwide is attributed to the clearing of tropical forest. For this reason, eight countries which on statistic collectively having 80% of the world's tropical forest i.e. Brazil, Indonesia, Malaysia, Papua New Guinea, Gabon, Cameroon, Costa Rica and Congo is making unified effort to address the issue of deforestation especially its position in the post 2012 period.

[78] Stephen Leahy, 'Biofuels Boom Spurring Deforestation,' published by Inter Press Service 22 March 2007 at page 1, accessed on 2 April 2009 available at <http://www.commondreams.org>.

[79] Please refer note 7 at page 1.

The carbon credit market is growing and at current, huge portion of the funds is coming from major institutional buyers through carbon funds[80] established by governments and private sectors. The most significant fund manager for carbon credit is the World Bank which is having capital over USD 1 billion[81]. There are few types of carbon funds established by the World Bank. The Prototype Carbon Fund, Community Development Carbon Fund and Bio Carbon Fund accumulate investment from governmental and corporate institutions. The capitals are then invested in carbon reduction based projects, in particular clean development mechanism, joint implementation and carbon sequestration projects and the carbon credits generated from the projects will be distributed to the investors on pro rata basis. Among its partners are European government such as Italy, Netherlands, Norway and a number of private sectors.

[80] Please refer note 5 at page 39 to 93 and also in British High Commission India, a report submitted by IT Power, 'Business Planning for Establishing Indian Carbon Fund,' April 2007, have reported that among other government and private sectors carbon funds are Japan Greehouse Gas Reduction Fund with targeted size of fund at USD 140 million each, the Netherlands Clean Development Facility, DanishCarbon.dk, the Spanish Carbon Fund, Pan European Carbon Fund and EcoSecurities-Standard Bank Carbon Facility. From the Clean Development Mechanisms for Energy Sector in Malaysia, accessed from <http://cdm.eib.org.my> another private sector carbon fund worth noted here is the Asia Carbon Fund with capital investment estimated at Euro €200 million which covers the Asian region with focus on India and China (approximately 50% of allocation), and countries like Malaysia, Thailand, Indonesia, Vietnam, Bangladesh, Sri Lanka, Bhutan and Mauritius.

[81] Please refer note 5 at page 34.

CHAPTER 4

AUSTRALIA

Introduction

At the international level, many developed countries have taken positive initiatives to implement the Protocol. Arguably, the European Union is among the most active group of countries to adopt actions towards achieving their commitments under the Protocol. In this Chapter, the focus will be on a country which has ratified the Protocol and has employed serious national level initiatives to achieve its commitments while combating climate change. The chosen country is Australia simply because it is a Commonwealth country and it is considered the most recent developed country which has ratified the Protocol notwithstanding its vocal adversary position taken prior to the ratification.

Australia has ratified the Convention on 30th December 1992 and subsequently ratified the Protocol on 12th December 2007[82]. It's GHGs reduction commitment under the Protocol is to limit its GHGs emissions to 108 percent of 1990 emission level during the year 2008 to 2012, the first commitment period[83].

Australian government has taken intensive and pro-active steps to achieve its GHGs emission reduction commitments under the Protocol without neglecting their own national economic interest. They have set their own GHGs emission reduction at national level with a long-term and a medium-term target under its national emissions trajectory. The government has committed to reduce GHGs emissions by between 5 and 15 percent below 2000 levels by 2020 under its medium-term target with a greater

[82] Please refer note 18 and 32.
[83] Australian Government White Paper, 'Carbon Pollution Reduction Scheme: Australia's Low Pollution Future', December 2008 at Appendix C page 1 accessed on 22 January 2009 available at <http://www.climatechange.gov.au/>

emission reduction of 60 percent below 2000 levels by 2050 under its long-term target[84].

Even though the Protocol emission reduction target and its own emission reduction target is expressed quite differently but since Australia's GHGs emissions in 1990 were almost the same as in 2000 i.e. 547.7 million tones and 552.8 million tones respectively, hence percentage reductions below 1990 and 2000 levels are reasonably similar[85]. The diagram at **Appendix 'A'** describes the 'business as usual' and 'with measures' of GHGs emission estimated as compared to the Protocol level commitment.

Climate change is a global problem which requires global solution. Acknowledging that addressing climate change is one of the key economic and environmental challenges to the global community, Australia has formulated a 'three pillar climate change strategy' seeking to reduce Australia's GHGs emissions, adapting to the climate change and at the same time to help to shape the global solution. They are[86]:-

a) Reducing Australia's own GHGs emissions.

This first pillar is transpired by the government's medium-term and long-term target of reducing the GHGs emission level as mentioned above. The government is determined to make a transition to a lower-carbon emissions economy while maintaining high standards of living for its citizens.

[84] Please refer note 83 at Chapter 4 page 1.
[85] Please refer note 83 at Chapter 4 page 7.
[86] Australian Government Carbon Pollution Reduction Scheme Green Paper (summary report), 'Acting on Climate Change: Towards an Australian Carbon Pollution Reduction Scheme ', July 2008 at page 8 accessed on 22 January 2009 available at http://www.climatechange.gov.au. Also please see note 83 at Executive Summary page xxii-xxv.

b) Adapting to climate change that we cannot avoid.

Scientific evidence has substantial, if not conclusive, proven that climate change is now unavoidable which means that every country must take necessary action at national level to adapt to its impact. The impacts of climate change represent considerable risk to life, assets, environments and economy at multi-level. The Garnaut Final Report has stated that cost of inaction will be greater than the cost of responsible mitigation[87] thus indicating that the government must take action to mitigate and adapt the impacts of climate change.

c) Helping to shape a global solution that both protects the planet and advances Australia's long-term interest.

A key Australian objective for the post-2012 period is to achieve mitigation actions by all major economies, establishing multilateral response with more countries willing to be imposed with GHGs emission reduction commitments. The developed countries are still expected to lead on the GHGs emission reduction while the rapid growth developing countries like China, India and Brazil commitments and participation in reducing GHGs emission is vital for an effective global solution.

Besides these pillars of strategy, the government has established groups of experts and committees to study and analyze the issues of climate change and policies and actions to be undertaken with the view to mitigate, adapt and implement the Protocol commitments. Among these reports are:-

[87] Please refer note 83 at Executive Summary page xxi.

i) Green Paper which was released by the government in July 2008 which focuses on the establishment and the design of a Carbon Pollution Reduction Scheme, of similar objective with other countries carbon credit trading schemes, for example the European Emissions Trading Scheme (EU ETS) and New Zealand Emissions Trading Scheme (NZ ETS).

ii) Garnaut Climate Change Review Final Report was received by government in September 2008. The Garnaut Review was commissioned in April 2007 by the eight state and territory governments and then Leader of the Opposition which was later joined by the Australia Government by the current government after November 2007 election[88]. The report assessed the impacts of climate change especially on Australia and made a few policy recommendations on medium term national emissions targets for Australia.

iii) White Paper which was released in December 2008. The White Paper is broader in scope which includes focus on the Carbon Pollution Reduction Scheme, the outlines on its development and implementation, the selection of national medium-term and long-term target and trajectory and ranges of complementary measures for a smooth transition to a lower emission economy. As for the Carbon Pollution Reduction Scheme, the government has stated its intention and expectation to implement the Scheme on 1st July 2010 with the introduction of relevant bills into the Parliament somewhere in the winter session of 2009[89].

[88] Please refer note 83 at Executive Summary page xlviii.
[89] Please refer note 83 at Executive Summary page xlvii.

Carbon Pollution Reduction Scheme ('Scheme')

To Australia, the Scheme is a very important tool to provide the country with a transitional assistance to transform its economy to a lower-carbon emission economy with its primary goal of achieving its Protocol commitments and discharging its global duty to combat climate change while recognizing its national interest. In brief, the Scheme's objectives are:-

i) to meet Australia's emissions reduction targets in the most flexible and cost-effective way. The government has acknowledged that earlier action will allow an orderly, gradual transition to a low-carbon economy. Delaying action, on the other hand will require sharper adjustment and higher cost.

ii) it is Australia's national interest to act in partnership with the rest of the world to achieve global solution. The Scheme is design to support effective global response by providing forum to achieve the GHGs emissions level for Australia and other Annex I Parties through its carbon credit trading schemes.

iii) to provide assistance for the most affected groups of households, corporations and firms to adjust because of the increase price of energy supply due to higher transaction cost incurred related to GHGs emissions especially by energy related corporations or firms. Other sectors, such as transport and agriculture are also facing with similar position which will inevitably shift the extra cost to the consumers at the end.

The Scheme is based on a cap and trade scheme. As illustrated briefly in Chapter 2, one of the elements of this scheme is the cap itself which limits the GHGs emission

imposed by the Scheme. The cap will be effective in achieving the environmental objective because as long as the cap remains unchanged, the total abatement outcomes will remain the same. Second element is that the act of capping emissions has surfaced the importance of carbon credits and creates carbon price[90]. The inevitable outcome is that carbon credits will play an important tool for emission reduction scheme. A corporation or a country may undertake an abatement mode which cost lesser to obtain carbon credits since through the scheme, the carbon credits are tradable and transferable with its price influenced by the market forces. The ability to trade provides a tool to reduce emissions reduction abatement cost.

Implementation of the Protocol's Flexible Mechanisms

Pursuant to Article 7(3) of the Protocol, Australia, being an Annex I Parties are required to submit initial report within one year of the Protocol entering into force for Australia. The Protocol has entered into force for Australia on 11th March 2008 and they have submitted its initial report on the same date. Under such circumstances, Australia will be eligible to participate in the flexible mechanisms 16 months after the date of submission of the initial report or at any earlier date the Protocol Compliance Committee notified the Convention Secretariat that it is not considering any question of implementation related to their eligibility for the flexible mechanism[91] provided that Australia has satisfied all the eligibility requirements under the Protocol.

For the same purpose, the Department of Climate Change is expected to be appointed as the Designated National Authority (DNA) for Australia[92] with authority to issue letter of approval as Annex I Parties for the implementation and participation in a CDM project

[90] Please refer note 86 at page 12.
[91] Please refer note 83 at Appendix C page 12.
[92] Please refer note 83 at Appendix C page 14.

based mechanisms in a developing countries (non-Annex I Parties) and to an Annex I Parties in relation to JI project-based mechanisms. The Department, once appointed, will continue to discharge all its responsibility as a DNA under provisions of the Protocol.

Regulatory Framework

One of the most significant initiatives adopted by the Australian government is the formulation of regulatory framework with the principle aim to regulate the activities related to the GHGs emissions and towards achieving Australia's commitments under the Protocol. A few statute and/or regulations have been codified related to the issues of GHGs. Some of these statutes have been legislated even before Australia ratified the Protocol. They are:-

1) National Greenhouse and Energy Reporting Act 2007 (NGERA)

The first of such statute is the National Greenhouse and Energy Reporting Act 2007 (NGERA) which has received Royal Assent on 28th September 2007. It is expected to pave the way for the implementation of the Carbon Pollution Reduction Scheme. The first reporting period under the NGERA commenced on 1st July 2008. Some of the key features are:-

a) reporting of GHGs emissions, energy consumption and production by large corporation.

b) public disclosure of corporate level GHGs emissions and energy information.

c) Consistent and comparable data available for decision making, in particular, the development of the Carbon Pollution Reduction Scheme.

