

***Progress Toward Developing Sustainability Criteria
for the Clean Development Mechanism***



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Table of Acronyms

CD4CDM	Clean Development 4 Clean Development Mechanism
CDM	Clean Development Mechanism
CERUPT	Certified Emissions Reduction Unit Procurement Tender
CICERO	Center for International Climate and Environmental Research
CO2	Carbon Dioxide
DENR	Department of Environment and Natural Resources
DNA	Designated National Authority
DOE	Designated Operational Entity
DOST	Department of Science and Technology
EB	Egyptian Bureau
EC	Egyptian Council
EEAA	Egyptian Environmental Affairs Agency
GDP	Gross Domestic Product
GHG	Green House Gasses
IACCC	Inter-Agency Committee on Climate Change
IIED	International Institute for Environment and Development
JI	Joint Implementation
MATA	Multi-Attributive Assessment
NEAPDS	National Environmental Action Plan for Sustainable Development
NGO	Non-Governmental Organization
NSDS	National Sustainable Development Strategy
PA 21	Philippines Agenda 21
PDD	Project Design Document
PP	Projects Participants
SD	Sustainable Development
SDPC	State Development Planning Commission
UN	United Nations
UNCCEE	United Nations Collaborating Center on Energy and the Environment
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNIDO	United Nations Industrial Development Organization
WDI	World Development Index

Executive Summary

Introduction

This report highlights the progress nations have made in developing Designated National Authorities (DNAs) and sustainable development criteria for use in evaluating project activity under the Clean Development Mechanism (CDM) of the Kyoto Protocol. This report was produced by a team from Columbia University's School of International Public Affairs¹ and represents research carried out between February and April of 2004 at the request of the United Nations' Division for Sustainable Development (DSD).

Background

The Kyoto Protocol was negotiated in 1997 to help reduce worldwide greenhouse gas (GHG) emissions. The Protocol recognizes two types of countries: Annex I countries, which have commitments to reduce GHG emissions, and non-Annex I countries, which presently have no such commitments. Most developing countries are designated as non-Annex I countries. The CDM is one of three flexibility mechanisms under the Protocol designed to facilitate reductions, and it is the only mechanism that can include non-Annex I countries. Under the CDM, Annex I countries can invest in projects that lower GHG emissions in non-Annex I "host" countries. During implementation, the "investor" country shares the project's certified emissions reduction credits with the host country. For a CDM project to be approved by the CDM Executive Board (EB), the host country must first approve the project according to its sustainable development criteria.

Report Structure

This report provides an overview of the progress nations have made in establishing DNAs and sustainable development criteria; identifies countries that might be viewed as "models;" investigates choices nations have made for sustainable development criteria; and highlights challenges that may inhibit nations from developing the institutions necessary to participate in the CDM. This study combines three components: a brief literature review, a survey of eligible countries, and in-depth case studies of seven countries – Brazil, China, Egypt, India, Kazakhstan, the Philippines, and Uganda. The nations included in the case study section were selected to represent a range of geographic regions and levels of development.

Principal Findings

Progress achieved

Approximately half of the 31 nations responding to the survey report having made little or no progress in developing a DNA or criteria. Only 26% reported having established sustainability criteria and 22% had criteria "in process." These results suggest that there is

¹ Masters of Public Administration (MPA) Program in Environmental Science and Policy (PESP)

a clear need for additional capacity building programs to assist developing nations to move forward on the CDM. With the assistance of international organizations such as the United Nations Environmental Programme (UNEP) and the SouthSouthNorth project, several countries have made progress in establishing CDM offices and developing sustainability criteria.

Larger nations have made more progress

Nations with larger economies (e.g. Brazil, China, and India) have made the most visible progress in establishing the institutions necessary for the CDM. They face favorable economies of scale and can attract considerable investor interest because of the larger number of opportunities for carbon abatement. By contrast, countries with low GHG emission baselines (e.g. Uganda) are at a significant disadvantage and currently have few opportunities to engage the CDM. Scarce financial resources, inconsistent political support from national governments, and uncertainty regarding the future of the Kyoto Protocol were identified as key factors constraining countries from developing institutions and criteria. Low baselines and high expected transaction costs can discourage investors from pursuing projects, and reduce the incentive to invest in institutions and criteria. Even where incentives exist, these countries are frequently the Least Developed Countries (LDCs) and lack substantial financial and administrative capacity.

It is worth noting that based on survey responses; Latin American countries appear to have a relatively higher interest in CDM activity compared to other regions.

Countries emphasize economic and social criteria over environmental

Most countries surveyed have not established sustainable development criteria. Those that do tend to prioritize economic and social criteria over environmental criteria. This may be because a project's GHG reduction may already be considered an environmental objective. Environmental criteria, where identified, focus on preventing further natural resource depletion rather than improving environmental quality.

Country-defined sustainable development criteria typically serve as guidelines for developing projects rather than strict rules for enforcement. The criteria are often broad and general in scope and – more significantly – lack specific indicators. This may be a temporary feature designed to maximize a nation's flexibility in approving CDM projects. Over time however, these criteria are likely to become stricter and more specific on a case-by-case basis. Currently these criteria offer little guidance to project developers.

Some countries base their project criteria on their National Sustainable Development Strategy (NSDS). India essentially modified its existing NSDS criteria; other countries (e.g. Brazil) have developed criteria with a less direct relationship to the NSDS.

CDM projects can be designed without DNA or criteria

This study finds that there is no linear path to developing national CDM institutions and criteria. While a DNA and sustainable development criteria are required for project implementation, CDM projects are frequently designed before a DNA is established. A critical mass of CDM projects may well create the needed incentive for a host country to move ahead with the establishment of a DNA and sustainability criteria.

Many nations face significant obstacles in creating the institutions required for the CDM. Capacity development programs designed to share good practices, disseminate guidance documents, and provide assistance to customize project evaluation methodologies are tools that will help developing countries take advantage of the sustainable development opportunities the CDM provides.

Conclusions

- **Significant progress has been achieved, however much work remains.**
Fewer than half of the countries have established a National Authority and designed project criteria. Capacity building programs would be highly beneficial.
- **Project criteria serve as general guidelines however they lack key indicators.**
Sustainability criteria tended to be broad and general, serving more as goals for projects than as specific standards that needed to be met.
- **Countries typically emphasize socio-economic over environmental criteria.**
The criteria analyzed indicate that countries are focusing more on economic development than environmental protection in project criteria. Countries may be considering carbon abatement as sufficient environmental criteria.
- **Project selection is focused on smaller renewable energy projects.**
Uncertainty surrounding the protocol is probably the cause; projects such as renewables will likely provide key benefits even if there are no emission credits.

Recommendations

- ***Capacity development*** and knowledge sharing programs should be expanded and more assistance should be given to least developed countries.
- Larger countries (China, Brazil, & India) could serve as ***regional role models***, offering examples of successful implementation.
- Countries should be encouraged to give more emphasis to ***environmental factors*** in their project criteria.

1 Introduction

This report is the result of research performed by a team from Columbia University's School of International and Public Affairs for the United Nation's Division for Sustainable Development

The growing consensus over the danger posed by global climate change has led to a number of attempts by countries to limit emissions of greenhouse gases (GHGs). The Kyoto Protocol was drafted with the aim of committing countries to reducing global emissions. Issues over inequalities between the developed and developing countries led to a series of compromises, one of which was the Clean Development Mechanism. CDM attempts to address the concerns of developing countries, who feel that being forced to limit their GHG emissions could have serious negative impact on their attempts to improve the welfare of their citizens. By encouraging developed countries to invest in cleaner infrastructure in developing countries, the mechanisms aims to "leapfrog" developing countries over cheaper environmentally damaging technologies to cleaner ones.

The Kyoto Protocol calls for eligible countries to create national authorities to oversee implementation of the mechanism. Additionally, countries are to develop criteria to evaluate the sustainability of proposed projects. The aim of this study is to provide an overview of the work non-Annex I countries have done toward establishing CDM authorities and project criteria. Additionally it is concerned with determining good practices in the development of project criteria.

Specifically, the study seeks to address the following questions:

- What are, in the literature, considered to be 'good' sustainability criteria?
- What countries have established, or are in the process of establishing their project criteria?
- Of these countries, are there any that have excelled? That is, are there countries that other nations view as models when establishing their project criteria?
- What are the criteria that particular countries have chosen? Why have some countries chosen particular criteria over others?
- What are the main challenges faced by countries in developing project criteria, or in implementing a project? Are transaction costs an issue?

This report is divided into five sections:

- 1) An introduction to the report
- 2) An overview of existing literature, with the aim of determining what are considered "good" practices.
- 3) A survey of eligible countries to determine the amount of work that has been accomplished in establishing CDM institutions and criteria.
- 4) An analysis of seven in-depth studies into the CDM process in seven countries, and
- 5) A conclusion section summarizing key findings, and recommendations.

2 Background & Evaluation Methodologies

Increasing concern over the impacts anthropogenic emissions of greenhouse gases are having on global climate led to the signing, on December 11th 1997, of the Kyoto Protocol. The protocol committed a number of primarily developed nations (listed on Annex I of the UN Framework Convention on Climate Change (Convention)) to mandatory reductions of their greenhouse gas emissions. To ensure the most cost-effective reductions, the system makes use of three flexibility mechanisms. These are:

- Emissions Trading
- Joint Implementation (JI)
- Clean Development Mechanism (CDM)

Of the three mechanisms, the CDM is the only one that includes the active participation of developing countries (non-Annex I). The other two mechanisms include only Annex I nations.

2.1 Background on the Clean Development Mechanism

While some controversy exists regarding the nature and implementation of the Clean Development Mechanism, it has the potential of both assisting developed countries meet their emissions reductions and of assisting developing countries establish a more sustainable energy infrastructure. To succeed, the CDM, and projects implemented under it, should aim to fulfill the following objectives, in descending order²:

- To assist developing countries in achieving sustainable development
- To assist developing countries in contributing to the ultimate objective of the Convention (the reduction of greenhouse gas emissions), and
- To assist developed countries in achieving their emission reduction commitments.

The implementation of a CDM project involves a number of participants. These include private, national, and international entities that ensure that the various criteria for the project and the CDM are met. The initial step is ensuring that the project is eligible and feasible. That is, the specifics of the project must be analyzed to ensure that it qualifies as a CDM project by meeting the criteria set forth in the Kyoto Protocol. Article 12.5 of the protocol states that for a project to be eligible, it must³:

- Be voluntarily approved by all participants
- Lead to “real, measurable, and long-term benefits related to the mitigation of climate change,” and
- Lead to reductions in emissions that would not have occurred otherwise.

Additionally, the economic and technological feasibility of the project must be determined to ensure that it can be completed successfully. Once the project passes these screening

² Mathy, 2001

³ UN, 1997

tests, the project participants (PP) develop and present a Project Design Document (PDD) to the Designated National Authority (DNA) of the host and investing countries. The PDD describes the project activity, the baseline and monitoring methodology, how greenhouse gas reductions will be calculated, and includes stakeholder comments.

If the project is approved by the DNA, it is then passed to a Designated Operational Entity (DOE), for validation. Once validated, the project moves to the CDM Executive Board, an international body in charge of issuing Certified Emission Reductions. The Executive Board then places the project in a public review process for 8 weeks, and then makes a final decision. If approved, the project moves to the host country for implementation.

2.2 CDM & Sustainable Development

One of the stated goals of the Clean Development Mechanism is to promote sustainable development in underdeveloped countries. The concept of sustainable development is a difficult one to define. Various organizations define it in various ways, for example “sustainable development is about ensuring a better quality of life for everyone, now and for generations to come,”⁴ according to the United Kingdom’s government. But the most common concept of “sustainable development” is derived from the 1987 report of World Commission on Environment and Development (called the “Brundtland Report”), which defines it as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”⁵.

Sustainable development requires addressing a wide range of issues we face now, which include economic growth, equity, poverty alleviation, environmental protection and democracy. According to the Johannesburg Plan of Implementation in 2002, overarching objectives of and essential requirement for sustainable development are “poverty eradication, changing unsustainable patterns of production and consumption and protecting and managing the natural resource base of economic and social development.”⁶ Achieving sustainable development needs comprehensive and well-organized approaches domestically as well as internationally.

Sustainable development also needs basic circumstances to be built up. Peace, democratic societies, and human rights are among them. Without securing these fundamentals, people with less political strength remain suffering from poverty, people living in war torn areas are without economic opportunities, and in these and areas like them, the environment is heavily destroyed. The Johannesburg Plan of Implementation says, “Peace, security, stability and respect for human rights and fundamental freedoms, including the right to development, as well as respect for cultural diversity, are essential for achieving sustainable development and ensuring that sustainable development benefits all.”⁷

⁴ New Zealand Business Council

⁵ WCED, 1987

⁶ UN, 2004

⁷ New Zealand Business Council

The inclusion of developing countries in the Clean Development Mechanism, and the CDM's promotion of sustainable development are recognition of the increasing role that developing countries will have in greenhouse gas emissions. To meet the requirement that projects promote sustainable development, they will need to meet sustainability criteria before they are approved by the Designated National Authority or the Executive Board. As stated in the Marrakech Accords, "it is the host Party's prerogative to confirm whether a clean development mechanism project activity assists it in achieving sustainable development."⁸ While this arrangement ensures that each nation's development priorities are reflected in their selection of projects, it also raises the possibility of a downward spiraling of criteria to attract investors as participating nations compete with each other for projects. Additionally, the large number of sets of criteria can create a problem for investor countries, as they are unlikely to be familiar with the criteria for all nations.

2.2.1 Basic Components of Sustainable Development

As each country is charged with developing their own sustainability criteria, these criteria will reflect the development priorities for each country. For example, a country in an arid region will likely place a greater emphasis on criteria that deal with water availability than would a country in a more humid region. Thus, sustainability criteria will reflect the variety of approaches that nations take when devising them. Even with these differences, however, there are some general areas, or pillars, that all countries should address within their project criteria. These are:

- **Social** – Projects should help improve the quality of life of those most directly impacted. Additionally, a project should not negatively impact cultural identities and should include the active participation of all stakeholders
- **Environmental** – A project should not negatively impact the environment (i.e. air & water quality, biological diversity, etc.) and should lead to real reductions in greenhouse gas emissions
- **Economic** – In addition to providing meaningful employment, projects should lead to real increases in local abilities and technological capacity. Profits from projects should also be used to further regional development.

While these three pillars are widely accepted as forming the basis of sustainable development, some, such as the UNFCCC, would add a fourth: technological. Many of the criteria addressed within this pillar, however, can be categorized under one of the other three pillars. As this shows, the separation between the pillars is not as rigid as the above list would imply. There is significant overlap, particularly between the social and economic categories. This will be addressed further in our discussion of indicators.

Within these pillars there are a number of subcomponents that can be chosen as criteria to measure the sustainability of projects. The specific criteria which are chosen will depend on a nation's particular developmental interests. An important aspect to consider in selecting criteria is their scope. Criteria are broadly found at three levels: (i) global, (ii)

⁸ UNFCCC, 2001

national, and (iii) regional/local⁹. Since all CDM projects will be implemented on a national basis, global criteria are not likely to play a role in the project selection. However, the balance between national and local criteria can play an important part, especially for larger projects. National impacts for small and medium-sized projects are likely to be negligible, thus, the use of national criteria in assessing the project will likely be unwarranted.

In addition to those pillars, projects should also meet certain criteria in terms of transfers of technology and knowledge as well as institutional capacity. If the projects include the transfer of technology, these transfers should be real and should be coupled with training of the local population in the operation and repair of the new technology. Furthermore, host countries should not be entirely dependent on investing in countries for expertise and replacement parts for new machinery. Projects should also meet certain political and institutional requirements. The implementation of a project should never be so onerous as to overwhelm a nation's existing infrastructure. Sufficient resources must exist for ensuring compliance before any project is approved. Finally, projects must be politically feasible. That is, enough support must exist to ensure the continuity of a project.

2.2.2 Sustainability Indicators

While the three pillars and their subcomponents provide guidelines for what the projects should accomplish, they say nothing about how this progress, or lack thereof, will be measured objectively. For this reason, all pillars should be paired up with at least one indicator that measures how factors change over time. The choice of indicators is important, as they must be specific enough to be relevant, but they must also be easy enough to cost-effectively collect. A number of organizations have developed their own sets of sustainable development indicators, most of which are used to evaluate national level sustainability. For example, the UN commission on Sustainable Development created 134 indicators of sustainable development, including unemployment rate, greenhouse gas emission, and GDP per capita.

2.2.3 Sustainability criteria for the CDM

The increased acceptance of the principles of sustainable development has led to the creation of sets of sustainability indicators by a number of organizations. While a useful starting point, these general sets of indicators are likely too broad for assessing CDM projects. To further the CDM process, however, a number of government and private organizations have developed criteria and methodologies for evaluating projects. The table below shows the list of organizations researched. Details of these methodologies, the criteria used, and some examples of indicators can be found in Appendix A.1. The methodologies share many common factors.

⁹ Huq, 2002

Table 2-1 - Organizations developing criteria

Nations	India Kenya Nicaragua Morocco Peru Bangladesh
Organizations	CICERO IIED MATA-CDM SouthSouthNorth Susac Tyndall

There are essentially two types of criteria created:

- **Descriptive Criteria**

These qualitative indicators are general requirements in terms of sustainability criteria, and generally cannot be measured directly.

Example:

- Local environment improvement (air, water, soil, etc.)
- To be supportive of and consistent with national development priorities and be linked to poverty reduction

- **Measurable Criteria**

These are composed of specific quantitative indicators that are well established and measurable.

Example:

- GDP, GDP/capita, Human Development Indicator
- Quantitative measures of environmental improvement (air concentrations of pollutants, coliform counts in water)

Most organizations, except for IIED, developed descriptive criteria based on which evaluators can make decisions subjectively.

Another important aspect to consider when developing criteria is measurement scale. More specifically, is the measurement absolute (i.e. microeconomic efficiency) or relative to a baseline (i.e. environmental quality)¹⁰. While in most cases the nature of the project and the specific criteria will determine the scale of measurement, there are times when discretion will be given to those devising the criteria (i.e. in the case of water quality, are the measurements compared to an absolute level of acceptability or relative to the quality of water before the project). In such cases, the type of scales chosen could have a significant impact on the eligibility of a project.

¹⁰ Heuberger, 2003a

Another issue in creation of criteria is the overlap between the three pillars. Depending on the methodology, and whether weighting is used, the location of a particular criterion could affect the sustainability assessment of a project. Certain criteria, such as GDP and measures of air quality, are unambiguously located under the economic and environmental pillars. Others, however, could be paired with criteria in two or more of the pillars. An example of this would be unemployment. While the indicator itself is straightforward enough, it could be placed either under a “job generation” criteria under the economic improvements, or under a “poverty alleviation” criteria under social improvements. For this reason, it is important that the interrelationships between economic, social and environmental conditions are considered during the selection of criteria and indicators.

Most of the methodologies analyzed focus solely on sustainability criteria, although some also include project eligibility criteria. While not necessarily designed as such, all the methodologies address the three pillars mentioned above. The major differences between the methodologies are seen in the actual criteria that are used. For example, all the methodologies include improvements in local air and water quality, as well as reductions in greenhouse gas emissions as environmental indicators. Only the CICERO criteria, however, uses a project’s impacts on noise levels as an indicator to measure environmental impacts¹¹. While noise level is unlikely to be a significant factor in most rural projects, noise produced by projects located within an urban area could negatively affect the well being of those living in its vicinity. This underscores an important point, namely that there is a limit to the usefulness of comparing the specific indicators in general criteria. The actual details of a project will determine the indicators that are best suited for measuring its sustainability.

A more important aspect of the methodologies is the method by which the various indicator scores are combined into an aggregate score. Most of the methodologies studied seemed to weigh the different areas¹² equally, and a composite score was determined simply by adding the separate indicator scores. An exception to this method is found in the methodologies developed by Susac and the Multi-Attributive Assessment of CDM (MATA-CDM) developed by the Swiss Federal Institute of Technology¹³. Here, the indicators are divided into the three pillars. The subtotals for the indicators in each of the sub-parts are added and then multiplied by a predetermined percentage to arrive at an aggregate score. The weighting for each of the three pillars is determined by the host country, following the logic that each nation is best suited to determine what factors are most important for local sustainable development.

2.3 Prospects and Issues

The Clean Development Mechanism has great potential for reducing the abatement costs for Annex I countries and helping developing countries “leapfrog” to a cleaner energy infrastructure. However, before any of this can be achieved there are a number of issues

¹¹ Kolshus, 2001

¹² Usually, but not always, economic, social and environmental

¹³ Sutter, 2003

that must be addressed. Lack of resources and institutional capacity for handling CDM projects could hamper a country's ability to participate in CDM opportunities successfully. Skepticism about the mechanism and fears of becoming dependent on Annex-I nations for their energy infrastructure might lead nations to provide less than optimal support to national institutions for monitoring projects.

Another significant obstacle could be the transaction costs for projects. The regime set-up by the Kyoto Protocol, while thorough, is complex and adds significant transaction costs to projects. As the mechanism is in its first years, and countries are beginning to develop the capacity and knowledge for processing and evaluating projects, transaction costs could be high. The actual process for evaluating projects and the sustainability criteria could significantly increase transaction costs. How streamlined is the approval process? Does the DNA have the capacity for assessing projects, or are these referred to outside bodies? How independent is the DNA? Does it have the authority to approve projects or must they be evaluated by other governmental or private agencies? All of these factors have the potential to drive up transaction costs and make investment in projects less likely. Likewise, more stringent project criteria will drive up transaction costs, and push investors elsewhere (thus the concern over a downward spiraling of criteria). Additionally, as was mentioned earlier, the measuring of indicators can be a costly operation. The more criteria used to assess the sustainability of a project, the higher the transaction costs will be (as each criterion is likely paired with at least one indicator). When developing their assessment methodologies, countries must take this into consideration, especially since, depending on how the methodology functions, a higher number of criteria will not necessarily lead to more stringent standards. This is because with more criteria, there is a greater chance for offsets. That is, a high negative score in one particular criterion can be offset by many small positive scores in other criteria. If developed properly, however, the criteria can serve as a useful tool for limiting the risks involved with the projects.¹⁴

¹⁴ Thorne, 2002

3 Country Survey & Criteria Overview

3.1 Introduction

3.1.1 Purpose

As part of this study, a survey was conducted. The purpose was to gain a global perspective of the progress countries had made with regard to sustainable development criteria used in the Kyoto Protocol's Clean Development Mechanism (CDM). The information gathered from the survey sought to specifically understand if countries had developed institutional capacity for implementing the Clean Development Mechanism, such as a Designated National Authority (DNA). It was also important to explore whether a country had any other institutional capacities either in the form of an interim DNA or some other body responsible for approving sustainable development projects, even if a country did not have an established DNA. In addition to surveying countries for the presence of institutional structures, another goal of the survey was to find whether countries developed or used sustainability criteria as a guide in the approval process of CDM projects.

3.1.2 Who Was Surveyed?

First, in order to understand which countries were making progress with regard to the Clean Development Mechanism, we sought to find out whether a country had established a Designated National Authority (DNA). A designated national authority would be the authority, whether public or private in a Non-Annex I country, which ensures projects meet the sustainability criteria set forth in the Clean Development Mechanism of the Kyoto Protocol. Finding out which countries had an established DNA or an interim DNA would help us understand which countries around the world had made the most progress, which was at intermediary steps, and which were slowest in developing institutional structures for approving Sustainable Development projects.

Next, our survey was designed to find out what standards or Sustainability Criteria were used by countries in the project approval process with regard to the CDM. We wanted a global perspective not only of how far countries had gone in establishing institutional structures, but how far countries had gone in establishing sustainable development criteria in approving CDM projects. The potential success of the CDM depends on the establishment of institutional structures for approving projects and the criteria or standards used to measure the sustainability according to the CDM of the Kyoto Protocol. The countries were asked the following questions:

- 1) Has your country established a Designated National Authority (DNA)?
- 2) If yes, under what agency has it been designated?
- 3) Do you have a set of Sustainable Development criteria established? If so, what are the criteria?
- 4) Has your country discussed and/or began any CDM projects? If so, what types of projects?

3.2 Survey Data Analysis

3.2.1 Response Rate

We sent the survey to 150 Non-Annex I countries by e-mail and also called some of these countries by phone. Twenty-seven countries responded to our survey which represents a response rate of 17.88% (Please find the complete list in Appendix B.3). However, two of the responses were invalid due to lack of information. Vanuatu and Fiji responded to our survey e-mails, however did not answer the survey questions.¹⁵ The invalid responses were not included in this analysis, with the exception of the geographic regions section. In this data analysis, we also examined the data provided by the case study section. Out of the seven case study countries, only India actually responded to our survey. Data from the other six countries - China, Brazil, Egypt, Kazakhstan, the Philippines, and Uganda - were incorporated into the data analysis; however, they are not recorded in the response rate.