The NGERA, under its Section 3[93] introduces a single national reporting framework for the reporting and dissemination of information related to greenhouse gas[94] emissions, greenhouse gas projects[95], energy consumption and production of corporations.

One of the most important feature of the NGERA is Section 12 which requires for a controlling corporation[96] to apply for registration if the corporation's group meet one or more of the thresholds under Section 13 for a financial year ending on or after 30 June 2009 and the corporation is not registered under Division 3 on 31 August in the financial year after the trigger year. Further, Section 17[97] of Division 3 of NGERA provides for the duty of the Greenhouse and Energy Data Officer to register a corporation in its Register.

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[93] Section 3 provides:-
The object of this Act is to introduce a single national reporting framework for the reporting and dissemination of information related to greenhouse gas emissions, greenhouse gas projects, energy consumption and energy production of corporations to:
(a) underpin the introduction of an emissions trading scheme in the future; and
(b) inform government policy formulation and the Australian public; and
(c) meet Australia's international reporting obligations; and
(d) assist Commonwealth, State and Territory government programs and activities; and
(e) avoid the duplication of similar reporting requirements in the States and Territories.

[94]) The term *'greenhouse gas'* is defined under Section 7 of the NGERA to mean;
(a) carbon dioxide; or
(b) methane; or
(c) nitrous oxide; or
(d) sulphur hexafluoride; or
(e) a hydrofluorocarbon of a kind specified in the regulations; or
(f) a perfluorocarbon of a kind specified in the regulations.

[95] The term *'greenhouse gas project'* defined under Section 7 of the NGERA to mean *'an activity or series of activities:*
(a) designed to remove or reduce the emission of greenhouse gases; and
(b) which meet the requirements specified in the regulations;
but does not include an activity, or a series of activities, in the exclusive economic zone, except to the extent that it is an oil or gas extraction activity or a series of oil or gas extraction activities.

[96] The term is defined under Section 7 of the NGERA as *'a constitutional corporation that does not have a holding company incorporated in Australia'.*

[97] Section *17* reads:-
Registration of corporations
(1) The Greenhouse and Energy Data Officer must register a corporation under this Division if the corporation has applied for registration under section 12 in accordance with section 15.
(2) The Greenhouse and Energy Data Officer may register a corporation under this Division if:
(a) the Greenhouse and Energy Data Officer is satisfied that section 14 permits the corporation to apply for registration; and
(b) the corporation has applied for registration in accordance with section 15.
(3) The Greenhouse and Energy Data Officer must notify the corporation, in writing, of his or her decision on the application.
(4) The corporation is registered under this Division when the Greenhouse and Energy Data Officer has entered the name of the corporation on the Register.

Section 14 further provides that a corporation which has not meet any of the thresholds under Section 13 and thus is not required to apply for registration, may apply for registration if the corporation, or one or more members of the corporation's group, is undertaking or proposing to undertake a GHGs project, the threshold is provided under Section 13. For examples, Section 13(1)(a)[98] provides the threshold for a controlling corporation's group and Section 13(1)(d)[99] further provides for the threshold of an entity that is a member of the group.

Special attention should be given to the term 'operational control' under both provisions. An indication is that only an entity which has the operational control of a facility[100] which meets the threshold is required under the NGERA to apply for registration under Section 12 thereof. '*Operational Control*' is explained under Section 11(1) of NGERA[101].

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[98] Section 13(1)(a) provides:-
(1) A controlling corporation's group meets a threshold for a financial year if in that year:
(a) the total amount of greenhouse gases emitted from the operation of facilities under the operational control of entities that are members of the group has a carbon dioxide equivalence of:
(i) if the financial year starts on 1 July 2008—125 kilotonnes or more; or
(ii) if the financial year starts on 1 July 2009—87.5 kilotonnes or more; or
(iii) if the year is a later financial year—50 kilotonnes or more; or

[99] Section 13(1)(d) provides:-
(d) an entity that is a member of the group has operational control of a facility the operation of which during the year causes:
(i) emission of greenhouse gases that have a carbon dioxide equivalence of 25 kilotonnes or more; or
(ii) production of energy of 100 terajoules or more; or
(iii) consumption of energy of 100 terajoules or more.

[100] The term '*Facility*' is further defined under Section 9(1) of the NGERA as:
A facility is an activity, or a series of activities (including ancillary activities), that involve the production of greenhouse gas emissions, the production of energy or the consumption of energy and that:
(a) form a single undertaking or enterprise and meet the requirements of the regulations; or
(b) are declared by the Greenhouse and Energy Data Officer to be a facility under section 54;
but does not include an activity, or a series of activities, in the exclusive economic zone, except to the extent that it is an oil or gas extraction activity or a series of oil or gas extraction activities.

[101] Section 11 provides:-
Operational control
(1) A controlling corporation or another member of the corporation's group has operational control over a facility if:
(a) it has the authority to introduce and implement any or all of the following for the facility:
(i) operating policies;
(ii) health and safety policies;
(iii) environmental policies;
and meets the requirements of the regulations; or
(b) the Greenhouse and Energy Data Officer declares the corporation or member to have operational control of the facility under section 55.

Another significant feature of the NGERA is the establishment of a Greenhouse and Energy Data Officer under Section 49 with its overall functions conferred under NGERA, its regulations or other laws and shall have all such power incidental to, or conducive to the performance of any of its function under the NGERA. Under Section 16, the Greenhouse and Energy Data Officer must cause a register to be kept for the purpose of the NGERA which shall be called the National Greenhouse and Energy Register. The information which needs to be recorded in the Register are provided under Section 16(4)[102].

Under Section 16(3), the Greenhouse and Energy Data Officer may cause the contents of part or all of the Register to be made available to the public by electronic or other means.

In addition, under Section 24 of NGERA, there are certain information which the Greenhouse and Energy Data Officer may publish on the website by 28th February of every financial year. The information are related to the total of GHG emissions, energy production and consumption reported in relation to a registered corporate group for the previous financial year. In addition, the Greenhouse and Energy Data Officer may also publish information relating to GHG projects undertaken by a registered corporation.

Besides the information which must be or may be published for public inspection, there are other information which are subject to secrecy and may only be disclosed by the

[102]Section 16(4) provides: *The Greenhouse and Energy Data Officer must cause the following information, and only that information, to be entered on the Register:*

(a) the name of each corporation that the Greenhouse and Energy Data Officer registers under Division 3;
(b) any other matters, required by the regulations, that relate to the following:
(i) the identity of the controlling corporation and members of the corporation's group;
(ii) whether the corporation is required to be registered under section 12 or has applied for registration under section 14;
(iii) whether the corporation has complied with provisions of this Act;
(iv) information that is published under section 24.

Greenhouse and Energy Data Officer or a 'person authorised' by him to certain parties. They are, among others, the Commonwealth Minister, Secretary of Department, Courts and Administrative Appeals Tribunal[103].

The word 'person authorised' mentioned above is clarified by Regulation 5.02 of the NGERR which includes, among other, Minister and the Secretary of a Department responsible for administering programs or collecting statistics relating to GHG emissions, energy production or consumption or a national emission trading scheme[104].

There was an amendment to the NGERA which was enacted on 15th September 2008. Among the key feature of the amendment is in enabling the Greenhouse and Energy Data Officer to publish additional information reported by corporations in order to strengthen the public disclosure policy while promoting public interest factors except for those information while falls and has been accepted by the Greenhouse and Energy Data Officer under Section 25(3) of NGERA. That information are related to revealing of trade secrets or any other matter having a commercial value that would be, or could reasonably be expected to be destroyed or diminished if the information is disclosed.

To ensure effective reporting and compliance with the national and international level of emission reduction commitments, the NGERA provides that a registered corporation must provide a report to the Greenhouse and Energy Data Officer relating to, among others, greenhouse gas emissions from the operation of facilities under the operational control of the corporation and entities that are members of the corporation's group in

[103] Section 26 of NGERA

[104] Others are the executive director of Australian Bureau of Agricultural and Resources Economics, Australian Statistician within the meaning of Section 16 of the Australian Bureau of Statistic Act 1975 and the Chair of the Australian Energy Regulation appointed under Section 44 AR of the Trade Practices Act 1974.

respect of each financial year[105]. A civil penalty is provided for failure to comply with a possible criminal liability under Division 137 of the Criminal Code for offence on providing false or misleading information or documents for the purpose of the NGERA.

The Greenhouse and Energy Data Officer has further power to compel any other persons to provide any such relevant information under the NGERA[106]. The NGERA also imposed an obligation on the person with information whom has been determined under Section 20 or the registered corporation to keep proper records of the person's activities or the activities of the members of the corporation's group, that would[107]:-

(a) allow the person or the corporation to report accurately under NGER; and
(b) enable the Greenhouse and Energy Data Officer to ascertain whether the person or the corporation has complied with his or the corporation's obligations under NGERA; and
(c) comply with the requirements of subsection (3) and the regulations made for the purposes of subsection (4).

Subsection (3) and (4) states that a corporation or person must retain the records for 7 years from the end of the year in which the activities take place and the kinds and forms of records that must be kept under subsection (1) or (2).

Both provisions provides for civil penalty for failure to comply. Under Section 20, the civil penalty for an individual is 400 penalty units otherwise 2,000 penalty units. As for Section 22, the civil penalty for registered corporation is 1,000 penalty units while for

[105] Section 19 of NGERA
[106] Section 20 of NGERA
[107] Section 22(1) and (2) of NGERA

subsection 22(2) an individual may be liable for 200 penalty units or otherwise 1,000 penalty units.

The NGERA also allocated one part of the statute on enforcement provisions, with civil penalty provisions being expressed in Section 29 and further civil penalty of 100 penalty units per day and 10 penalty units per day for failure to comply with requirement under Section 12, 19 or 20 and 73 respectively.

Closely related to the provision of civil penalty is the statutory power given to the Greenhouse and Energy Data Officer under Section 39 of NGERA to issue an infringement notice to a person whom he has reasonable grounds to believe that the person has contravened a civil penalty provisions within 12 months after the day the contravention is alleged to have taken place. The infringement notice shall contained the identification of the person, setting out brief details of the alleged contravention and the amount of the penalty needs to be paid within a given period if the person does not wish any civil proceedings be brought against him[108]. In addition, under Section 31, the Greenhouse an Energy Data Officer may further apply to Court within 6 years of a person contravening a civil penalty provision for an order that the person pay pecuniary penalty.

As regards to civil penalties, Section 47 of NGERA also provides for liability of chief executive officers of corporations, in addition to the liability of a corporation, to pay pecuniary penalty in cases where a corporation contravenes a civil penalty provisions. The conditions for such liability put forth by the provision is that the chief executive officer was in a position to influence the conduct of the corporation in relation to the contravention and that he knew or was reckless or negligent as to whether the

[108] Section 40 of NGERA

contravention would occur and that he has failed to take all reasonable steps to prevent the contravention.

Section 48(1)[109] of NGERA provides for the factors for the Court to have regard in determining whether the chief executive officer has taken all reasonable steps to prevent contravention under Section 47.

It is obvious that the Greenhouse and Energy Data Officer are given wide powers under the NGERA in the implementation and the enforcement of the provisions of the provisions of the NGERA. Under Part 6 of NGERA, the Greenhouse and Energy Data Officer has been given power to delegate[110] and appoint authorised officers[111] to assist him in the administration and for monitoring compliance purposes.