3.2.2 Geographic Distribution of Responses

Table 3-1 demonstrates the geographic regions of countries responding. The data indicates Latin American and African countries have the best response rate. Overall, Latin American countries responded the fastest compare to the different regions. Colombia set up a committee just to answer the survey questions, which reflects their dedication to CDM studies.

Table 3-1 - Countries responding to survey categorized by regions

<i>Regions</i>	<i>Country Names</i>			<i># of Countries</i>	<i>Percentage</i>
Latin America	Argentina Colombia Bolivia Belize	Uruguay Dominican Republic Guatemala	Jamaica Brazil Nicaragua	10	30.3%
Africa	Djibouti Zambia Mali	Zimbabwe Madagascar	Liberia Uganda	7	21.2%
Asia	Bhutan Cambodia India	Maldives Malaysia	Philippines China	7	21.2%
Pacific Islands	Vanuatu Samoa	Cook Islands	Fiji	4	12.1%
Europe	Albania	Rep. of Macedonia	Kazakhstan	3	9.1%
Middle East	Bahrain	Egypt		2	6.1%
Total				33	100%

¹⁵ Marshall Islands also responded to our survey, but with no concrete information. Moldova, Morocco and Seychelles responded with concrete information, but the analysis had already been performed.

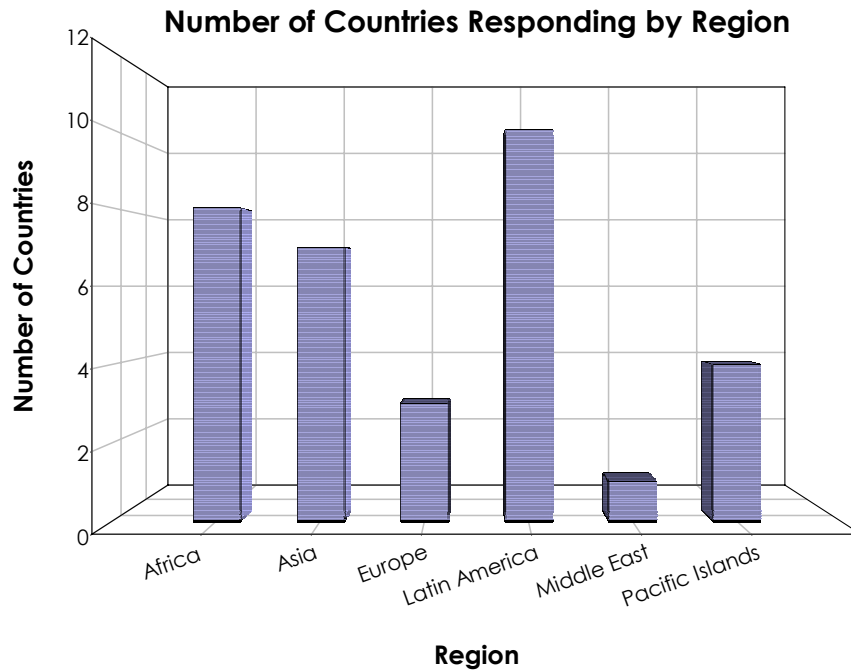


Figure 3-1 - Countries responding, by region

Historically, island countries and countries with large amount of coastal areas appear to be more concerned about climate change issues due to the threats of rising sea levels. Therefore, in this data analysis we investigated if there was an effect related to the land mass of the surveyed countries. The land mass of these countries can be divided into three categories: island states, states with significant amounts of coastal area, and landlocked states. Table 3-2 demonstrates that the majority, or 75.75%, of examined countries have large coastal areas or are considered to be islands.

Table 3-2 - Responding countries categorized by geography

<i>Land Mass</i>	<i>Country Names</i>			<i># of Countries</i>	<i>Percentage</i>
Costal States	Argentina Djibouti India Albania Cambodia	Uruguay Colombia Guatemala Nicaragua Liberia	Belize Malaysia China Egypt	14	42.42%
Island States	Vanuatu Fiji Malaysia* Philippines	Dominican Republic Maldives Madagascar Cook Islands	Bahrain Jamaica Samoa	11	33.33%
Land locked States	Bhutan Zambia Uganda	Rep. of Macedonia Bolivia Kazakhstan	Zimbabwe Mali	8	24.24%
Total				33	100.00%

* we categorized Malaysia as an island state due to the nature of its East Islands; however Malaysia also includes inland costal areas in the western part of the country.

3.2.3 Findings of Designated National Authority

Table 3-3 shows that the majority of countries have not officially established DNAs in their countries. Even if we combine the countries with official and interim DNAs, the number of countries without a DNA is still 3.23% higher than the combination of both. Out of the fifteen countries answering “No” to DNA establishment, three countries stated they are in process of establishing one. The majority of countries with DNAs are located in Latin America, followed by Asia and then Africa. Although African countries had a high response rate in replying to our survey and indicated high interests in CDM studies, their DNA establishment process fell behind Asian countries. This indicates that African countries are interested in potential CDM projects, but lack of capacity prevents progress. For example, Zimbabwe and Liberia have received assistance from the World Bank and UNEP respectively, but there has still been no DNA established as of yet. Although fifteen countries have not yet established official DNAs, some progress has been made towards CDM issues. For example, the Republic of Macedonia has initiated procedure for the ratification of Kyoto Protocol and is currently seeking assistance in establishing a DNA.

Table 3-3 - Summary table of DNA existence in responding countries

<i>Have DNA?</i>	<i>Regions</i>	<i>Country Names</i>			<i># of Countries</i>	<i>Percentage</i>
Yes	Latin America	Argentina ^e Colombia ^e Nicaragua ^e	Uruguay ^e Bolivia ^{SD} Guatemala ^e	Brazil ^{E/Sci}	13	41.94%
	Africa	Madagascar ^e	Mali ^e			
	Asia	China ^{E/Sci} India ^e	Malaysia ^e	Bhutan ^{SD}		
No	Latin America	Uruguay	Dominican Republic	Belize*	15	48.39%
	Africa	Zimbabwe* ^E Uganda	Djibouti	Liberia		
	Asia	Maldives				
	Pacific Islands	Samoa	Cook Islands			
	Europe	Albania	Kazakhstan			
	Middle East	Bahrain	Rep. of Macedonia**	Egypt* ^E		
Interim		Jamaica	Cambodia	Philippines* E/Sci	3	9.68%
Total					31	100.00%

^e Country that has established DNA in the Ministry of the Environment and Natural Resources.

*^E Country that is in process of establishing DNA in the Ministry of the Environment.

** Country is seeking foreign assistance.

^{SD} DNA is held at Ministry of Sustainable Development.

^{E/Sci} DNA is co-host by Ministry of the Environment and Ministry of Science and Technology.

Countries in DNA “Yes” section and without specification of nature of DNA “Yes” meaning DNA is hosted by Ministry of the Environment and Natural Resources.

The nature and location of the Designated National Authority is likely to influence both the scope of the sustainability criteria and types of projects selected. Table 3-3 above demonstrates the nature of DNAs in responding countries. Within the thirteen countries which have already established DNAs, nine countries host their DNA offices in the Ministry of the Environment and Natural Resources while two countries have their DNAs within the Ministry of Sustainable Development. Two of the largest developing countries in the world, China and Brazil have hosted their DNAs in a combination of the Ministry of the Environment and the Ministry of Science and Technology. Although a DNA is housed in one or a combination of ministries, the survey answers indicated that countries encourage interagency involvement in CDM issues. Finally, the same results of hosting DNA in the Ministry of the Environment appear in the countries which are in the process of establishing DNAs and have interim DNAs. Nevertheless, the Philippines is the only country with an Interim DNA that is intending to host their official DNA with the Ministry of the Environment and the Ministry of Science and Technology.

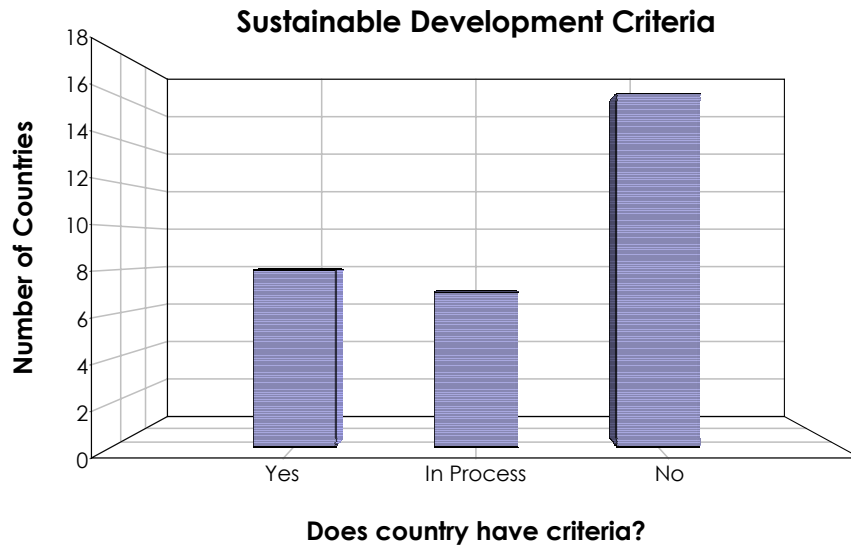


Figure 3-2 - Status of criteria development in responding countries

3.2.4 Findings on Sustainable Development Criteria

Countries responded to the question regarding the existence of sustainability criteria for projects by answering “yes,” “no” or “in process.” This third response includes countries that have preliminary or draft SD criteria for projects. Figure 3-2 indicates that the majority of examined countries do not have clear SD criteria established. Nevertheless, out of the 16 countries that have no SD criteria, five of them have established DNAs in their countries. These countries are Argentina, Colombia, Madagascar, Mali, and Malaysia.

3.2.5 Findings of Discussed or Begun CDM Projects

This section primarily examines the progress among responding countries in developing CDM projects. According to table 3-4, fourteen countries have identified CDM projects at different levels. Project development ranges from pilot projects, potential and

proposed projects, pending projects, to approved projects. Also, there is a wide range of project types including renewable energy, afforestation, reforestation, and energy efficiency improvements. Out of all of these projects, only Jamaica has reported a CDM windmill project in the implementation phase. Although Jamaica has not established an official DNA and the project has not been approved by the executive board, Jamaica has begun this CDM project. In Zimbabwe, a min-hydro power project was forced to terminate in the implementation phrase due to withdrawal funding of the E7 donors. Most of these projects fall into the renewable and energy sector, with only one sector involving transportation. Interestingly, Malaysia as a non-Annex I country has not discussed any CDM projects as a host country, but has proposed a CDM project in China as an investor country.

Table 3-4 - Project development in responding countries

<i>Country Names</i>	<i># of Projects</i>	<i>Project Types</i>	<i>DNA</i>	<i>SD Criteria</i>
Bhutan	2 pilot projects	Hydro/Afforestation	Yes	Yes
Djibouti*	Began studies	geothermal energy public transportation	No	No
Zimbabwe	1 proposed project	Min-hydro	No	No
India*	6 approved projects		Yes	Yes
Maldives*	1 pilot project	Renewable energy	No	No
Nicaragua*	1 approved 2 pending	Biogas/geothermal Hydro & wind	Yes	Yes
Cambodia*	pilot projects		Interim	No
Madagascar*	discussed 1 project	Afforestation	Yes	No
Mali	1 proposed project	Hydro power	Yes	No
Belize*	discussed 2 projects	Energy, reforestation	No	No
Jamaica*	began 1 project	Windmill	Interim	No
Brazil*	50-70 proposed pro.		Yes	Yes
China*	1 approved 1 pending	Renewable energy Energy efficiency	Yes	Yes
Kazakhstan	2 potential projects		No	No

*Country with Costal areas and Island Countries

Table 3-4 also points out the fact that ten of the fourteen countries with CDM projects either being discussed or just beginning are countries with large costal areas and island countries.

When a comparison was made between CDM projects and DNA establishment, we found that five of these countries which have discussed and began CDM projects were without DNAs. Jamaica, the only country with an implemented CDM project has only an interim DNA and is in the process of establishing an official one. Also, a comparison was made between CDM projects and SD criteria establishment. Nine countries of the fourteen with CDM projects have no SD criteria. A number of countries, it seems, are encouraging the development of projects before a method for approval has been established.

3.2.6 *Conclusions*

The survey's low response rate makes it difficult to draw definite conclusions. Nevertheless, many interesting elements in developing CDM projects were discovered.

The response rate in this survey analysis indicates that:

- Latin America has the most interest in CDM studies. It is followed by African and Asian countries.
- The majority of the respondents were island countries and countries with large coastal areas.

The findings related to the Designated National Authority indicate that:

- Latin American countries are by far the most active in DNA establishment
- Most of the established DNAs are hosted in the Ministry of the Environment and Natural Resources
- Most of the African countries which responded do not have official DNAs.

The findings on sustainable development (SD) criteria indicate that:

- The majority of responding countries do not have clear SD criteria
- Some of the countries have established DNAs, but have no SD criteria
- Some of the countries have clear SD criteria, but no DNA establishments.

The findings related to CDM projects suggest that:

- Asian countries have the most CDM projects in progress
- Coastal countries and island countries are more likely to begin progress on CDM projects
- Most of the projects are in the renewable energy sector.

The survey analysis concludes that it is possible for countries to begin the CDM process for potential projects without DNA establishment. On the same token, not all of the countries with DNAs have SD criteria in their development strategy. This data analysis demonstrates that there is no particular sequence leading to CDM projects, a country can establish a DNA, SD criteria, and discuss or begin projects simultaneously.

4 Country Case Studies:

To better understand sustainable development issues as they relate to the CDM process, seven countries were selected for in-depth research. The research process involved a review of published information on each country's progress as it relates to CDM followed with specific inquiries (both by email and phone interviews) to people working in the country's DNA or other relevant institutions such as participating NGOs and the United Nation's Collaborating Center on Energy and the Environment (UCCEE). For each country, a summary was created detailing the results of the above process. These summaries, which can be found in Appendix C.1, served as the basis for the following analysis. Citations are included in the country summaries found in the appendix.

The following is an outline of the section parts, as mentioned above:

- 4.1: Country Selection Process
- 4.2: Summary of Country Findings
- 4.3: Designated National Authority (DNA)
- 4.4: Sustainable Development Criteria for CDM projects
- 4.5: Projects Proposed and Approved for CDM
- 4.6: CDM Criteria and National Sustainable Development Strategy (NSDS)
- 4.7: The Influence of Country Specific Characteristics on CDM process
- 4.8: Impact of the US Withdrawal from Kyoto Protocol on CDM process
- 4.9: Conclusions

Structure of this section:

Sections 4.1 and 4.2 of this section provide an explanation of how the seven countries were selected as well as an overview of the major findings for each country.

Sections 4.3-4.5 focus on comparing and contrasting countries' progress on CDM along three major levels: DNA, sustainable development (SD) criteria for CDM projects, and projects proposed and approved. Note that this structure closely follows the actual approval process for CDM projects in which the DNA plays a key role in establishing the sustainable development criteria, which then play a key role in determining which projects are approved for CDM consideration.

Sections 4.6-4.8 identify three important issues that emerged from our analysis: the relationship between countries' National Sustainable Development Strategy (NSDS) and SD criteria, the influence of country specific characteristics on CDM process, and the impact of the United States' withdrawal from the Kyoto Protocol on CDM processes.

Section 4.9 offers a set of conclusions.

4.1 Country Selection Process:

Since the case studies are designed to shed light on key issues relating to the CDM process, it was important to select a sample that would capture and represent a high degree of variation in country characteristics and still incorporate some of the most important countries in the context of potential emissions reductions. The sample size was intentionally limited to seven countries in order to allow for an in-depth analysis.

Countries chosen for case study:

- China
- India
- Brazil
- Philippines
- Egypt
- Kazakhstan
- Uganda

Principles used in selecting the countries:

Cases Should:

- A. Represent various stages of economic development
- B. Represent different geographic regions
- C. Represent different stages of development in the CDM process
- D. Include the countries with large GHG emissions
- E. Represent differences in natural capital (e.g. biological diversity)

A. Represent various stages of economic development:

Since the CDM is intended to help non-Annex I countries participate in addressing the problem of global warming while developing sustainably, our sample focused less-developed countries. For this reason, relatively rich non-Annex I countries such as Israel or Singapore (as measured by GDP/capita) are not included here. However, the sample does represent various sizes and stages of economic development. Brazil, for example, considered a “middle income” country, represents the relatively rich non-Annex I countries, while Uganda, a “least developed” country, represents the relatively poorer countries. Within this spectrum of economies, are the rest of the countries, which represent varying stages of development as well as different economic sizes and structures. Figure 4-1 shows the range of gross domestic products of our case study countries.

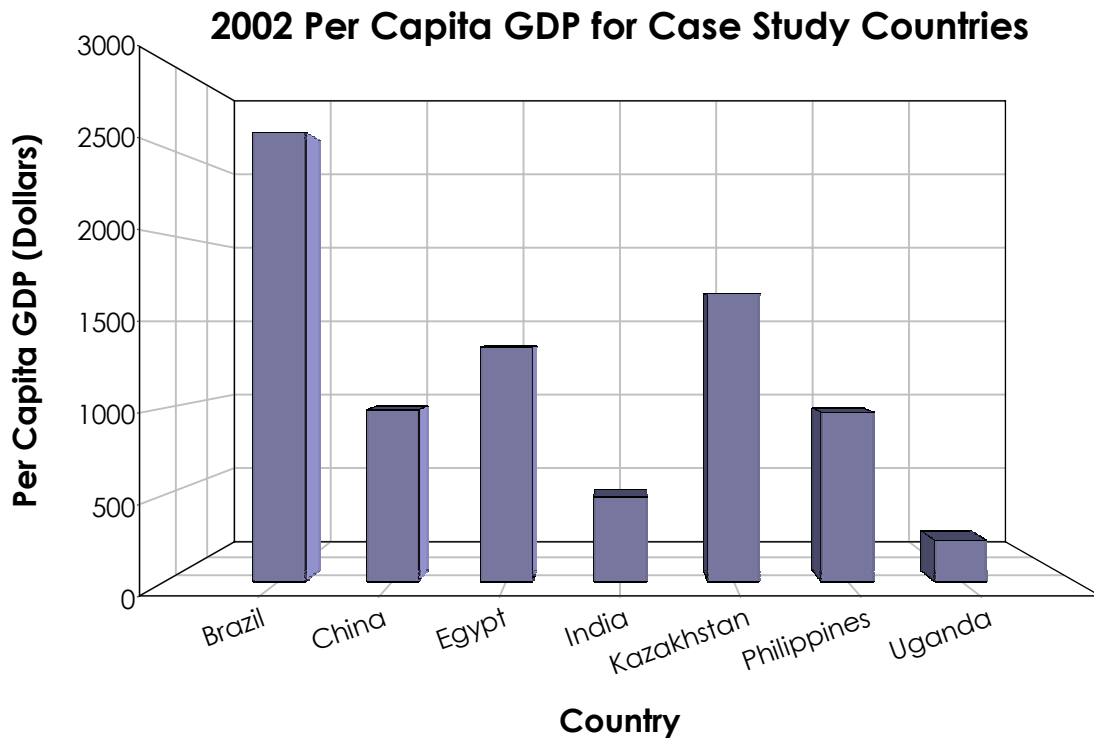


Figure 4-1 - GDP per capita for countries

Source: World Bank's WDI database.

B. Represent different geographic regions:

Countries were selected to represent the major geographic regions of the world where most host CDM countries are located – Asia (Central Asia, South East Asia, and South Asia), Africa, South America, and the Middle East. It is important to note that this geographic variation also captures to some degree, the cultural variation across our sample countries.

C. Represent different stages of development in the CDM process:

The sample selection was sensitive to include countries that are in different stages of the CDM process as this relates to the DNA, the SD criteria, and the CDM projects. We have chosen some countries that are far along the implementation process, such as China, India, and Brazil, as well as countries that are further behind such as Kazakhstan. Special focus was given to selecting countries that are being aided by UNDP's "Capacity Development for CDM" (CD4CDM) – Uganda, the Philippines, and Egypt.

D. Include the countries with significant GHG emissions:

Since one of the goals of CDM is to reduce GHG emissions, this sample deemed it necessary to include the countries that account for a large portion of global GHG emissions. It is also likely that the countries accounting for the highest emissions, such

as China and India, will have a large impact on the future structure and efficacy of the CDM. China, in particular is likely to play a key role, as its GHG emissions are about half of the US level, representing about 10% of global emissions. Figure 4-2 shows the range of GHG emissions across the case study countries.

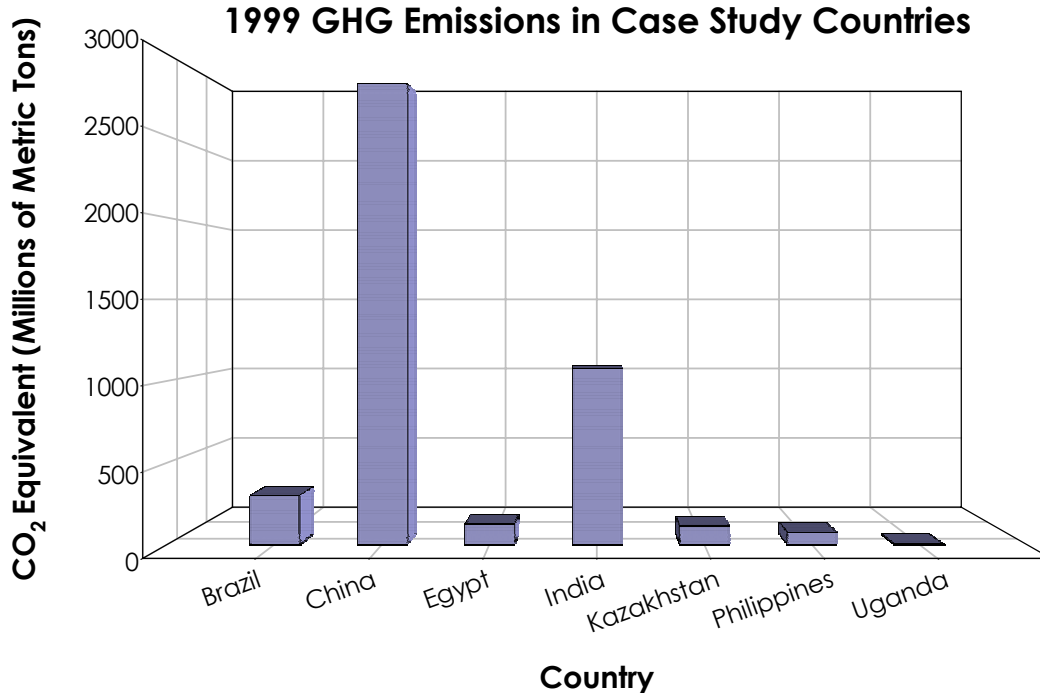


Figure 4-2 - Total greenhouse gas emissions for case study countries

Source: World Bank's WDI database.

E. Represent differences in natural capital:

Our sample includes countries with varying degrees of natural wealth. This is an important point, as this environmental factor could influence a country's sustainable development approach, as well as the degree of commitment to the CDM process. Brazil, India and China, for example, represent "megadiversity" countries which harbor a large percentage of the world's flora and fauna species, while the Philippines and Uganda are "hotspots" for highly endangered endemic biodiversity. Kazakhstan and Egypt, in comparison, have relatively less biodiversity.

4.2 Summary of Country Findings

Table 4-1 summarizes the findings for the seven countries chosen for this section using the following criteria¹⁶:

DNA – Is there an established DNA in the country?

Criteria – Are there sustainable development criteria for CDM in place?

¹⁶ The detailed reports for each country are in Appendix C.1: Country Summaries.

Projects – How many projects have been proposed/approved?

Table 4-1 - Summary of institutional framework and projects

<i>Country Name</i>	<i>DNA</i>	<i>SD Criteria</i>	<i>No. of Projects</i>
China	yes	Yes	19
India	yes	Yes	22/17
Brazil	yes	yes	20*
Philippines	no	no	8
Egypt	no	no	2
Kazakhstan	no	no	2
Uganda	no	no	6

* Brazil has 70 CDM projects, with 20 considered “well developed” projects.