Further wide powers are given to the authorised officers to discharge their duty in ensuring compliance with the provisions of the NGERA. The main section of these powers is provided under Section 60 of the NGERA. Among them are powers to enter premises[112], power to search[113], power to examine activity conducted on the premises[114], power to examine anything on the premises which may relate to

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[109] Section 48(1) *reads; For the purposes of section 47, in determining whether a chief executive officer of a corporation failed to take all reasonable steps to prevent a contravention, a Court is to have regard to:*

(a) what action (if any) the officer took directed towards ensuring the following (to the extent that the action is relevant to the contravention):

(i) that the corporation arranges regular professional assessments of the corporation's compliance with this Act or the regulations;

(ii) that the corporation implements any appropriate recommendations arising from such an assessment;

(iii)that the corporation's employees, agents and contractors have a reasonable knowledge and understanding of the requirements to comply with this Act and the regulations in so far as those requirements affect the employees, agents or contractors concerned; and

(b) what action (if any) the officer took when he or she became aware that the corporation was contravening this Act or the regulations.

[110] Section 53 of NGERA

[111] Section 57 of NGERA

[112] Section 59 of NGERA

[113] Section 60(1)(a) of NGERA

[114] Section 60(1)(b) of NGERA

information provided under the NGERA[115], power to inspect documents[116], power to request the occupier of a premise or any other persons to answers question related to the operation of NGERA[117], power to take photographs or make audio or video recordings of any such activity or thing at the premise[118], power to use electronic equipments which is already at the premise in exercising any of the powers under Section 60. In addition the authorised officers may apply to a Magistrate for a warrant to enter premises and to exercise the powers set out in Section 60 of NGERA.

Where the Greenhouse and Energy Data Officer has reasonable grounds to suspect that a registered corporation has contravened or is contravening or is proposing to contravene the provisions of NGERA or NGERR, he may issue written notice to the corporation requiring the corporation to appoint an external auditor of its choice or if specified by him, that external auditor, to carry out external audit on one or more aspects of the corporation's compliance with the provision of the NGERA or the NGERR. Alternatively, the Greenhouse and Energy Data Officer may appoint the external auditor for the same purpose[119]. Either way, the corporation must provide all reasonable facilities and assistance to the external auditor to enable the auditor to exercise his duty effectively.

The power of the Greenhouse and Energy Data Officer is reviewable under Section 56[120] of NGERA. By reading the section, we would notice that the reviewable scope of

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[115] Section 60(1)(c) of NGERA
[116] Section 60(1)(e) of NGERA
[117] Section 61) of NGERA
[118] Section 60(1)(d) of NGERA
[119] Section 74 of NGERA
[120] The section provides:-
An application may be made to the Administrative Appeals Tribunal for the review of a decision of the Greenhouse and Energy Data Officer to:
(a) not register a corporation under section 17; and
(b) not deregister a corporation under section 18; and
(c) make a determination under section 20; and
(d) refuse to make a determination under section 20; and

the Greenhouse and Energy Data Officer power is more or less only related to the administrative powers but not to monitoring and enforcement powers under the NGERA.

2. National Greenhouse and Energy Reporting (Measurement) Determination 2008. (NGERD)

The NGERD was made pursuant to subsection 10(3)[121] of the NGERA which generally provides detailed legislative provisions for the methods and criteria including requirements and standard of samplings and analysis for measurement of GHG emissions, the production and consumption of energy arising from the operation of facilities under the NGERA.

3. National Greenhouse and Energy Reporting Regulations 2008. (NGERR)

The NGERR provides regulations to the NGERA. It also provides the values specified for determining carbon dioxide equivalence[122] in relation to other kind of GHGs with the value specified as the Global Warming Potential (GWP) for a particular GHG which was published by the Intergovernmental Panel on Climate Change (IPCC)[123]. GWP is

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(e) refuse an application under section 25; and
(ea) refuse to disclose information under section 27; and
(f) refuse an application under section 54; and
(g) declare a facility under paragraph 54(1)(b); and
(h) refuse an application under section 55; and
(i) declare that a corporation has operational control of a facility under paragraph 55(1)(b).

[121] Subsection 10(3) it provides:-
(3) The Minister may determine, by legislative instrument, methods, or criteria for methods, by which the amounts of the emissions, reduction, removal, offsets, production or consumption are to be measured for the purposes of this Act and may specify:
(a) different methods or criteria for different industry sectors; and
(b) different methods or criteria depending on the circumstances in which the emissions, reduction, removal, offsets, production or consumption occurred; and
(c) conditions relating to the use of methods determined by the Minister or of methods which meet criteria determined by the Minister; and
(d) rating systems for those methods (including different rating systems for different circumstances); and
(e) the particular rating given to each of those methods.

[122] The term *'carbon dioxide equivalence' is* defined under Section 7 of the NGERA as *'the amount of the gas multiplied by a value specified in the regulations in relation to that kind of greenhouse gas'*

[123] Published by the Intergovernmental Panel on Climate Change (IPCC) in Climate Change 1995: The Science of Climate Change.

defined in the Glossary published by the Convention as an index representing the combined effect of the differing times GHG remain in the atmosphere and their relative effectiveness in absorbing outgoing infrared radiation.

The list of their GHGs with its GWP as published by IPCC and listed in NGERR is provided in the **Appendix 'B'**.

It is obvious that Australia is very serious in developing its own regime on the issue of GHGs and combating climate change. The existing legislations are expected to pave the way for the implementation of the Carbon Pollution Reduction Scheme by establishing the required GHGs emission amount and other related databases which would enable Australia to advance its position as one of an active player of flexible mechanisms and it's related carbon credit in the region and at the international stage. The Bill which the Australian government expected to pass in year 2010 in line with the implementation of Carbon Pollution Reduction Scheme should further regulate the flexible mechanisms regime especially the carbon trading in Australia.

CHAPTER 5

MALAYSIA

Introduction

Malaysia has ratified the Convention on 13th July 1994 and subsequently ratified the Kyoto Protocol on 4th September 2002[124]. Though we do not have any emission reduction commitments under the Protocol, but we are bound to comply with the Convention and the Protocol for having ratified them. Malaysia is a developing country and is included as a Non-Annex I Parties with binding commitment for a sustainable development to achieve the primary goal of the Convention based on the common but differentiated responsibilities and respective capabilities.

The gravity of consequences posed by climate change is highlighted in the Human Development Report 2007/2008 entitled 'Fighting Climate Change-Human Solidarity in a Divided World'[125] which was released in November 2007. The report revealed that carbon dioxide emissions in Malaysia have increased by 221 per cent from 1990 to 2004, the highest growth rate among the world's top polluters and ranked the 26th largest carbon dioxide emitter in the world, with emission of around 177 million tonnes, accounting for 0.6 percent of global emissions in 2004.

As for the flexible mechanism introduced by the Protocol is concerned, only the CDM is relevant as it is the only mechanism which is offering participation from non-Annex I countries. As of 18th March 2009, there are 42 CDM registered projects[126] with 5 of

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[124] Please refer note 18 and 32.

[125] UNDP. Human Development Report 2007/2008 'Fighting Climate Change-Human Solidarity in a Divided World' accessed on 2 April 2009 available at <http://hdr.undp.org/en/media/HDR_20072008_EN_Complete.pdf >

[126] Please refer to Appendix H.

them have been issued CER and 2 pending registration CDM projects in Malaysia. Most of the CER generated comes from biomass plants.

As of March 2007, two of the CDM project had sold about 320,000 tonnes of CER valued at less than RM10 million[127]. By 2012, the ASEAM Bankers Malaysia Berhad Malaysia Energy Centre expects the CER trading to increase with Malaysia Energy Centre estimating Malaysia having up to 100 million tonnes of carbon credit potential which values about RM4.8 billion in potential revenues[128], with the plantation sector being the most obvious beneficiary of CER trading. Substantial potential for direct foreign investment and technology transfer for the CDM projects would of course further provide Malaysia with a great opportunity for sustainable development coupled with very promising economic resources.

A few encouraging factors have influence the positive progress of CDM projects in Malaysia. Generally, these projects contribute towards the overall improvement of the environment by promoting green investment and bring additional economic and social benefits to the country. From company's perspective, the CDM projects are economically viable, giving additional net income from its sale. Financially, the investment of CDM project technology only requires a payback period of less than eight years. The carbon credit income is also exempted from the Malaysian tax between 2008 and 2010[129] thus giving value added incentive to encourage investors to invest in CDM projects in Malaysia.

Basically CER from a CDM project will be sold and transferred to an Annex I Parties whether it is a public or private entity to facilitate them to meet its emission reduction

[127] Please refer note 2 at page 2.
[128] Please refer note 2 at page 2.
[129] Please refer note 2 at page 2.

target and in return, the project owner will be paid for these CER subject to the terms and conditions of ERPA. However it is important to note here that from the issuance of CER from each CDM project, 2% of the CER will be levied as an adaptation fund, except for least developed country, which was established by the Convention to help vulnerable countries to adapt to climate change effect[130].

Institutional Framework

Malaysia has taken positive steps towards implementation of Protocol's CDM regime within its jurisdiction since 2003. The institutions which have been established and authorised for the purpose are:-

i) The Ministry of Natural Resources and Environment has been appointed by the Cabinet as the Designated National Authority (DNA)[131]. As mentioned in Chapter 2, the host country approval is a pre-condition before the CDM project can be accepted under the Protocol. Thus, DNA will be authorized to issue such written approval with among other roles are to manage the CDM registry of project and keep account of CER within and from Malaysia and ensure that the CDM projects are being monitored using the approved monitoring methodology consistent with the monitoring plan under the PDD. They are also responsible to manage local regulatory aspects of the CDM and develop national policies, strategies, criteria and guideline to implement CDM project.

[130] Please refer note 52 at page 'Issuance of Certified Emission Reductions'.
[131] Please refer note 52 at page 'Designated National Authority'.

ii) The National Steering Committee on Climate Change (NSCCC)[132] was set up in 1994 by the Cabinet with its main objective is to formulate and implement climate change policies including mitigation of GHGs emissions and adaptation to climate change. It is chaired by the Secretary General of the Ministry of Natural Resources and Environment with the Conservation and Environmental Management Division (CEMD) of the Ministry of Natural Resources and Environment being appointed as its Secretariat.

On 31st May 2002, the NSCCC has agreed to form establishment of a two-tiered institution for CDM implementation in Malaysia[133]. They are:-

a) The National Committee on CDM (NCCDM)[134]

It's main objective is to review and evaluate CDM project proposals as requested by the DNA and advising DNA on other related CDM issues including developing national policies, strategies, criteria and guidelines, to evaluate and endorse the recommendations made by the Technical Committees and to report to NSCCC on the related CDM activities. It is chaired by the Deputy Secretary General (Policy) of the Ministry of Natural Resources and the Environment with the Conservation and Environmental Management Division (CEMD) of the Ministry of Natural Resources and Environment being appointed as its

[132] Please refer note 52 at page 'National Steering Committee on Climate Change (NSCCC)'. Among its regular members are from several ministries related with agriculture, energy, industry, environment and trade, for example, the Ministry of Agriculture, Ministry of Finance, Ministry of Education, Ministry of International Trade and Industry, Ministry of Energy, Water and Communications, Ministry of Foreign Affairs and Ministry of Plantation Industries and Commodities, the Meteorological Service, the Economic Planning Unit and the Attorney General's office.

[133] Please refer note 52 at page 'Institutional Framework'.

[134] Please refer note 52 at page 'National Committee on CDM (NCCDM)'. Its members are Forestry Division, Ministry of Natural Resources and Environment, Malaysian Meteorological Service, Ministry of Plantation Enterprises and Commodities, Ministry of Energy, Water and Communications, Energy and Environment Section of Economic Planning Unit, Ministry of Agriculture and Agro-Based Industries, Ministry of International Trade and Industry, Ministry of Transport, Ministry of Science, Technology and Innovation, Malaysia Energy Centre, Forestry Research Institute Malaysia, Centre for Environment, Technology and Development Malaysia, Business Council for Sustainable Development Malaysia, Malaysia Climate Change Group and Malaysian Nature Society.

Secretariat. Its members consist of several ministries and organization and/or institutions.

b) Technical Committee[135]

The Technical Committee is responsible, among others to carry out technical and financial evaluation of the CDM project proposals based on the approved national CDM criteria using the recommendations provided by the Secretariat out of the Secretariats first evaluation of the Project. The committee is also required to recommend and submit evaluated CDM project proposals to the NCCDM for further consideration. Earlier there were only two branches of the committee i.e the Technical Committee on Energy and Forestry, but later, Technical Committee on Agriculture was created. The committees are further detailed below:-

i) Technical Committee on Energy[136].

This committee is chaired by Deputy Secretary General (Energy) of the Ministry of Energy, Water and Communication (MEWC) and at its first meeting on 12th September 2002, Malaysia Energy Centre (MEC) was appointed as its Secretariat. MEC was registered on 12th May 1998 as a non- profit company governed by Board of Directors and is administrated by Ministry of Energy Communication and Multimedia.

ii) Technical Committee on Forestry[137].

[135] Please refer note 52 at page 'Technical Committees'.

[136] Please refer note 52 at page 'Technical Committees'. Its members are Economic Planning Unit, Energy Commission, Department of Environments, Malaysian Palm Oil Board, Federation of Malaysia Manufacturers, Association of Banks, Business Council for Sustainable Development Malaysia and Centre for Energy Studies, UTM.

[137] Please refer note 52 at page 'Technical Committees'. Its members are Forestry Department Peninsular Malaysia, Forestry Department Sabah & Sarawak, Natural Resources Environment Board-Sarawak, Jabatan Hal Ehwal Orang Asli, Timber Trade Federation Malaysia, Malaysian Palm Oil Board, Malaysian Rubber Board, Sabah and Sarawak Timber Association and Two (2) Non-Governmental Organisations.

This committee is chaired by the Ministry of Natural Resources and Environment (NRE) with the Forest Research Institute Malaysia (FRIM) was appointed as its Secretariat.

iii) Technical Committee on Agriculture[138].

This is a new technical committee established for the implementation of CDM in Malaysia responsible for agriculture related CDM project activities. The committee is chaired by the Malaysian Agricultural Research and Development Institute (MARDI)[139] whom also acts as its Secretariat.

Among the CDM Secretariats[140] role is to provide support to the respective Technical Committee including to assist the Technical Committee in evaluating CDM proposals to provide inputs to the formulation of the CDM policy and the marketing strategy to foster and promote CDM project development, providing guidelines and advisory services to potential local and foreign CDM investors and to assist DNA in monitoring the CDM project and maintaining CDM registry. **Appendix 'C'** describes the institutional framework as discussed above.

National Criteria

It is pertinent to understand that not all carbon emission reduction project warrants to be registered under the CDM. First, the project must have satisfied the CDM eligibility requirement under the Protocol. Secondly, the transaction cost to register a project as a

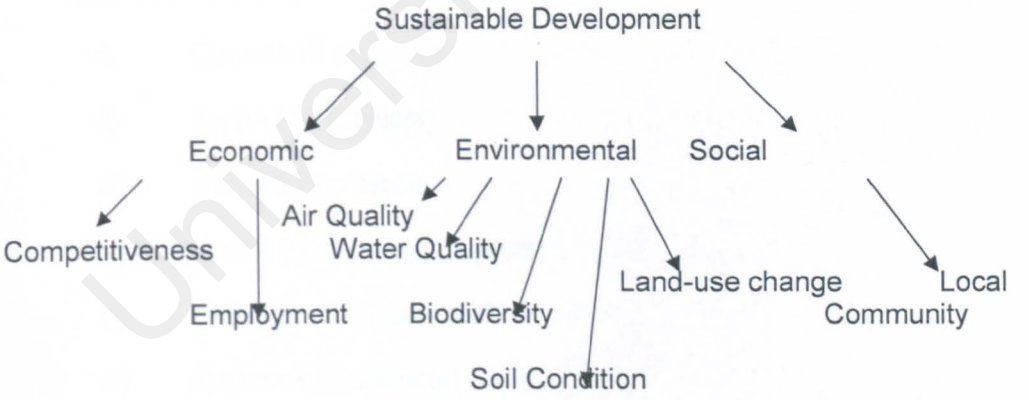
[138] This information was gathered from the interview with the officer of the Ministry of Natural Resources and Environment. Its members are MARDI, Ministry of Natural Resources and Environment, Department of Environmental Science of University Putra Malaysia, Malaysia Energy Centre and Ministry of Agriculture.

[139] MARDI was established on 28th October 1969 after the passing of an Act of Parliament in the same year and has been operational since 1971.

[140] Please refer note 52 at page 'Secretariat'.

CDM project varies depending on several factors including type and size of project, location of the project and cost of consultants and intermediaries but ranging as low as USD 43,000-00 to as high as USD 193,000-00 for each large scale project[141]. Thirdly, most nations would have their own criteria before a project may be approved by DNA of the host country. For Malaysia NCCDM has approved the National Criteria on 18th August 2005 for CDM projects[142] and they are :-

i) The project must bring direct and indirect benefits towards achieving sustainable development (social, environmental and economic) to the sectors concerned and the nation's economy as a whole[143]. The NCCDM shall assess the CDM project proposed based on the overall impact of the proposed project and its contribution to sustainable development. The diagram below illustrates the requirement of sustainable development.



Source: Clean Development Mechanisms for Energy Sector in Malaysia, under 'National CDM Criteria- Criterion 1' available at http://cdm.eib.org.my.

[141] Malaysia CDM Information Handbook: A Resource for Clean Development Mechanism Project Developers in Malaysia by joint effort of the Ministry of Natural Resources and Environment, Ministry of Energy, Water and Communication and Malaysia Energy Centre at page 24.
[142] Please refer note 52 at page 'National CDM Criteria'.
[143] Please refer note 52 at page 'National CDM Criteria- Criterion 1'.

Besides the above, the Malaysia CDM Information Handbook has underlined various proposed indicators to support the sustainable development aspects. They are listed in **Appendix 'D'**.

ii) Implementation of CDM projects must involve participation of Annex I Parties which may either be the national government itself or the authorized private and/or public entities from an Annex I Parties. On Annex I Parties can be considered to participate in a project in any of the following circumstances[144]:-

a) Annex I Parties as buyer, provider of equity and technology.

b) Annex I Parties as buyer and equity provider.

c) Annex I Parties as buyer and technology provider.

Based on Appendix H, the current principal CDM Annex I partners engaged in registered CDM projects in Malaysia are:

i) Canada (6 projects)

ii) Japan (10 projects)

iii) France (1 project)

iv) United Kingdom (9 projects)

v) Netherlands (2 projects)

vi) Denmark (9 projects)

vii) Switzerland (4 projects)

viii) Germany (1 project)

[144] Please refer note 52 at page 'National CDM Criteria- Criterion 2'.

iii) Project must provide technology transfer benefits and/or improvement in technology [145] including both 'soft' and 'hard' element of technology which supports sustainable development. The technology transfer should involve the transfer of environmentally sound technology which is more efficient and less carbon intensive including the 'know how' information and expertise. The technology transfer and/or improvement in technology should enhance the indigenous capacity of Malaysians to apply, develop and implement environmentally sound technologies.

iv) Project must fulfill all conditions stipulated by the CDM Executive Board[146] in particular the conditions as laid down in Article 12(5)(a), (b) and (c) of the Protocol.

v) Project developer should justify the ability to implement the proposed CDM project activity [147]. In other words, the project developer must provide justification of their ability to implement the proposed project. Thus when submitting the PDD for approval by DNA, the project developer must show that:-

a) it is a locally incorporated company.

b) it's minimum paid-up capital is RM100,000-00.

c) specify their likely sources of financing.

There are different set of National Criteria for Small Scale CDM Energy Projects[148] which are relatively more flexible.

[145] Please refer note 52 at page 'National CDM Criteria- Criterion 3'.
[146] Please refer note 52 at page 'National CDM Criteria-Criterion 4'.
[147] Please refer note 52 at page 'National CDM Criteria-Criterion 5'.
[148] It can be viewed at Clean Development Mechanisms for Energy Sector in Malaysia, available at <http://cdm.eib.org.my>.

CDM Application Process

The first CDM application was received by DNA at the end of 2002. Among potential projects in Malaysia to reduce GHGs through CDM mechanism are renewable energy project including hydro, biogas and biomass, energy efficiency in domestic and commercial sector, electricity and energy production switching from coal-based to oil or gas-based which is less carbon intensive and land-use, land-use change and forestry (LULUCF) projects of afforestation and reforestation. The examples of the types of projects eligible to qualify as CDM project in Malaysia is in **Appendix 'E'**.

Under the Malaysia's Energy Policy in the 8th Malaysia Plan/Five Fuel Policy, Renewable Energy was announced as the fifth fuel in the new Five Fuel Strategy[149] in the energy supply mix which includes utilization of renewable resources, such as biomass, biogas, solar and mini-hydro for energy generation. Companies that undertake forest plantation projects or energy conservation measures or use energy from renewable biomass, mini-hydro or solar are eligible for Pioneer Status with a tax exemption of 100% of the statutory income for 10 years; or Investment Tax Allowance of 100% on the qualifying capital expenditure incurred within five years, which can be offset against 100% of the statutory income for each year of assessment. For the energy related measures, companies can also qualify for higher exemptions or allowances if the activities take place in 'promoted areas'. Originally the four fuel diversification policy focused on oil, gas, coal and hydro. In the 8th plan, it was broadened to include renewables as a fifth in the new Five Fuel Strategy[150].

[149] Five Fuel Policy is to supplement the conventional supply of energy; new sources such as renewable energy will be encouraged. In this regard, the fuel diversification policy which comprises oil, gas, hydro and coal will be extended to include renewable energy as the fifth fuel, particularly biomass, biogas, municipal waste, solar and mini-hydro. Of these, biomass resources such as oil palm and wood waste as well as rice husks will be used on a wider basis mainly for electricity generation. Other potential sources of energy will include palm diesel and hydrogen fuel.

[150] World Resources Institute, 'Malaysia: Energy Policy in the 8th Malaysia Plan/Five Fuel Policy' accessed on 2 April 2009 available at <http://projects.wri.org/sd-pams-database/Malaysia/energy-policy-8th-malaysia-plan-five-fuel-policy>.