Table 4-1 above summarizes which countries have established DNAs, clear sustainable development criteria, and the number of CDM projects per country. Note that the absence of either a DNA or sustainable development criteria for CDM did not necessarily preclude CDM activities or projects from occurring on the ground. While countries with more advanced institutional frameworks (Brazil, China, and India) certainly have more projects, countries that do not have the institutional framework yet in place, nevertheless also have proposed projects and are pursuing CDM activities to catch up. Clearly, DNAs and criteria are required for project approval and implementation. However, much can also be done in project development and capacity building independent of DNAs and criteria.

4.3 Designated National Authority (DNA)

Existence of an official DNA plays a crucial role in the selection and approval of CDM projects. Basically, without an officially established DNA, no CDM projects can be approved and implemented at an official level. Three out of seven of our case study countries have an official DNA. The rest are in the process of establishing official DNAs.

4.3.1 Countries with an Officially Established DNA

Three countries in our case studies have official DNAs in place. These are also the main players on the international global climate change arena – Brazil, China and India.

A. Structure of DNA

Brazil established its DNA, the Inter-Ministerial Commission for Global Climate Change in 1999. The Chairman of the DNA is chosen from the Ministry of Science and Technology and the vice-chair is from the Ministry of Environment. The Executive Secretariat of the Commission is under the responsibility of the Ministry of Science and Technology. The DNA includes other ministries as well.

In China, DNA is represented by the State Development Planning Commission (SDPC). This is a federal agency formed by the Ministry of the Environment and the Ministry of Science and Technology and fully funded by the Central Chinese government.

India has the Designated Nodal Agency (DNA) headed by the Secretary of Ministry of Environment and Forest. The DNA also consists of the secretaries from six line ministries mainly the Ministry of External Affairs, Power, Science and Technology.

B. Function of the DNA

The process of the project approval for Brazil requires submission of all relevant information to the DNA which issues a final decision on the approval of project activities. The DNA in China, the State Development Planning Commission (SDPC) seems to deal mostly with the domestic issues on climate change regulations while the international climate change treaty negotiations are conducted by the Ministry of Foreign Affairs. The SDPC's responsibilities include drawing up any additional eligibility requirements for CDM projects in China. The SDPC also will be the official agency to grant the required "national approval" letter, which certifies that proposed projects promote sustainable development.¹⁷ In India, the DNA is also the last stage where the projects get their final approval or rejection. Before the CDM projects come to the DNA, they are required to obtain various approvals from the local bodies such as the Pollution Control Board, village bodies, and others. Some projects may be referred to any line ministries for specific technical approval.

The function of the DNA is similar across these three countries in that the final approval for CDM projects is given (or not) by the DNA.

4.3.2 Countries without an Officially Established DNA

The other four countries considered here – the Philippines, Uganda, Egypt and Kazakhstan, are in the process of establishing their DNAs. In general, they all tend to include representatives from various Ministries in their proposed DNA structures. However, the placement of the DNA offices varies depending on the histories, priorities and preferences of each country.

Philippines

The proposed DNA in the Philippines is the Inter-Agency Committee on Climate Change (IACCC). The IACCC was created in 1991 by Presidential Order 220 to coordinate the Philippines' climate-change related activities and has become the interim DNA. The IACCC is co-chaired by the Department of Environment and Natural Resources (DENR) and the Department of Science and Technology (DOST). The Environmental Management Bureau of the DENR serves as the secretariat for the IACCC. Other ministries are also included as members and expansion to include the private sector is being considered. The IACC is slated to become the official DNA by the end of 2004.

¹⁷ People Daily, 2003.

Uganda

The final DNA for Uganda is expected to be housed in the Department of Meteorology, in the Ministry of Natural Resources and will be assisted by other ministries, such as the Ministry of Energy and Mineral Development.

Egypt

The DNA for CDM in Egypt is composed of the Egyptian Council for CDM (EC-CDM) and the Egyptian Bureau for CDM (EB-CDM), which is the permanent secretariat of the Egyptian Council operating at the Climate Change Unit and the EEAA-Ministry of State for Environmental Affairs. Both the proposed DNA and the Climate Change Unit are housed within the Ministry of Environment.

Kazakhstan

Kazakhstan has established the Interdepartmental Coordination Center on Global Climate Change Issues in 2000. This agency is the prototype DNA where experts from various ministries and institutions work together. These institutions include: the Ministry of Power and Mineral Resources, the Ministry of Economy and Budget Planning, and the Ministry of Environmental Protection. The Department of Sustainable Development, which will play a role as well, is likely to be established within the Ministry of Environmental Protection.

4.3.3 Cross country comparisons

All of the existing and proposed DNAs in our study are public sector organizations. These DNAs are typically responsible for establishing sustainable development criteria and making the final decisions on CDM project evaluation and approval. DNAs in the countries studied tend to be situated within the Ministry of Environment and Natural Resources (China, India, Philippines, Egypt, Uganda and Kazakhstan), or the Ministry of Science and Technology (Brazil). Appendix C.2 lists the location of these DNAs within the host country's governmental institutions. It is difficult to say whether the location of the DNA at the Ministry of Environment has or will have a crucial impact on CDM policy. Many countries were observed to emphasize technology transfer and energy issues, which necessitates the heavy involvement of the Ministries of Energy and/or Science and Technology as well as many other relevant ministries.

4.4 Sustainable Development Criteria for CDM Projects

This section examines the sustainable development criteria for CDM projects among the countries chosen in this case study. Three out of the seven countries (Brazil, China, and India) have established well-defined criteria for CDM projects. The other four countries (Egypt, Kazakhstan, Philippines, and Uganda) either do not have criteria, or are at varying stages of criteria development.

4.4.1 Analysis of Countries with Criteria

Of the seven countries, only Brazil, China and India have established SD criteria. These three countries are the largest countries included in this analysis in terms of population size, CO₂ emissions and surface area. By taking these criteria and categorizing them by the three pillars of sustainable development—economic, social and environment (Figure 4-3), it appears that criteria related to economic development are being emphasized over social and environmental criteria. It should be noted, however, that this picture is meant to give an overview of what criteria have been established in Brazil, China and India and that it comes from a very cursory analysis; none of the criteria had weights and deeper analysis may show that some criteria are more important than others, regardless of total numbers.

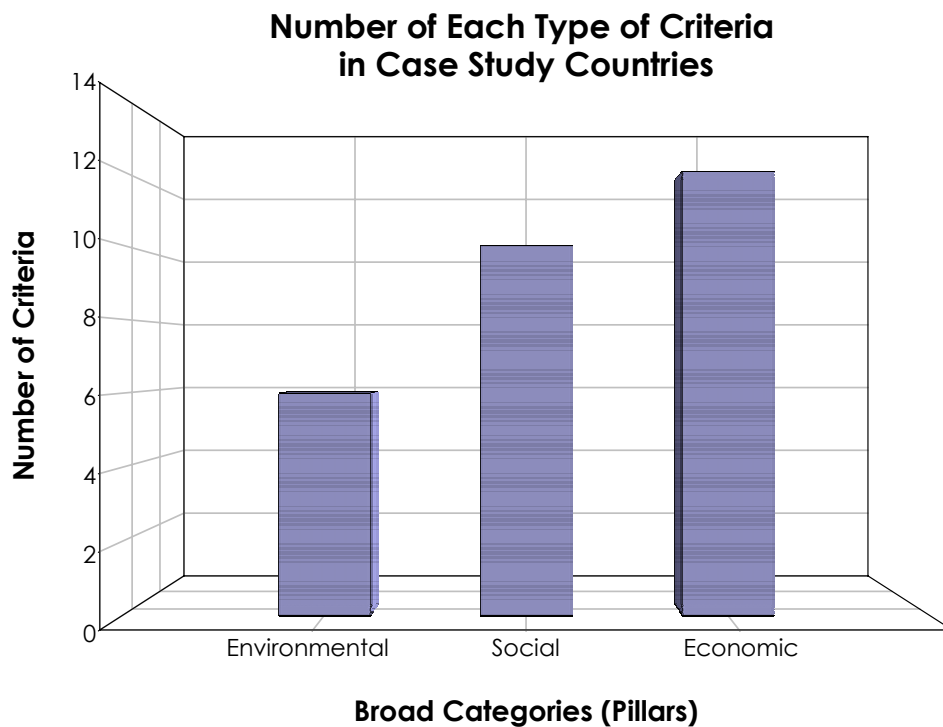


Figure 4-3 - CDM project criteria categorized by the 3 pillars of sustainable development - environment, social, and economic.

4.4.2 Countries' Sustainable Development Criteria for CDM Projects:

The following sections provide more resolution into what the country criteria are in countries that have established them (Brazil, China and India) as well as in those that are currently in the process of developing criteria (Philippines, Egypt, Uganda, Kazakhstan).

Brazil

Brazil has developed clear Sustainable Development criteria for CDM project approval (as outlined in Annex III of Resolution #1, dated September 11, 2003). All CDM project

proponents must state how the project activity will contribute to sustainable development in the following categories:

Economic

- Net job creation and working conditions
- Distribution of income
- Regional integration and linkages with other sectors

Environmental

- Local environmental sustainability

Social

- Training and technological development.

China

Under the National Sustainable Development Strategy called *Program of Action for Sustainable Development*, China has established sustainable development criteria for CDM projects. China's SD criteria are a set of human-centered guidelines in hopes of reaching harmony between man and nature.

Social

- Quality of life improvement and income distribution
- Poverty relief
- Level of energy supply increases to urban and rural areas
- Predictability to local communities
- Minimize risk, negative socio-economic, environmental impacts, financial viability
- Need to be first approved by the state or local levels concerning social issues

Environmental

- Levels of CO₂ reduction in local area
- Project should bring about GHGs emission reduction benefit
- Improve air quality in China
- Increase efficiency in utilization of resources

Economic

- Create jobs and economic benefits
- Increase development in western China
- Increase foreign exchange.

India

India has clear Sustainable Development criteria for CDM project approval. The CDM criteria were mainly drawn from the existing criteria used by the government in approving projects across the country. The CDM project should be oriented towards improving the quality of life of the very poor from the environmental standpoint. The criteria can be grouped into following categories¹⁸:

¹⁸ World Bank, 2003

Economic

- Foreign exchange
- Economically attractive
- Location
- Project promoter's capacity
- Priority sectors

Social

- Social relevance
- Capacity enhancement
- Technology friendly

Environmental

- Environmentally benign.

The remaining four out of the seven countries selected for this analysis, Egypt, Kazakhstan, Philippines and Uganda, currently do not have clearly defined criteria for CDM projects. The Philippines, Egypt and Uganda are currently in the process of developing criteria, whereas Kazakhstan is at the preliminary stage of determining which agency will be responsible for CDM activity.

Egypt

Egypt is still in the planning stages of deciding how and who will deal with CDM issues, therefore there is no clear set of sustainable development (SD) criteria through which they can evaluate CDM projects. This is scheduled to take place either this or next year.

Kazakhstan

As a newly independent state, Kazakhstan is currently working on establishing a legislative basis, including the establishment of an agency responsible for sustainable development. There are certain priorities being established by the framework of Agenda 21-Kazakhstan, which will become a basis for the future SD/CDM projects criteria.

Philippines

The Philippines is currently in the process of developing sustainable development criteria for CDM project eligibility based on its existing NSDS, Philippines Agenda 21.¹⁹ While these criteria are being finalized for CDM projects by the interim DNA, the Philippines is guided by the following positions on CDM activities²⁰:

- Equity should be a basic criterion for CDM projects
- Development should not be compromised in any way
- Projects should contribute to real, measurable and long-term emission reductions, at the same time fulfilling the host countries' national sustainable development priorities

¹⁹ Goco, Joyceline. Head of the Inter-Agency Committee on Climate Change. Personal Communications.

²⁰ Herrera

- Projects should lead to a real transfer of technology
- Carbon sinks are excluded as projects for CDM.

Uganda

Uganda has developed a preliminary list of criteria that include the following five categories:

- Climate change mitigation (environmental) - project should lead to improved energy use or more environmental cover
- Improvement of incomes - especially for the very poor
- Improved quality of life – such as health, literacy, and access to drinking water.
- Food security- project should increase food production
- Regional balance- development should focus on areas with poverty.

4.4.3 Cross Country Comparison

Grouping CDM criteria into three pillars (Economic, Social, and Environmental) based on the primary objective of the criteria provides insight into national priorities and concerns. This analysis suggests that national economic development is the primary goal of the majority of the criteria developed for CDM projects by the countries included in this case study. Social well-being and environmental sustainability respectively follow economic development as the primary emphasis of CDM criteria. The larger countries, Brazil, India, and China, are markedly further advanced in the development of CDM criteria. This is likely a result of the larger bureaucratic and administrative capacities of these nations, and may indicate a requirement for additional focus on capacity development for the smaller countries. In addition, the proliferation of proposed CDM projects in these larger countries might have provided the impetus for earlier development of criteria.