Basically, the CDM project application process in Malaysia consists of 3 phases which consists of Project Design Phase, Project Registration Phase and Project Implementation Phase. Before going into these phases, a project developer should identify a potential CDM project, develop initial project idea and makes initial assessment of the proposed project eligibility under the CDM. If the initial assessment is positive, then the project developer should develop and submit a Project Idea Note (PIN) to the DNA hence indicating that the potential project has entered into the Project Design Phase. The PIN is very important as a tool of gauging the market interest in the potential CDM project and the host country procedures and support to such project. Therefore the information contained in the PIN is of very important to provide first information to the host country and the market regarding the potential CDM project. Among its contents would be[151]:-

i) Type and size of project

ii) Its location

iii) Estimated greenhouse gases reduction

iv) Suggested crediting life time

v) Suggested CER's price

vi) Likely financing structuring and/or sources

vii) Socioeconomic and environmental effects/benefits

The PIN will be screened through the National Criteria and the Technical Committee will review the technical evaluation and recommendations of the Secretariat and forward its findings and recommendations to the NCCDM[152]. If NCCDM is satisfied with the

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[151] Please refer note 52 at page 'Project Design Phase'.
[152] Please refer note 52 at page 'Conditional Letter of Approval'.

compliance of all criteria, DNA will issue a conditional letter of approval to the project developer.

Upon receiving the conditional letter of approval the project developer shall prepare Project Design Documents (PDD). There is a standard document of PDD developed by the CDM Executive Board. It is a key document which needs to be validated, registered and verified and it must demonstrate that the proposed CDM project will create additional GHGs emission reduction and simultaneously will support the host country's sustainable development[153]. It shall also contain the following major elements[154]:-

i) To give the description of the project, its purpose and technology used.

ii) Justification of the project would not have happened in the absence of CDM regime.

iii) Establishment of the project baseline scenario in order to calculate the GHGs emission reduction.

iv) Establishment of the monitoring plan including the monitoring methodology to be adopted during the Project Implementation Phase to demonstrate and certify that emission reduction is conclusively occurs.

v) To describe the environmental impacts and the opinion of local stakeholders on the projects.

The PDD will be submitted to the Designated Operational Entity (DOE) for validation. In this stage, the PDD will be posted in the CDM website for public comments. Validation is a process in the Project Design Phase where it confirms that all the information and

[153] Please refer note 52 at page 'Project Design Document'.
[154] Please refer note 52 at page 'Project Design Document'. Also please see note 141 at page 17.

the relevant documents for the CDM project submitted by the project developer are accurate, reasonable and comply with international requirements and/or criteria. In other words, the DOE role is of similar to an auditor. The DOE will be chosen by the project developer but it must be an independent third party accredited by the CDM Executive Board to conduct the assessment and make recommendation.

All CDM projects must be approved by the host country through its DNA usually the host country's ministry or its department or agency which is responsible for the environmental and/or energy portfolios. The host country is the country where the CDM project is located and must be a non-Annex I Parties, for example, Malaysia. DNA as mentioned above is the authorised authority to issue such written approval of a host country.

Another important process is the entering of the Emission Reduction Purchase Agreement (ERPA) between the seller and buyer of the CER generated from the CDM project. This agreement, though not a condition for the issuance of the CER, is important to the parties of CDM project in order to layout all the necessary terms and conditions of the transactions, covering the legal aspects of credit ownership, the price and terms of payment, and delivery of CER and in general to regulate their contractual relationship especially in the absence of any legal framework, throughout the emission reduction project operation.

After the proposed CDM project has been validated by the DOE and has obtained the host country approval, it will enter into the Project Registration Phase. In this phase DOE will submit the validated PDD and host country approval letter[155] together with the request for registration of the proposed CDM project to the CDM Executive Board. Once

[155] Please refer note 141 at page 21.

registered by the CDM Executive Board the proposed CDM project is then formally accepted, and recognized as a CDM project under the Protocol. For normal scale project, and under usual circumstances it will takes a maximum of 8 weeks for registration while only 4 weeks for small scale projects[156].

Once a project has started its operation, the project needs to be monitored to determine the actual amount of emission reduction. The project operators are required to submit periodical monitoring report which include data of how many CER has been generated from the project and all the procedures employed must be consistent with the monitory plan described in the PDD which is applied as a systematic surveillance of the project's performance by measuring and recording performance-related indicator including identifying and measuring all potential sources of leakage.

Verification is quite similar to validation process, but this process occurs in the Project Implementation Phase which involves periodic review and verifies the monitoring report and the data of the CER generated from the CDM project. A DOE will be contacted by the project owners for the verification process which must be conducted by an independent third party which has been accredited by the CDM Executive Board but must not be the same DOE in the validation process for each CDM project. Verification confirms the total number of CER generated during a specific period from the CDM project. The DOE will submit a certification report and a request to the CDM Executive Board to issue the amount of CER which has been verified by the DOE. Upon receiving the certification report and the request from the DOE, the CDM Executive Board will approve the issuance of the CER and its registry administrator will forward the CER into the project owner's participant's account.

[156] Please refer note 52 at page 'Project Registration Phase'.

Appendix 'F' summarized the CDM application process until the issuance of CER by the CDM Executive Board. **Appendix 'G'** shows the statistic on the numbers of CDM project application received by NRE from year 2002 to 2008 with the potential volume of the CER which may be capable of being issued from the proposed project.

Environmental Management

The environmental management in Malaysia at the federal level falls under the purview of the Department of Environment of the Ministry of Natural Resources and Environment. The Department principally deals with environmental quality including matters involving pollution of air, water, land, sea and marine within the Malaysian territorial water.

The main legislation governing issues on pollution is the Environmental Quality Act 1974 (EQA). EQA defines the term *'environment'* as *'the physical factors of the surroundings of the human beings including land, water, atmosphere, climate, sound, odour, taste, the biological factors of animals and plants and the social factor of aesthetics'*[157].

EQA, may be considered to be a parent legislation for environmental pollution-related issues in Malaysia. It is a form of a framework statute which requires subsequent regulations to address specific environmental issues and governance. Currently, there are approximately 33 Environmental Quality Regulations being codified and they range from issues of governance, licensing, prescription of regulated premises, scheduled wastes, environmental impact assessment, control of emissions, compounding offences, sewage land industrial effluents, motor vehicle noise, open burning and prohibition on the use of certain type of gases and controlled substances.

[157] Section 2 of EQA.

Nonetheless, on meeting with the Ministry of Natural Resources and Environment's officer in charge of the environmental management in Malaysia, the officer confirmed that there is no specific law and/or regulatory provision exists now in Malaysia to address the legal issues especially the monitoring and compliance mechanism for the purpose of regulating and enforcement of the carbon credit and CDM project related activities in Malaysia.

However, the relevant Ministries will have to be involved in the review, validation and approval process of certain projects which relates to their portfolios, especially to determine the suitability and the safety of the proposed project. For examples, for projects which are concerned with Renewable Energy and Energy Efficiency Improvement, most of them will involve the Ministry of Energy, Water and Communication. Landfill gas would need the involvement of the Ministry of Housing and Local Government while for Waste Management would be under the purview of MARDI.

Another pertinent point is the fact that at present our DNA and NCCDM is substantially dependant on the DOE to determine and validate the accuracy of the information and documents provided by the project developer and later to verify the monitoring report, and the data of CER generated from the registered CDM project. In this respect, Malaysia's CDM institutions are not directly involved in the monitoring and compliance of the registered CDM project, especially after the Project Registration Phase.

In view of this circumstances, perhaps Malaysia's CDM institutions are for the moment, is in a 'convenience zone' because at current, Malaysia is not a capped country with GHGs emission reduction commitment and whatever CDM projects Malaysia have now, are totally base on voluntary basis and they are offering Malaysia extra national income.

In this respect, perhaps Malaysia have adopted a stand not to frighten the investors away should the government decide to impose stringent monitoring and compliance regulatory system.

Despite of being in such a convenient zone, the officer did express concern if any of the project developer whose proposed CDM project has been rejected by the NCCDM would initiate civil suit for its losses. This being an issue because under normal circumstances, the Annex I Parties involved in a proposed project is actually an equity investor and hence they have invested huge sum of capital and/or operational cost in the Project Design Phase before the host party would decide whether or not to issue the letter of approval. Thus if the proposed project is being rejected, the obvious outcome is that the investor will suffer loss and the question arises is whether they would have a cause of action against the host party, be it the governmental institutions or the authorised participants of the host party.

It is pertinent to state that such a concern emerged from the fact that DNA and NSCCC in Malaysia was appointed and/or set up by the Cabinet and not under any act of Parliament governing the appointment or establishment with its objective, duty and power having the force of law. This concern may not be groundless because until early February 2009, NCCDM has rejected 21 proposed CDM projects[158].

Finally, at present, CDM registered projects ranges from the Renewable Energy, Energy Efficiency Improvement, Waste Management and Agriculture sectors while there is no registered project under the Forestry and Transport sectors with the bulk of

[158] This information was gathered from the interview with the officer of the Ministry of Natural Resources and Environment.

the projects goes under the Renewable Energy and Waste Management sectors. The brief details of the CDM projects in Malaysia are as listed in **Appendix 'H'.**

Examples of the Renewable Energy CDM projects are:-

i) Biomass Energy Plant, Lumut[159]

The project involves the rising of biomass waste from palm oil mills into generating and supply of steam and electricity to a palm oil refinery in Sitiawan, Perak. The project was registered by the CDM Executive Board on 24 February 2006. Before the operation of the CDM project activities, the palm oil was operating on a fuel oil fired boiler plant to supply steam for the refining process and purchased power from the electricity grid. The project has successfully reduces the amount of GHG emission from the fuel oil fired boiler plant by transforming the biomass waste into steam and electricity power to the mill.

ii) Jendarata Steam And Power Plant[160]

This CDM project was registered on 24th September 2006 by the CDM Executive Board. The project generates steam and electricity from the new high efficiency biomass fired boiler (plant) which will combust the biomass waste efficiently using a water-tube boiler and the steam and electricity produced will be used for palm oil production and supplied to the refinery. There are three types of solid biomass waste from palm oil names fibers, shells and Empty Fruit Bunches (EFB). Emissions from combustion of biomass fuel are arguably considered to be carbon neutral.

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[159] Danish Energy Management, 'Clean Development Mechanism: A Guide to the Danish CDM Project Development Facility in Malaysia' at page 20 accessed on 22 January 2009 available at <http://ambkualalumpur.um.dk/NR/rdonlyres/4543AE21-3B5A-4890-9E36-3F55886B9561/0/AGuidetotheDanishCDMPDF20122006.pdf>

[160] Please refer note 159 at page 21.

CHAPTER 6

CONCLUSION

Conclusion and Recommendations

The Intergovernmental Panel on Climate Change's scientists have forecasted in 2007 that by 2100, draught, floods and powerful storms will become a greater risk, resulting the probabilities of mass hunger, homelessness and waterborne diseases. The indicator is already witnessed by us. In 2004 alone, four hurricanes hit Florida, and in 2005 Katrina and Rita hurricanes hit the North Atlantic. Kevin E. Trenberth wrote that evidence is mounting that global warming enhances cyclone's damaging winds and flooding rains, with warmer oceans can turn more tropical disturbances into hurricanes or increase storm power and add to its rainfall[161].

As stated earlier, the Industrial Revolution is the era when the GHG increased tremendously thus causing the enhanced global warming. It is contended that carbon dioxide had increased by 30%, methane 145% and nixtrous oxide 15% between the year 1750 and 1992 owing mostly to the industrialization[162]. At present, the developed countries emission is estimated to be approximately 60% of total global emission. Nonetheless, it is also evidence that developing countries emission are rapidly increasing and by 2020, it is projected that more the half of the total global emission. China, for example, is already the world's second largest emitter and is forecasted to surpass the United States within 15 years[163].

[161] Kevin E. Trenberth, 'Warmer Oceans, Stronger Hurricanes,' © 2007 Scientific American Kevin, Inc at page 45 accessed on 27 March 2009 available at <http://www.sciam.com/article.cfm?id=warmer-oceans-stronger-hurricanes>

[162] Please refer note 10 at page 6.

[163] Please refer note 11 at page 2.

In addition, some countries that are among the largest emitters of GHGs in the world are either has not ratified the Protocol or at current is not an Annex I Parties with capped amount of emission commitment under the Protocol. For example, United States of America is currently the largest emitters of GHGs in the world and they have not ratified the Protocol. Among the developing countries who are currently rated high on the list of GHGs emitters are China (ranked 2nd after United States) and India, which ranked top five in the world. The situation is substantially contributed by the fact that electricity is mostly generated via large coal fired generating stations which are currently the lowest cost supplier of electricity and that abundance of coal supply can be found in these countries.

In China, in particular, to determine '*additional*' criteria is a critical issue. The fact that the CDM Executive Board is required to determine whether a project would or would not have gone forward without the CDM regime is a difficult problem as the energy sectors in China is heavily regulated and primarily owned by its government or by its State owned entities. Thus, if the government chose to remain idle, almost all projects with better energy-efficiency and less carbon emission will be claimed as CDM project even though at certain point of time, those energy-efficient with less carbon emission power plant should be developed or installed by the government.

Even though these developing countries do realized that they are emitting huge amount of GHGs into the atmosphere, but yet they are very defensive to suggestions for them to be imposed similar capped amount of GHGs emission level by pointing out that rich countries are to be blamed for 70% of the carbon dioxide in the atmosphere today and that their economic growth must continue to alleviate poverty among its citizens.

The Protocol is hoped to be able to reduce and/or control the GHGs emissions effectively in order to combat climate change around the globe. We must remain positive but nothing is to late provided continuous intensive and collective international cooperation is required if the global community is serious in achieving the environmental goal of the Convention through the Protocol's flexible mechaisms regime. This is the condition with no exception, even to countries like United States, China and India.

As for Malaysia, it is obvious that we are moving forward as far as the CDM regime is concerned. This fact is supported by the establishment of quite comprehensive institutional structure with these respective institutions having their pertinent role and duty on the implementation of the CDM regime in Malaysia. It is further supported by the fact that recently, SIRIM[164] has undertaken the duty to validate a proposed CDM project in Malaysia, taking the role of a DOE[165], and the fact that the proposed CDM project has been successfully registered on 15th March 2009 as FELDA Serting Hilir Biogas Power Plant Project with FELDA Palm Industries Sdn. Bhd. is the authorized project developer.

The active initiatives by Australia should be viewed positively and serve as a guide towards having a better regulated CDM implementation system in Malaysia. Having codified regulatory framework to ensure better monitoring and enforcement, as in Australia, is pertinent to ensure that the CDM regime of the flexible mechanism is

[164] Standards and Industrial Research Institute of Malaysia (SIRIM) was established with the merger of Standards Institution of Malaysia (SIM) and National Institute for Scientific and Industrial Research (NISIR), a Statutory Body under the Ministry of Science, Technology and Environment Malaysia and was governed by SIRIM Council. In November 1995, SIRIM Berhad was incorporated came into operation on 1st September 1996 as a successor company to the Standards and Industrial Research Institute of Malaysia under the Standards Act 1996. Now, SIRIM Berhad a wholly-owned company of the Government, is the sole national standards development agency appointed by the Department of Standards Malaysia. It also manages Malaysia representation in relevant regional and international technical committees to ensure national interests are protected.

[165] This information was gathered from the interview with the officer of the Ministry of Natural Resources and Environment.

efficiently being employed and its objectives in particular in respect of the sustainable development values are achieved. In the environmental perspective, Malaysia being a tropical country with heavy rainfall and extensive coastline is very vulnerable to impacts of climate change and therefore Malaysia must not take for granted being a non-Annex I Parties with no GHGs emission reduction commitment and neglect to take preemptive steps in combating climate change.

In the light of the information gathered above, I hereby humbly submit a few recommendations in relation to the flexible mechanisms in particular the CDM administrations in Malaysia as follows:-

i) to codify an Act of Parliament for the establishment of the relevant institutions engaging on the flexible mechanisms regime in particular the CDM implementation in Malaysia. The Act should also provide for the establishment and appointment of a special post of authorised officers to discharge the duties and powers in particular as regards to the monitoring, validation, verification, certification of the information, reports and data on the project activities, the CER issuance and compliance with the relevant laws, by-laws and regulations. The appointment of these authorised officers is very vital for the enforcement of the rules and regulations related to the implementation of CDM. Further, clear statutory duties and powers of such authorized officer is very vital to provide guidelines and to ensure that they act in accordance with the law and within the limits of the law.

   To add, in view of the fact that SIRIM is now in the process of acquiring the DOE status after its successful validation assignment, may just be another good

ground for us to have a clear and specific provisions for such an entity to effectively discharge its duty and exercise its powers related to the flexible mechanims regime in particular in relation to the CDM implementation in Malaysia.

On issue of having shy away investors should we have stringent regulatory framework, perhaps we should also appreciate that genuine investors may prefer to invest in a country where the regulatory framework and the judiciary system are transparent, concise and unambiguous to enable them to assess their risk more effectively and accurately. A system which enables assessment of calculated risk may even attract more investors as compared to an unknown risk.

ii) to formulate regulations to the proposed Act of Parliament in order to have clear guidelines and methodologies on the measurements, and standard procedural provision to be adopted on sampling and analyzing the GHGs emissions from CDM project activities.

iii) to allow and authorised the relevant institution to publish the rate of GHGs emission of certain major industrial companies especially those related to energy production in Malaysia in order to create awareness within the public and to have an informed society on the commitments of these corporations towards the environment. Companies in Malaysia should begin to accept their corporate responsibility towards the 'green environment' and embrace the commitments with the rest of the world in stabilizing the GHGs concentration in the atmosphere consistent with the objective of the Convention even though

Malaysia does not have any capped amount of emission reduction commitment. For example, the corporate responsibility of companies towards the environment has been expressly provided in Section 172(1)(d)[166] of the United Kingdom's Companies Act 2006. In this respect, Malaysia should also move forward and acknowledge the importance of collective commitments by all section of the community to reduce the GHGs emission to the atmosphere.

iv) companies especially those with operations which emits substantial GHGs to the atmosphere and/or related to energy production in Malaysia and the CDM project developer should be required to submit regular GHGs emission report which may also consist of initiatives taken to reduce the GHGs emission level to the DNA or any other relevant authorised institution to enable effective supervision and monitoring of the GHGs emission. This is very important as a proactive step in order for the DNA to possess accurate and complete information to formulate any national policy to check the GHGs emission in Malaysia. These information may also be used to create a reliable databases and may be an alarm trigger in event where the level of GHGs emission exceed certain limits which may be determined at the national level.

Having written above, it is hoped that Malaysia should seize the economic opportunity offered through the flexible mechanism regime of the Protocol to attain the sustainable development objective. To do so, we must keep abreast of the related development and sufficiently prepared Malaysia with the necessary regulatory framework to regulate the

[166] Section 172 provides:

(1) A director of a company must act in the way he considers, in good faith, would be most likely to promote the success of the company for the benefit of its members as a whole, and in doing so have regard (amongst other matters) to-

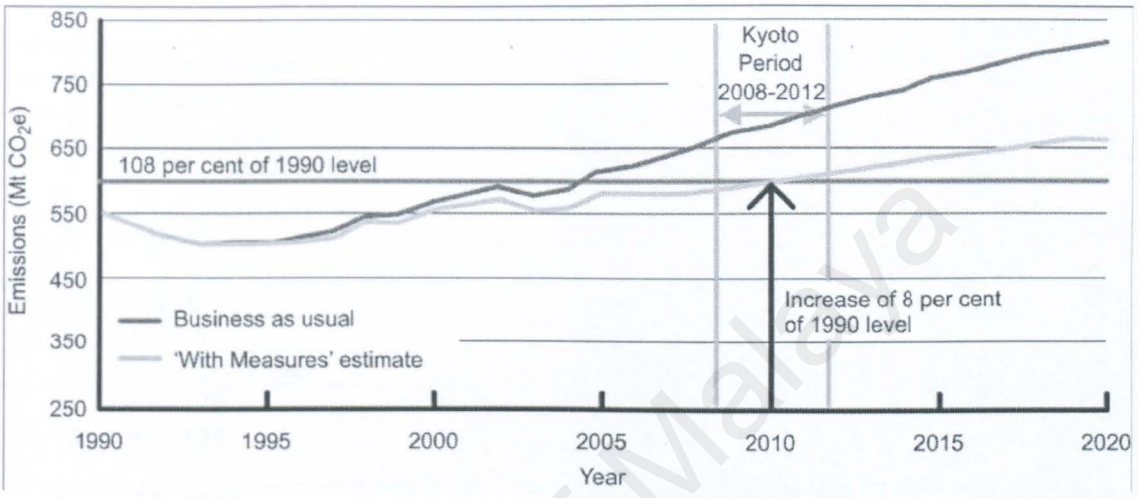
(d) the impact of the company's operations on the community and the environment;

operations of the project activities and ensure compliance with the international and national criteria of the Protocol's flexible mechanisms in particular the CDM mechanism.

In addition, we must also create the public awareness of the importance of green environment within all sections of our community especially the corporate sector. Last but not least, the Protocol arguably the most unique international agreement ever exist, should not be the last effort by the international community to combat climate change but instead it should be an effective beginning of a long journey to come.

APPENDIX A

This diagram describes the 'business as usual' and 'with measures' of GHGs emission estimated as compared to the Protocol level commitment.