While three out of the seven countries studied have developed sustainable development criteria for CDM projects, a key finding across all countries is that none have concrete indicators for measuring sustainable development with respect to CDM criteria seem to be seen by host countries as general guidelines rather than strict criteria.

4.5 CDM Projects

Proposed projects aim to meet both the environmental and financial additionality criteria of the CDM. In addition, these projects must meet the sustainable development criteria set by the host country. By definition, CDM projects reduce GHG emissions and thereby prevent further anthropogenic interference with the climate system that would not have occurred without the project. Thus, only projects that demonstrate this additionality criterion would be eligible under the CDM. Also, because of the potential revenues that can be derived from selling carbon credits, successful mitigation projects should be economically viable. The means by which GHG emissions are reduced should adopt environmentally and socially sound methods widely accepted by the community. The

Table 4-2 - Criteria found in CDM Approval Processes

<i>Pillar</i>	<i>Status of Criteria</i>	<i>Criteria</i>
Environmental	Approved	<ul style="list-style-type: none"> • Local environmental sustainability (<i>Brazil</i>) • Levels of CO₂-e reduction in local area (<i>China</i>) • Project should bring about GHGs emission reduction benefit (<i>China</i>) • Improve air quality in China (<i>China</i>) • Increase efficiency in utilization of resources (<i>China</i>) • Environmentally benign (<i>India</i>)
	Proposed	<ul style="list-style-type: none"> • Projects should contribute to real, measurable and long-term emission reductions, at the same time fulfilling the host countries' national sustainable development priorities. (<i>Philippines</i>) • Climate change mitigation (environmental) - project should lead to improved energy use or more environmental cover. (<i>Uganda</i>)
Economic	Approved	<ul style="list-style-type: none"> • Net job creation and working conditions (<i>Brazil</i>) • Distribution of income (<i>Brazil</i>) • Regional integration and linkages with other sectors (<i>Brazil</i>) • Create jobs and economic benefits (<i>China</i>) • Increase development in western China (<i>China</i>) • Increase foreign exchange (<i>China</i>) • Foreign exchange (<i>India</i>) • Economically attractive (<i>India</i>) • Location (<i>India</i>) • Project promoter's capacity (<i>India</i>) • Priority sectors (<i>India</i>)
	Proposed	<ul style="list-style-type: none"> • Development should not be compromised in any way. (<i>Philippines</i>) • Improvement of incomes - especially for the very poor. (<i>Uganda</i>)
Social	Approved	<ul style="list-style-type: none"> • Training and technological development (<i>Brazil</i>) • Quality of life improvement and income distribution (<i>China</i>) • Poverty relief (<i>China</i>) • Level of energy supply increases to urban and rural areas (<i>China</i>) • Predictability to local communities (<i>China</i>) • Minimize risk, negative socio-economic (<i>China</i>) • Need to be first approved by the state or local levels concerning social issues (<i>China</i>) • Social relevance (<i>India</i>) • Capacity enhancement (<i>India</i>) • Technology friendly (<i>India</i>)

range of project types within the countries of study shows the variety of ways by which the countries of study are aiming to achieve gains in GHG reductions and sustainable development. Specific data on CDM projects are included in Appendix C.3.

Figure 4-4 shows the number of projects that have been developed and/or approved in the selected countries. For countries with established CDM criteria in place (Brazil, China, and India), a total of 18 projects have been approved, with India accounting for the majority (94%) of all approved projects within this study group. Brazil, on the other hand, has the most numerous and diverse portfolio of proposed projects, covering all CDM project types. None, however, are approved to date. China, as well, despite having established the necessary institutional framework and criteria, has at present only one project approved (wind farm) and is currently on “hold” status.

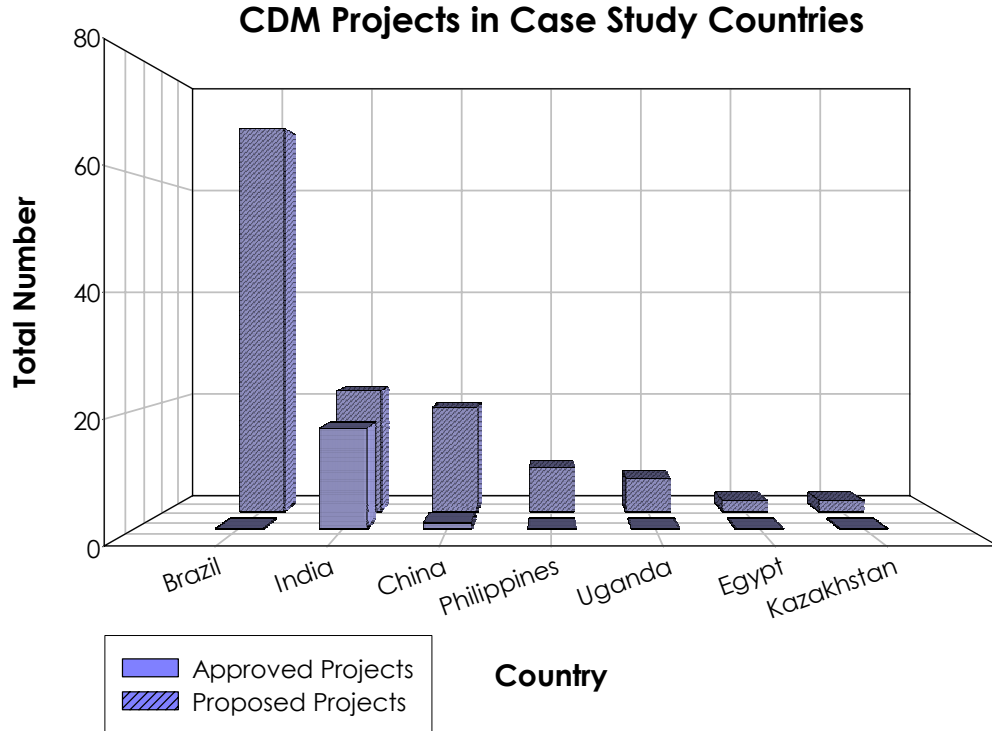


Figure 4-4 - Number of projects per country

4.5.1 Project Comparison

CDM projects are typically categorized as:

- Energy efficiency (demand and supply sides)
- Fuel-switching
- Gas capture or destruction
- Renewable energy
- Sinks and sequestration
- Large hydropower
- Transport
- Waste incineration.

The CDM projects that have been approved or are being developed vary in type and size across the selected study countries. Table 4-3 summarizes the wide range of project type, size and sector priority.

Table 4-3 - Summary of proposed and approved projects per country

<i>Country (#project proposals)</i>	<i>Project types</i>	<i>Size</i>	<i>Priority areas</i>
Brazil (70) 20 “well-developed” 0 approved	Diverse	Small to Large	Diverse
China (19) 1-approved	Renewables (wind)	Large	Energy
Egypt (2) 0 approved	Renewables	Large (120 MW)	Energy
India (22) 17-approved	Renewables, fuel-switching, energy.	Small to Very Large (7.5 -500 MW)	Energy
Kazakhstan (2) 0 approved	Energy efficiency, Gas capture	Large (500,000 tons CO2 emissions reductions)	Energy
Philippines (8) 0 approved	Renewables	Small to large (up to 100 MW)	Energy, transport agriculture, wastes
Uganda (6) 0 approved	Sinks and Sequestration	Small	Sequestration

4.5.2 Sector Preference

Most of India’s projects focus on the energy sector, as do those of other countries. Only Brazil has projects in a variety of sectors. With a projected increase in global energy demand in the near future, and because the energy sector is one of the biggest sources of CO₂, it is not surprising that there is a sharp focus on the energy sector, and in particular, on renewable energy projects, across all countries.

4.5.3 Projects Emphasis

Depending on each country’s unique development needs and priorities, different project types will be emphasized. For countries that are still developing sustainable development criteria for CDM, there is a wide range of potential CDM projects that can meet both the sustainable development and emission reduction goals of the CDM. All countries have at least one project in the energy sector. In addition, most countries tend to focus on projects that will bring the most benefit to their economic and sustainable development. There is a focus on projects that bring technology transfer, employment and foreign investment. On the other hand, some countries do not include sinks or sequestration projects as CDM projects. The Philippines, for example, considers sequestration projects within a broader land use change and forestry framework, and given the uncertainties in quantifying emissions reductions, does not see any real technological transfers or economic benefit to the country. Figure 4-5 shows that the renewable energy projects

receive the most emphasis within our selected countries. This least-cost and no-regrets investment approach makes sense given the uncertainties around the Kyoto Protocol.

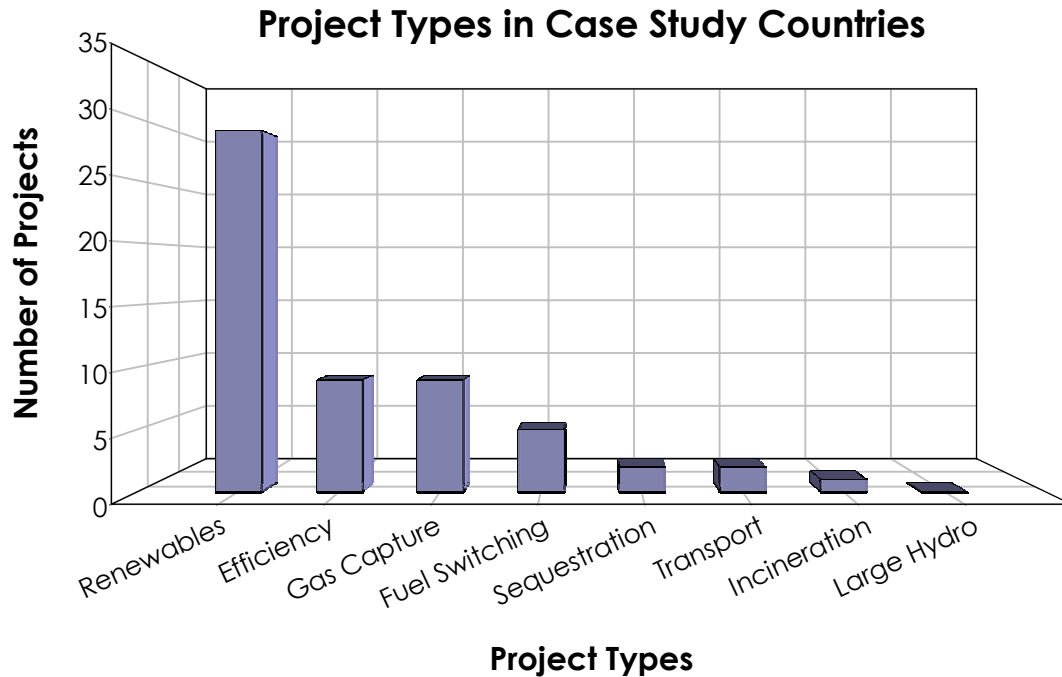


Figure 4-5 - Project types in selected countries

4.5.4 Project Size

Project size ranges from small (<15MW) to very large (>100MW). Most renewable energy projects such as geothermal power plants and wind farms typically are medium to large, while waste incineration projects are small. Project size may be affected by transaction costs and economies of scale. Investors would most likely seek larger projects that have economies of scale, while smaller projects may not seem as attractive.

Small scale renewable energy projects such as pico-hydro projects (<5 MW), for example, while having great potential to provide clean electricity to remote areas in developing countries, are too small and the transaction costs for these types of projects create a barrier for their development. Creative bundling of smaller projects may be able to make such projects more feasible in the future²¹.

4.5.5 Project development

Whether or not a country has established sustainable development criteria for CDM projects does not necessarily correlate with having more projects approved. China, for example, has only 1 project approved and is currently on hold and Brazil has none approved. India, on the other hand, has approved 17. Countries that are still developing their institutional frameworks and capacities to undertake CDM activities are nonetheless

²¹ Yap, Robert. Environmental Economist at KLIMA. Personal communications.

forging ahead and developing many project proposals. Furthermore, some countries are conducting feasibility studies and participating in multi-lateral capacity building programs funded by UNEP, UNIDO, World Bank, and Asian Development Bank, which has been facilitating progress. Also, some countries have unique approaches to evaluating CDM projects (Brazil), while others that are developing CDM specific criteria, are using their national sustainable development strategies as the acid test for eligibility. The thinking is that by applying these tests of sustainability defined under their NSDS, projects would then certainly meet the CDM criteria.