Source : Department of Climate Change, Tracking to the Kyoto target 2007 Australia's greenhouse emissions trends 1990 to 2008-2012 and 2020, 2008. (Extracted from Australian Government White Paper, 'Carbon Pollution Reduction Scheme: Australia's Low Pollution Future', December 2008 available at http://www.climatechange.gov.au/)

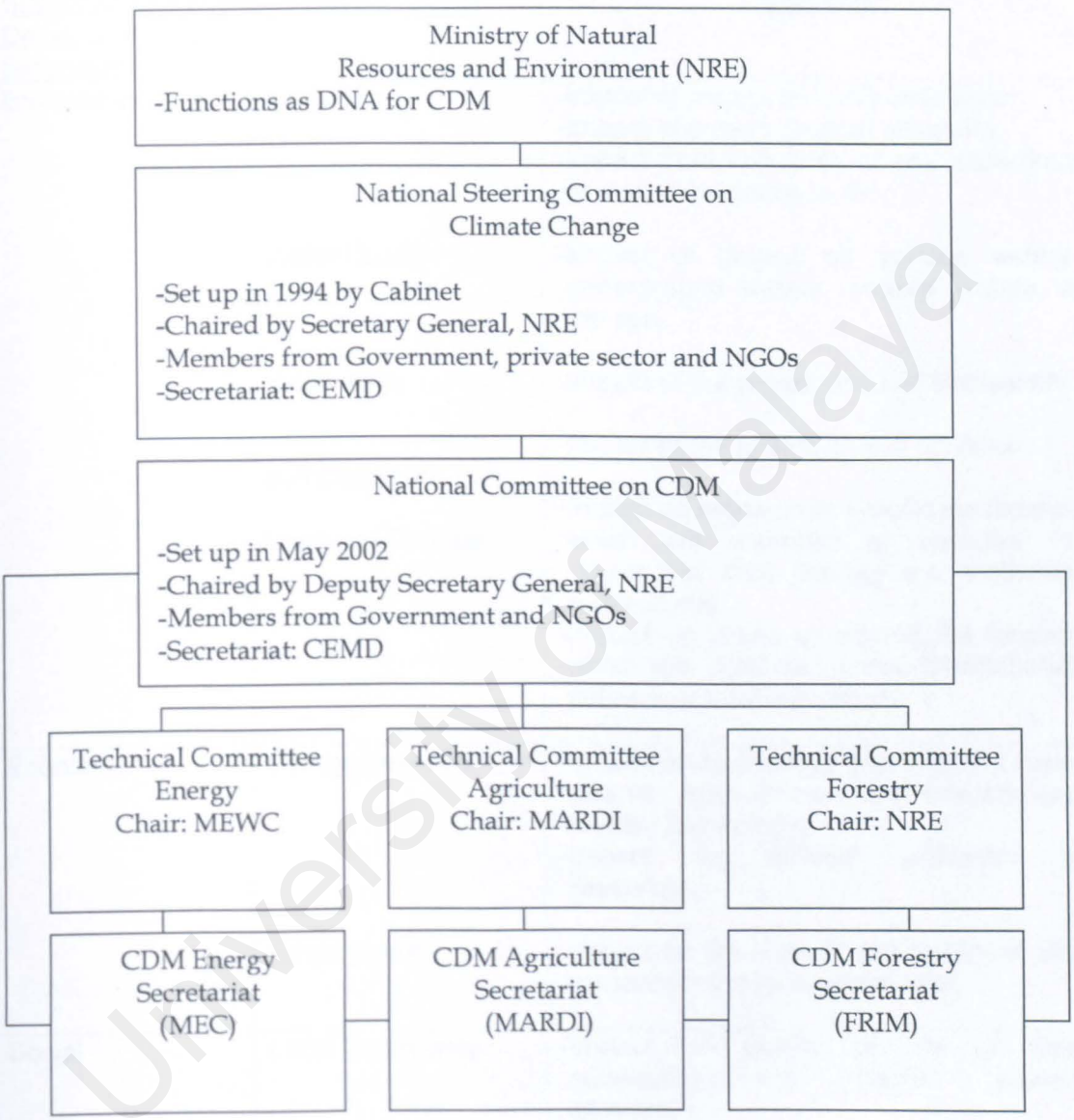
APPENDIX B

The list of GHGs with its GWP as published by IPCC and listed in NGERR.

Item	Greenhouse Gas	Chemical Formula	Global Warming Potential (GWP)
1	Carbon dioxide	CO2	1
2	Methane	CH4	21
3	Nitrous oxide	N2O	310
4	Sulphur hexafluoride	SF6	2 390 0
5	HFC-23	CHF3	1 170 0
6	HFC-32	CH2F2	650
7	HFC-41	CH3F	150
8	HFC-43-10mee	C5H2F10	1 300
9	HFC-125	C2HF5	2 800
10	HFC-134	C2H2F4 (CHF2CHF2)	1 000
11	HFC-134a	C2H2F4 (CH2FCF3)	1 300
12	HFC-143	C2H3F3 (CHF2CH2F)	300
13	HFC-143a	C2H3F3 (CF3CH3)	3 800
14	HFC-152a	C2H4F2 (CH3CHF2)	140
15	HFC-227ea	C3HF7	2 900
16	HFC-236fa	C3H2F6	6 300
17	HFC-245ca	C3H3F5	560
18	Perfluoromethane (tetrafluoromethane)	CF4	6 500
19	Perfluoroethane (hexafluoroethane)	C2F6	9 200
20	Perfluoropropane	C3F8	7 000
21	Perfluorobutane	C4F10	7 000
22	Perfluorocyclobutane	c-C4F8	8 700
23	Perfluoropentane	C5F12	7 500
24	Perfluorohexane	C6F14	7 400

APPENDIX C

This diagram briefly describes the institutional framework.



Source: Malaysia CDM Information Handbook: A Resource for Clean Development Mechanism Project Developers in Malaysia at page 64.

APPENDIX D

The list of proposed indicators to support the sustainable development aspects.

Sustainable Development (SD) dimensions	Aspects of SD	Indicators
Environment	Air quality	-Impact of project on GHG emissions. -Impact of project on local air quality. -Impact from pollutants or any hazardous or toxic substances to air.
	Water Quality	-Impact of project on surface waters, underground waters, coastal waters or the sea.
	Biodiversity	-Impact of the project on local biodiversity.
	Soil Condition	-Impact of the project on soil condition.
	Land-use Change	-Impact on areas on or around the location which are important or sensitive for reasons of their ecology e.g. wetlands, watercourse. -Impact on areas or around the location which are protected under international, national or local legislation.
Economic	Competitiveness	-Impact on technology improvement (uses cleaner, more efficient and environment-friendly technology). -Impact on efficient utilization of resources.
	Employment	-Impact on the number and quality of jobs created for the local community.
Social	Local Community	-Impact on quality of life of local community e.g. health, poverty alleviation. -Impact of project on preservation of local heritage/culture

Source: Malaysia CDM Information Handbook: A Resource for Clean Development Mechanism Project Developers in Malaysia at page 28 and 29.

APPENDIX E

Examples of the types of projects in accordance with its sectors eligible to qualify as CDM project in Malaysia.

Sector	Type of Projects
Renewable Energy	-Biomass power generation on- grid and off-grid -Biogas -Solar: Solar water heating; solar photovoltaic systems -Hydro: Mini-hydro power
Energy Efficiency Improvement	-Improving efficiency in electricity production -Improving combined heat and electricity production -Improved boilers; More efficient process heat and steam systems -Fuel switching
Forestry	-Afforestation projects -Reforestation projects
Waste Management	-Power and heat production from wastes -Gas recovery from landfills -Anaerobic waste water treatment
Transport	-Efficiency improvements for vehicles -Switch to fuel systems with lower emissions
Agriculture	-Improvement in cultivation practices to reduce methane emissions. -Reduction of energy use through demand side management. -Improvement in use of agrochemicals (fertilizers and pesticides).

Source: Malaysia CDM Information Handbook: A Resource for Clean Development Mechanism Project Developers in Malaysia at page 10. (with additional 'Agriculture' sector based on the interview).

APPENDIX F

This diagram summarized the CDM application process until the issuance of CER by the CDM Executive Board.

		Project Developer	-CDM Initial Project Idea developed by the private or public sector.
Stage	1	PIN	-Project Idea Note (PIN). A brief description of project activity.
Stage	2	Conditional Letter of Approval	-Technical Committee assisted by the Secretariat evaluates the project based on the national criteria. NCCDM approves the project and authorizes the project partner to take part in the CDM project by issuing conditional letter of approval.
Stage	3	PDD	-Project Designed Document: A more detailed description of the project activity.
Stage	4	DOE Validation	-Review of the PDD according to international criteria.
Stage	5	Parties Contracting (ERPA)	-Negotiation and signing of Emission Reduction Purchase Agreement between project developer and CER buyers.
Stage	6	Host Country Letter of Approval	-Designated National Authority (DNA) after receiving Validation Report, approved the project by issuing host country letter of approval.
Stage	7	Project Registration	-Registration of project by CDM Executive Board.
Stage	8	Project Monitoring	-Monitoring undertaken by project operator.
Stage	9	Project Verification & Certification	-Verification/Certification undertaken by DOE.
Stage	10	Issuance of CERs	-Issuance of CERs by the CDM Executive Board

Note: Stage 1-6 is the Project Design Phase, stage 7 is the Project Registration Phase and stage 8-10 is the Project Implementation Phase.

Source: Malaysia CDM Information Handbook: A Resource for Clean Development Mechanism Project Developers in Malaysia at page 12.

APPENDIX G

The statistics on the number of CDM project applications received by NRE from year 2002 to 2008 with the potential volume of CER.

Year	No. of Project	Potential CER
2002	3	93,915
2003	2	62,190
2004	9	496,758
2005	25	2,500,000
2006	21	2,615,122
2007	83	15,246,000
2008	70	6,436,429
Total	213	27,450,414

Source: Based on the information gathered from the interview with the officer of the Ministry of Natural Resources and Environment.

APPENDIX H

The list of CDM Projects In Malaysia.

Registered	Title	Host Parties	Other Parties	Reductions*
24 Sep 06	Jendarata Steam & Power Plant Project Owner (Authorised Participants of Host Parties) : United Plantations Berhad	Malaysia	Denmark	8851
Rejected	Kunak Bio Energy Project Project Owner (Authorised Participants of Host Parties) : TSH Bio-Energy Sdn Bhd	Malaysia	Switzerland United Kingdom of Great Britain and Northern Ireland	125848
Rejected	Kunak Jaya Bio Energy Plant Project Owner (Authorised Participants of Host Parties) : TSH Wilmar (BF) Sdn Bhd	Malaysia	Switzerland	238522
Rejected	Tradewinds Methane Extraction and Power Generation Project Project Owner (Authorised Participants of Host Parties) : Tradewinds Plantation Management Sdn Bhd ; BioX Carbon Malaysia Sdn Bhd	Malaysia	Netherlands	24181
29 Sep 06	Krubong Melaka LFG Collection & Energy Recovery CDM Project Project Owner (Authorised Participants of Host Parties)	Malaysia	Japan	57830

	: Southern Waste Management Sdn. Bhd			
26 Jan 09	Methane Capture and On-site Power Generation Project at Sungai Kerang Palm Oil Mill in Sitiawan, Perak, Malaysia Project Owner (Authorised Participants of Host Parties) : Sungai Kerang Development Sdn Bhd	Malaysia	United Kingdom of Great Britain and Northern Ireland	78962
Minor corrections (following request for review)	Methane recovery and utilisation project at TSH Lahad Datu Palm Oil Mill, Sabah, Malaysia Project Owner (Authorised Participants of Host Parties) : TSH Plantation Sdn Bhd	Malaysia	United Kingdom of Great Britain and Northern Ireland	33356
04 Sep 06	ENCO Biomass Energy Plant in Malaysia Project Owner (Authorised Participants of Host Parties) : ENCO Energy Sdn Bhd	Malaysia	Canada Germany	70316
14 Dec 07	Golden Hope Composting Project - Merotai Project Owner (Authorised Participants of Host Parties) : Golden Hope Plantation Berhad	Malaysia	Denmark	30449
08 Nov 07	Methane recovery and utilisation project at United Plantations Berhad, Jendarata Palm Oil Mill,	Malaysia	Denmark	20271