4.6 CDM Criteria and National Sustainable Development Strategy (NSDS)

4.6.1 National Sustainable Development Strategy

The National Sustainable Development Strategy (NSDS) was set up by the Special Session of the UN General Assembly in 1997. The special session set a target of 2002 for “the formulation and elaboration of national strategies for sustainable development.”²² It confirmed the approach and purpose of national sustainable development strategies as “important mechanisms for enhancing and linking national capacity so as to bring together priorities in social, economic, and environmental policies”.²³ The actual NSDS is not necessarily one document, but usually a compilation of various documents which represent the product of various initiatives. This fact served to make the analysis of NSDS influence on CDM criteria more complex. The concept should not be confused with Agenda 21, or other country policies and goals such as the Program of Action for Sustainable Development, the World Bank concept. However, many countries have derived their NSDS frameworks by adapting the strategies listed above to reflect their needs and priorities. Brazil, China, India and the Philippines, for example, all have well developed national frameworks for sustainable development.

4.6.2 The Role of the NSDS in Defining Sustainable Development CDM Criteria

The extent to which countries’ national sustainable development (NSDS) plans influenced the development of their SD criteria for CDM projects varied across the countries of study.

A. Countries in which NSDS Played a Key Role

The four countries of China, India, Kazakhstan, and the Philippines, have NSDS playing a major role in shaping their SD criteria for CDM. By adopting guidance from the NSDS, CDM criteria did not have to be reinvented or duplicate existing efforts.

A brief description of each country’s NSDS follows:

²² UN (2004)

²³ UN (2004)

China

China published its first national sustainable development strategy plan called the Program of Action for Sustainable Development in compliance with the Agenda 21 in 1992. China set its goals and challenges in balancing economic and social development, ecological conservation, environmental protection, and rational exploitation of natural resources.

India

India's sustainable development strategy is focused on removing poverty and achieving economic development without causing damage to the environment. The Program of Action for Sustainable Development Worldwide, Agenda 21, was adopted in India at Earth Summit in 1992.

Kazakhstan

The Council on Sustainable Development was created due to the concept of Ecological Safety. A Republic of Kazakhstan Government Decree "On Approval of an Action Plan for Implementation of the Concept of Ecological Safety" was issued on February 3, 1997. The development of a National Environment Action Plan for the Sustainable Development of the Republic of Kazakhstan (NEAPSD) was identified as the first phase of the country's long-term strategy (up to the year 2000).

Philippines

The Philippine Agenda (PA) 21 was adopted in 1996. PA 21 "serves as the current national action agenda for sustainable development for the 21st century." Its action agenda is founded on the "imperatives of the current national situation and the emerging landscape for sustainable development." Development of sustainable development criteria for CDM projects is being guided by PA 21 and other existing SD principles.

B. Countries in which NSDS Role was Unclear

For the remaining countries, Brazil, Egypt, and Uganda, the role of the NSDS in defining CDM criteria is less obvious.

Brazil

Brazil uses Agenda 21 framework, this aims to contribute to establish the strategic benchmark for the 21st century project, which will mobilize society and encourage participation towards the goals of sustainable development. Additionally, Brazil developed the Brazilian National Communication, which discusses the use of renewable energies, energy conservation/efficiency, and climate change.

Egypt

Egypt does not have a nationally approved sustainable development strategy. However, they have had several donors that have funded the production of studies and documents on SD such as the UNDP, and World Bank.

Uganda

Uganda does not have a NSDS. However, there are various documents, including the Government National Development Plan, which is being used in drafting preliminary criteria.

4.7 Influence of Country Specific Characteristics

4.7.1 *Two main characteristics*

This section examines how a country's specific characteristics influence CDM implementation. Three main issues are highlighted in CDM implementation:

- DNA
- Sustainable development criteria for CDM projects
- CDM projects (proposed or approved).

Two important aspects influencing CDM development are the following:

- Total GHG emissions (measured in metric tons of CO₂ equivalent), and;
- Degree of a country's economic development (measured in GDP/capita).

Total GHG emissions are important since they represent the degree to which a country can gain benefits from the CDM. Since one of the main goals of CDM is to help Annex I countries reduce their GHG emissions, it is reasonable to assume that countries with high baseline emissions will be able to attract more projects than countries with low GHG emissions. It is reasonable to assume then that for this reason, the countries that have more to gain, would also be further along the CDM implementation process. Finally, countries with low emission would perhaps emphasize taking down investment barriers in order to become more competitive, and consider sequestration projects over technology transfer projects.

The degree of economic development is important since it suggests the type of CDM investment a country would emphasize. A relatively more developed country, for instance, would emphasize general economic development over specific development targeted at poverty alleviation. Such countries would emphasize technology transfer over sequestration, and it would concentrate on sectors that are associated with a more advanced economy (such as the energy and manufacturing sectors). As for the measure used here for economic development (GDP/capita), it is important to note that it does not necessarily reflect the true level of poverty in a country. This is especially true for large countries with large populations, such as China and India.

4.7.2 *Categorizing countries by GDP/capita & GHG emissions*

For the purpose of comparison, the sample countries are divided using the two country characteristics above – total level of GHG emissions and GDP/capita. There are four possible categories in which countries can be placed:

- Group I: Above average GDP/capita and above average GHG emissions.
- Group II: Above average GDP/capita and below average GHG emissions.
- Group III: Below average GDP/capita and above average GHG emissions.
- Group IV: Below average GDP/capita and below average GHG emissions.

In this study, the above averages are calculated across almost all Non-Annex I countries (26 of which data was not available and were not included), since they represent the list of countries with the potential to implement the CDM. The figures used here are taken from the World Bank’s WDI database. 1999 data is used here, since this was the most recent year for which data was available for many countries. All data is included in Appendix C.4 of this report.

Table 4-4 - CO₂ emissions and GDP per capita for U.S. and Non-Annex I countries

	<i>GHG Emissions (million metric tons, CO₂ equivalent)</i>	<i>GDP/capita</i>
Non-Annex I Countries (Average)	60.7	2,513
United States	5,495.5	33,038

The averages across Non-Annex I countries for the two categories are presented in Table 4-4; with the US used as a reference for comparison, using 1999 data. Using the averages as “cut-off” points, the sample countries can be placed in the four groups discussed above. Note that no countries in our sample fell under Group II. However, examples of countries that would have fallen under Group II are given from outside our study sample for comparison purposes. Table 4-5 shows the characteristics of the sample countries.

4.7.3 *Country predictions based on their characteristics*

The identified countries have GDP per capita ranging from a high of US\$ 2,598 (Brazil) to a low US\$ 250 (Uganda). The sampled countries also have a high variation in terms of their CO₂ emissions ranging from a high of 2.8 billion metric tons for China to a low of 1.2 million for Uganda. Table 4-6 provides predictions relating to the DNA, SD criteria, and CDM projects based on the specific categories. This table was used to compare the country findings with our expectations.

Table 4-5 - Distribution of countries according to emissions and GDP per capita

	<i>Above Avg. Emissions</i>	<i>Below Avg. Emissions</i>
Above Avg. GDP/Cap	Group I: <i>Brazil</i>	Group II: <i>(none from study sample)</i> Examples outside this study: <i>Jamaica, Botswana, Costa Rica, Mauritius, Panama, Palau, Belize</i>
Below Avg. GDP/Cap	Group III: <i>China, Egypt, India, Kazakhstan, Philippines</i>	Group IV: <i>Uganda</i>

4.7.4 Country results

The following section will analyze the present status of countries falling under each category. We will analyze the data for three major factors which strongly influence the character of CDM implementation. These factors are DNA, sustainable development criteria and CDM project type and location. Below is the description for present status of each category:

Group I: Above average GDP/capita and above average GHG emissions.

There is only one country in our case study, Brazil, which falls under this category of above average GDP/capita and above average GHG emissions.

DNA

The composition of DNA follows the initial expectation that category one countries' DNA will include other ministries in addition to environment. A country with high GHG emissions is likely to attract both more projects and larger projects, and to do this they need to expand the DNA so that more projects can be formulated in a variety of sectors.

SD Criteria

SD criteria for CDM projects in Brazil contain a mix of economic and environmental criteria. It includes training and technological development, regional integration and linkages with other sectors, net job creation and working condition. In conforming to our expectation that relatively rich countries emphasize economic development and technology transfer over poverty alleviation and environment, Brazil does not emphasize poverty reduction.

Table 4-6 - Predictions of how countries will proceed with CDM-related activities based on their emission and GDP characteristics

	<i>Above Avg. Emissions</i>	<i>Below Avg. Emissions</i>
Above Avg. GDP/Cap	<p>GROUP I</p> <p>DNA – not located in office of environment only</p> <p>Criteria – emphasize economic development and tech. transfer over poverty alleviation.</p> <p>Projects –</p> <ol style="list-style-type: none"> 1. Focused on energy sector over sequestration. 2. Large projects. 	<p>GROUP II</p> <p>DNA – located in office of environment only</p> <p>Criteria – emphasize environment and social issues over economic development and tech. transfer.</p> <p>Projects –</p> <ol style="list-style-type: none"> 1. Focused on renewables and sequestration. 2. Small projects.
Below Avg. GDP/Cap	<p>GROUP III</p> <p>DNA – not located in office of environment only.</p> <p>Criteria –</p> <ol style="list-style-type: none"> 1. Emphasize specifically poverty alleviation in economic dev. 2. Emphasize poor regions. <p>Projects –</p> <ol style="list-style-type: none"> 1. Emphasize energy sector. 2. Emphasize barrier reduction. 3. Small and large projects. 4. Locate some projects in poor areas. 	<p>GROUP IV</p> <p>DNA – not located in office of environment only.</p> <p>Criteria –</p> <ol style="list-style-type: none"> 1. Emphasize specifically poverty alleviation in economic dev. 2. Emphasize poor regions. <p>Projects –</p> <ol style="list-style-type: none"> 1. Emphasize barrier reduction. 2. Incorporate sequestration. 3. Small projects. 4. Locate some projects in poor areas.

CDM Projects

Energy appears to be the favored sector for proposed projects in Brazil. Projects vary from renewable energy, fuel switching, gas capture or destruction. These categories of projects suggest that this category of countries focused on energy sector projects over sequestration. This is in line with the initial expectation that a comparatively more developed country like Brazil would emphasize technology transfer over sequestration and would be more biased towards the energy and transportation sector.

Group II: Above average GDP/capita and below average GHG emissions.

No countries in our study sample fell under this category. However, countries from outside the study sample are given as examples for comparison purposes. A few examples are: Jamaica, Botswana, Costa Rica, Mauritius, Panama, Palau, and Belize.

Group III: Below average GDP/capita and above average GHG emissions.

The majority of the sampled countries fall under this category of below average GDP/capita and above average GHG emissions. These countries are China, Egypt, India, Kazakhstan, and the Philippines.

DNA

Two of the five countries, namely China and India, have established their DNA. Other countries are in process of setting up their DNA. While the Ministry of Environment plays a central role in almost every country, other ministries are also important. For instance, in India, the DNA is set up in the Ministry of Environment and Forest, however secretaries from six other ministries are also included in the DNA. Any project related to a particular sector goes to that ministry for an initial approval. This also holds true for China, even though the DNA is housed in the Ministry of the Environment. Other countries, such as Philippines and Kazakhstan are also proposing a similar DNA structure which involves other ministries. This DNA structure follows the initial expectation that countries will not locate the DNA solely in the ministry of environment.

SD Criteria

Egypt, Kazakhstan, and Philippines are in the process creating SD criteria while China and India have clear SD criteria for CDM. The CDM criterion in China emphasizes poverty relief, technology transfer, small projects, and economic development in Western China. India builds on the existing criteria for approving projects in different sectors across the country. It has a mix of social, economic and environmental criteria. One of the purposes of keeping the existing set of criteria was to minimize additional delays in approval for the projects. The existing set of criteria in China and India follow our predictions that these countries will emphasize poverty alleviation and favor specific regions of the host country.