	Malaysia Project Owner (Authorised Participants of Host Parties) : United Plantations Berhad			
10 Jun 06	SEO Biomass Steam and Power Plant in Malaysia Project Owner (Authorised Participants of Host Parties) : SEO Energy Sdn Bhd	Malaysia	Canada Germany	216831
21 Dec 07	Biomass thermal energy plant – Hartalega Sdn.Bhd, Malaysia Project Owner (Authorised Participants of Host Parties) : Hartalega Sdn Bhd	Malaysia	United Kingdom of Great Britain and Northern Ireland	128587
03 Mar 07	Factory energy-efficiency improvement project in Malaysia (PHAAM, PCOM (PJ), PCOM (SA), PEDMA, MEDEM) Project Owner (Authorised Participants of Host Parties) : Panasonic HA Air-Conditioning Malaysia Sdn. Bhd.(PHAAM) ; Panasonic Compressor Malaysia Sdn. Bhd. (PCOM (PJ)) ; Panasonic Compressor Malaysia Sdn. Bhd.(PCOM (SA)) ; Panasonic Electronic Devices Malaysia Sdn. Bhd.(PEDMA(SW)) ; Panasonic Electronic Devices Malaysia Sdn. Bhd. (PEDMA(SA))	Malaysia	Japan	6474
02 Sep 06	Bentong Biomass Energy	Malaysia	Canada	380934

	Plant in Malaysia Project Owner (Authorised Participants of Host Parties) : ENCO Danstoker (Malaysia) Sdn Bhd		Germany	
19 Mar 08	Methane Recovery and Utilisation Project at TSH Kunak Oil Palm Mill Project Owner (Authorised Participants of Host Parties) : TSH Bio-Gas Sdn Bhd	Malaysia	Switzerland	76610
Withdrawn	Organic Waste Composting at Takon Palm Oil Mill, Malaysia Project Owner (Authorised Participants of Host Parties) : Sankina Oil Mills Sdn Bhd	Malaysia	United Kingdom of Great Britain and Northern Ireland	58734
10 Jun 06	LDEO Biomass Steam and Power Plant in Malaysia Project Owner (Authorised Participants of Host Parties) : LDEO Energy Sdn Bhd	Malaysia	Canada Switzerland Germany	208871
24 Feb 06	Biomass Energy Plant-Lumut. Project Owner (Authorised Participants of Host Parties) : ENCO Energy Sdn Bhd	Malaysia	Denmark	32545
24 Oct 08	Methane capture from POME for electricity generation in Batu Pahat. Project Owner (Authorised Participants of Host Parties)	Malaysia	Japan	48234

	: Bell Eco Power Sdn Bhd			
27 Sep 08	KKSL Lekir Biogas Project, Project BCM07_SLK_14 Project Owner (Authorised Participants of Host Parties) : Kilang Kelapa Sawit Lekir Sdn Bhd	Malaysia	Netherlands	33955
21 Jul 06	Kina Biopower 11.5MW EFB Power Plant Project Owner (Authorised Participants of Host Parties) : Kina Biopower Sdn Bhd	Malaysia	Japan	230019
21 Jul 06	Seguntor Bioenergy 11.5MW EFB Power Plant Project Owner (Authorised Participants of Host Parties) : Seguntor Bioenergy Sdn Bhd	Malaysia	Japan	230019
08 Apr 07	Kim Loong Methane Recovery for Onsite Utilization Project at Kota Tinggi, Johor, Malaysia. Project Owner (Authorised Participants of Host Parties) : Kim Loong Power Sdn Bhd	Malaysia	Switzerland	57656
20 May 07	Landfill Gas utilization at Seelong Sanitary Landfill, Malaysia Project Owner (Authorised Participants of Host Parties) : Southern Waste	Malaysia	Denmark	108335

	Management Sdn Bhd			
14 Dec 07	Golden Hope Composting Project - Lavang Project Owner (Authorised Participants of Host Parties) : Golden Hope Plantations Berhad	Malaysia	Denmark	30379
Requesting Registration	Composting of solid biomass waste separated from the Palm Oil Mill Effluent (POME) through the use of AVC Sludge Dewatering System at Kilang Kelapa Sawit Selumpur Sdn. Bhd. Project Owner (Authorised Participants of Host Parties) : Brite-Tech Ventures Sdn Bhd	Malaysia	Germany	30015
25 Aug 08	Avoidance of methane production in POME treatment through Boustead Biotherm Palmass Technology Project Owner (Authorised Participants of Host Parties) : Boustead Plantations Berhad	Malaysia	Denmark	20914
Withdrawn	KUNAK BIO ENERGY PROJECT Project Owner (Authorised Participants of Host Parties) : TSH Bio-Energy Sdn Bhd	Malaysia		51200
07 Apr 06	Replacement of Fossil Fuel by Palm Kernel Shell	Malaysia	France	61946

	Biomass in the production of Portland Cement Project Owner (Authorised Participants of Host Parties) : Lafarge Malayan Cement Berhad			
02 Sep 06	Johor Bundled Biomass Steam Plant in Malaysia Project Owner (Authorised Participants of Host Parties) : WT Speciality Ingredients Sdn Bhd	Malaysia	Canada	130505
Under Review	Reduction in clinker usage in the production of cement through the increase in the use of additives at Lafarge Malayan Cement Berhad (LMCB) Project Owner (Authorised Participants of Host Parties) : Lafarge Malayan Cement Berhad	Malaysia	France	532757
Requesting Registration	Methane recovery and utilisation project at TSH Sabahan Palm Oil Mill, Sabah, Malaysia Project Owner (Authorised Participants of Host Parties) : TSH Plantation Sdn Bhd	Malaysia	United Kingdom of Great Britain and Northern Ireland	53439
17 Dec 07	Golden Hope Composting Project - Kerdau Project Owner (Authorised Participants of Host Parties) : Golden Hope Plantations	Malaysia	Denmark	20136

	Berhad			
23 Apr 06	Sahabat Empty Fruit Bunch Biomass Project Project Owner (Authorised Participants of Host Parties) : FELDA Palm Industries Sdn Bhd	Malaysia	Switzerland United Kingdom of Great Britain and Northern Ireland	53986
03 Mar 07	Factory energy-efficiency improvement project in Malaysia (MAPREC, PRDM, PSCDDM, PAVCJM, PCM) Project Owner (Authorised Participants of Host Parties) : Panasonic Electronic Devices Malaysia Sdn. Bhd.(PEDMA(MK)) ; Panasonic Refrigeration Devices Malaysia Sdn. Bhd.(PRDM) ; Panasonic Semiconductor Discrete Devices (M) Sdn. Bhd. (PSCDDM) ; Panasonic AVC Networks Johor Malaysia Sdn. Bhd.(PAVCJM) ; Panasonic Communications Malaysia Sdn. Bhd.(PCM)	Malaysia	Japan	1312
01 May 08	Inno-Malsa - Palm Oil Mill Waste Recycle Scheme, Malaysia Project Owner (Authorised Participants of Host Parties) : Inno Integrasi Sdn Bhd	Malaysia	Switzerland United Kingdom of Great Britain and Northern Ireland	103693
25 Oct 07	Bandar Baru Serting Biomass Project Project Owner (Authorised Participants of Host Parties) :	Malaysia	United Kingdom of Great Britain and Northern Ireland	73805

	MHES Asia Sdn Bhd			
30 Nov 07	Factory energy efficiency improvement in compressed air demand and supply in Malaysia Project Owner (Authorised Participants of Host Parties) : DENSO (Malaysia) Sdn Bhd	Malaysia	Japan	173
23 Feb 09	Green Green Grass SBE Biomass Project Project Owner (Authorised Participants of Host Parties) : Green Green Grass Sdn Bhd	Malaysia	United Kingdom of Great Britain and Northern Ireland	26026
08 Oct 07	Mensilin Holdings Biomass Energy Plant Project Project Owner (Authorised Participants of Host Parties) : Mensilin Holdings Sdn Bhd	Malaysia	United Kingdom of Great Britain and Northern Ireland	48070
17 Jun 08	Methane Recovery in Wastewater Treatment, Project AMA07-W-01, Perak, Malaysia Project Owner (Authorised Participants of Host Parties) : AES AgriVerde Services (Malaysia) Sdn Bhd	Malaysia	Netherlands	57094
07 Aug 08	Esajadi small hydropower project in Malaysia Project Owner (Authorised Participants of Host Parties) : Esajadi Power Sdn Bhd	Malaysia	Japan	45063

14 Dec 07	Golden Hope Composting Project -Melalap. Project Owner (Authorised Participants of Host Parties) : Golden Hope Plantations Berhad	Malaysia	Denmark	3382
11 Aug 08	Kuantan Jabor-Jerangau Integrated Landfill Management Project Owner (Authorised Participants of Host Parties) : CyEn Resources Sendirian Berhad	Malaysia	Canada	15418
26 Jan 09	Methane Capture and On-site Power Generation Project at Syarikat Cahaya Muda Perak (Oil Mill) Sdn. Bhd. in Tapah, Perak, Malaysia Project Owner (Authorised Participants of Host Parties) : Syarikat Cahaya Muda Perak (Oil Mill) Sdn Bhd	Malaysia	United Kingdom of Great Britain and Northern Ireland	67133
04 Nov 07	Co-composting of EFB and POME – MG BioGreen Sdn.Bhd (MGBG) Project Owner (Authorised Participants of Host Parties) : MG BioGreen Sdn Bhd	Malaysia	Japan	30450
15 Mar 09	FELDA Serting Hilir Biogas Power Plant Project Project Owner (Authorised Participants of Host Parties) : FELDA Palm Industries Sdn	Malaysia	United Kingdom of Great Britain and Northern Ireland	37251

	Bhd			
14 Feb 09	Methane recovery and utilization through organic wastewater treatment in Malaysia Project Owner (Authorised Participants of Host Parties) : Rinwood Pelita (Mukah) Plantation Sdn Bhd ; Konzen Environment Sdn Bhd	Malaysia	Japan	43152
15 Feb 09	Composting of solid biomass waste separated from the Palm Oil Mill Effluent (POME) through the use of AVC Sludge Dewatering System at Taclico Company Sdn. Bhd. Project Owner (Authorised Participants of Host Parties) : Brite-Tech Ventures Sdn Bhd	Malaysia	United Kingdom of Great Britain and Northern Ireland	14856
15 Feb 09	Composting of solid biomass waste separated from the Palm Oil Mill Effluent (POME) through the use of AVC Sludge Dewatering System at Tanjung Panjang Palm Oil Mill Sdn. Bhd. Project Owner (Authorised Participants of Host Parties) : Brite-Tech Ventures Sdn Bhd	Malaysia	United Kingdom of Great Britain and Northern Ireland	31058
22 Oct 08	Methane Recovery for Onsite Utilisation Project at Desa Kim Loong Palm Oil Mill, Sook, Keningau,	Malaysia	Germany	38340

	Sabah, Malaysia Project Owner (Authorised Participants of Host Parties) : Kim Loong Power Sdn Bhd			

*Estimated emission reductions in metric tones of Carbon Dioxide equivalent per annum (as provided by the project owner).

Source: United Nation Framework Convention On Climate Change website available at http://cdm.unfccc.int/Projects/prosearch.html

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