CDM Project

India has approved projects in five different sectors with emphasis on energy sector. China also emphasizes the energy sector which will potentially promote economic development in Western and Central China to relieve poverty. Both countries also prefer small projects. For instance, the first six approved CDM projects in India range between 7.5MW to 15MW. China and India were among the pioneering countries to initiate CDM process. This supports our initial expectation that countries with high emissions would be relatively more advanced in CDM implementation than countries with low emissions. These countries have also tried to minimize the barriers for CDM projects as it is clear from India's case of keeping the criteria similar to existing structure to minimize any delays in the evaluation and approval process. These countries also follow our expectation of locating projects in poor areas to alleviate poverty.

Group IV: Below average GDP/capita and below average GHG emissions.

There is only one country, Uganda, which falls under this category of below average GDP/capita and below average GHG emissions.

DNA

The DNA is still to be established in Uganda. However, it will probably be located in the Dept. of Meteorology, with significant interdepartmental interaction. This has allowed the Ministry of Energy and Mineral Development, for instance, to take a lead role in emphasizing energy related projects, with a focus on poverty alleviation.

SD Criteria

The current status of CDM process in Uganda seems to follow the expectation of focusing more on poverty alleviation, as the criteria developed are heavily inclined towards poverty reduction. Out of the 5 main criteria for SD, 4 are focused on poverty alleviation. Criteria such as food security and regional balance clearly indicate the country's priority towards poverty reduction.

CDM Project

Uganda is proposing the energy and transport sectors as the target sectors for future projects. This suggests that poverty alleviation (through the provision of energy) and economic development (through the additional investment and job creation) are the preferred pillars. Uganda's preference for these sectors is a caveat to our initial assumption that countries in this category would not favor any specific sector in order to reduce barriers to investment. While Uganda is determined to profit from CDM by focusing on high-cost projects in the energy and transport sector, there are reasons to suggest it should consider promoting other projects as well, such as sequestration projects.

4.8 Impact of US Withdrawal

In March 2001, the US announced its withdrawal from the Kyoto Protocol citing reasons such as unfairness (due to no mandatory GHG reduction of developing countries) and the scientific uncertainty of climate change. With Russia's position still unclear, it could be some time before the Kyoto Protocol comes into force. For this reason we examine how the US withdrawal has affected CDM implementation in the seven countries of this study.

4.8.1 Countries Adversely Impacted by US Withdrawal from Kyoto Protocol

Uncertainty regarding the Kyoto Protocol is likely to have a negative impact on countries which are further along with legislative preparation, project planning, and established institutional frameworks for the CDM. China, for example, established their national sustainable development strategy, DNA and CDM criteria in 2000, but since the US' withdrawal, China's DNA approved only one project supported by Dutch government

while 19 CDM projects have been proposed, and 2 projects were pulled out.²⁴ In Brazil, while the government has already established their inter-ministerial DNA and there are more than 50 candidate projects waiting for approval, the national legislative process has been halted. The Brazilian government issues conditional letters of approval to the project participants, which say that approval is conditional on the acceptance of the Kyoto Protocol and passage of appropriate national legislation.

4.8.2 Countries not adversely impacted

Contrary to China and Brazil, the US withdrawal is unlikely to have an adverse impact on the CDM preparation process in India, which is one of the pioneering countries for CDM. They have already established their national sustainable development strategy, DNA and CDM criteria, and with support from international organizations such as the World Bank and Dutch funded Certified Emission Reduction Unit Procurement Tender (CERUPT), India also has approved as many as 17 CDM projects, including energy efficiency, biomass, and wind power.

For countries which made less progress with CDM implementation, the US withdrawal seems to have small or almost no impact. Uganda, Kazakhstan, Philippines, and Egypt have yet to establish DNA and formal CDM criteria. For these countries, a “no-regrets” path will most likely be taken in terms of project type selection, where benefits would accrue regardless of whether or not the Kyoto Protocol comes into force.

4.9 Conclusions for Case Studies

4.9.1 Conclusions regarding the CDM structure:

DNA

- The larger countries included in this analysis (China, India, Brazil) have an operating DNA in place, while the smaller countries are currently in the process of establishing their DNAs.
- All DNAs are housed in the public sector, usually – but not always – in the ministry of environment. The same is true for currently proposed DNAs.
- All DNAs include other ministries, such as energy and science and technology. The same is true for currently proposed DNAs.

SD Criteria

- National economic development is the primary goal promoted by the majority of the criteria developed for CDM projects by the countries included in this case study. Social well-being (poverty alleviation) and environmental sustainability respectively follow economic development as the primary goals of CDM criteria.

²⁴ Michaelowa, 2003

- As of yet, there are no concrete indicators for measuring sustainable development with respect to CDM in any of the countries in this study. CDM criteria seem to be seen by host countries as general guidelines for decision makers rather than strict rules for enforcement.

CDM Project

- The larger countries included in this analysis (China, India, Brazil) account for most of the projects approved (18) and proposed (about 100)
- Most projects are concentrated in the energy sector, with renewables, energy efficiency, and gas capture or destruction accounting for most of the projects, respectively
- Countries tend to emphasize technology transfer over sequestration in their project selection.

4.9.2 General Conclusions

- All countries included in this analysis were found to emphasize economic development and social development over environmental issues
- A country's specific character as defined by its total emissions of GHGs and the state of its economic development (as measured by per-capita GDP) was found to play a role in shaping that country's selection of SD criteria and its choice of CDM projects. Countries with above average GHG emissions (average calculated for Non-Annex I countries) tended to emphasize projects in the energy sector over sequestration. Countries with lower than average per-capita GDP were found to emphasize poverty alleviation over general economic development.
- The UNDP's UCCEE, which oversees the CD4CDM, has been very useful in bringing the smaller countries (Philippines, Egypt, and Uganda) closer to the final goal of establishing a DNA with SD criteria
- The withdrawal of the US from the Kyoto Protocol has not impacted the seven countries uniformly. While it seems to have slowed down the progress in Brazil and China, it did not impact India as much. Also, the smaller countries – which are involved in internationally sponsored, capacity building initiatives (such as CD4CDM) – have not been affected as much by US withdrawal.

5 Conclusions

The Clean Development Mechanism was created to assist Annex I countries in complying with their emissions reductions commitments. CDM was also designed to assist non-Annex I countries in achieving “sustainable development.” This report has focused on defining what sustainable development is and how it is incorporated into the CDM by non-Annex I countries. Following are key findings and recommendations from this study.

5.1 Key Findings

What are, in the literature, considered to be ‘good’ sustainability criteria?

- The consideration of the three pillars of sustainable development (environmental, economic, and social) is important in developing criteria:

The various methods developed for evaluating the sustainability of CDM projects emphasizes the need to consider the three main pillars of sustainable development. While the relative importance of each category will vary depending on the developmental priorities of those evaluating the projects, benefits from a project in one area should not be allowed to overshadow serious deficiencies in others. Furthermore, when evaluating projects, the creation of meaningful indicators that are easily measured is critical in ensuring both the economic and social successes of a project. These indicators should provide significant information, while minimizing costs associated with their collection.

What countries have established, or are in the process of establishing their project criteria?

- Although significant progress has been achieved, a significant portion of countries have not established sustainability criteria:

Of the countries responding to the survey, 41% have established a designated national authority, and 10% have an interim institution. The remaining 49% are different stages of developing these institutions. Just under half of responding countries have either established project criteria (25%) or are in the process of developing them (22%). This means 53% of countries are currently without any criteria for evaluating projects. Due to the low response rate to the survey, it is difficult to generalize on these results. However, since countries without either a DNA or criteria would be less likely to respond promptly, it is likely that anywhere between one-half to two-thirds of eligible countries are lacking either criteria or a DNA.

Of these countries, are there any that have excelled? That is, are there countries that other nations view as models when establishing their project criteria?

- Large countries are more advanced in CDM implementation, while smaller countries are in various stages of CDM implementation:

Both the survey and the country case studies suggest that larger countries (as measured by population and land area), such as India, China, and Brazil, are markedly more advanced in the implementation of CDM compared with smaller countries. They all have operating DNAs with SD criteria for CDM projects as well as a well-developed set of proposed and approved CDM projects. They can serve as model of CDM implementation. Their experiences could be used as regional models by other countries still attempting to establish their CDM infrastructure, although this would, by nature, be limited.

The survey and case study analysis suggest that smaller countries are in various stages of implementing CDM. International support for CDM implementation, specifically the UNDP's CD4CDM, was found to be a critical in enabling small countries to implement CDM. All countries, however, were found to have some proposed CDM projects.

What are the criteria that particular countries have chosen? Why have some countries chosen particular criteria over others?

- Countries emphasize economic development and social issues over environmental issues:

While the literature review found the three aspects of sustainable development to generally be on equal footing with one another, all the country case studies were found to emphasize economic development and social issues (poverty alleviation) over environmental issues. This has been demonstrated by the countries' structure of DNA, by their selection of sustainable development criteria, and by their selection of projects for CDM.

Finally, as is evident from the country case studies, each set of criteria was unique to each country, and some criteria were not identified in the literature review. These criteria include emphasis on food security, as in the case of Uganda; the need for a regional consideration in poverty alleviation regarding project distribution across the country, such as in the case of Uganda, India, and China. Certain criteria emphasized specific points, such as India's emphasis on generating foreign exchange.

What are the main challenges faced by countries in developing project criteria, or in implementing a project? Are transaction costs an issue?

- There is a lack of concrete indicators as CDM criteria that measure sustainable development with respect to CDM projects:

While three out of the seven countries studied have developed sustainable development criteria for CDM projects, a key finding across all countries is that none have concrete indicators for measuring sustainable development with respect to CDM. CDM criteria seem to be seen by host countries as general guidelines rather than strict criteria. To avoid subjective decision making, countries should prepare more concrete indicators as CDM

criteria, or should establish a transparent approval process with participation of stakeholders and experts. This can ensure both that the process is not abused by individuals or companies for economic or political gain, and that the benefits of the projects are fairly distributed among affected parties

There are similarities in CDM implementation across countries, but each country offers its unique interpretation:

The Designated National Authority of each country is housed in the public sector. While each country created its unique structure for CDM, most countries emphasized intergovernmental cooperation. All countries were found to incorporate the three aspects of sustainable development in their criteria (economic, social, and environmental). However, each set of SD criteria was unique to that country, with different aspects being emphasized across different countries. While the vast majority of projects were located in the energy sector and emphasized technology transfer over sequestration, project size and specific project goals varied across countries. The withdrawal of the US from the Kyoto Protocol was found to have a different impact on different countries. Contrary to initial expectations, it did not seem to halt CDM implementation.

5.2 Remaining Challenges

A number of the existing challenges to the establishment of a CDM infrastructure in countries stem from the uncertainty regarding the status of the Kyoto Protocol. With the withdrawal of the U.S., the expected price of carbon credits has significantly dropped, reducing the expected revenues from projects. Additionally, with the prospects of the protocol going into force in doubt, some countries are wary of investing limited resources into the necessary infrastructure.

The drop in expected prices also has a significant impact on the importance of transaction costs. With the expected revenues from the sale of carbon credits reduced, and the various approval requirements of the CDM project cycle, countries find themselves trying to balance a need to thoroughly review projects before approval with the need to reduce project transaction costs.

Although not explored in this paper, low baseline emissions could also prove a significant hindrance to some countries, as this would likely translate to a low potential for carbon abatement projects, limiting the possibilities for investment. These countries would likely not benefit from the CDM until the process is better established, and transaction costs are reduced. The issue could prove especially significant in Africa, where South Africa (which emits about one tenth the amount of greenhouse gases emitted by the United States) accounts for about 40% of the emissions released in the continent.

5.3 Recommendations

- Expand existing international initiatives to include more countries:

This report suggests that countries benefited from international initiatives that focus on capacity development for CDM. This was the case for Uganda, Egypt, and Philippines. CDM project planning may have built pressure to develop and establish the necessary institutional and regulatory frameworks in these countries. The survey also suggests that countries that were not involved in such programs tended to be far less advanced in the implementation of CDM. Given these findings, we believe such programs should be continued and expanded to include more countries and with special technical support given to small countries with low emissions so that they too may contribute to reducing GHG emissions and take advantage of the incentives of the CDM.

A very useful tool to produce and incorporate in these capacity building programs for CDM practitioners would be a guidebook of best management practices organized by the three pillars of sustainable development.

- Encourage larger countries to serve as models for CDM implementation:

Our survey and case study countries demonstrate that the large countries are far more advance in implementing CDM compared to the relatively smaller countries. Countries such as India, China, and Brazil all have a working DNA, identified SD criteria, and a host of CDM projects. Countries in the process of implementation could benefit from these countries' knowledge and experience as it relates to CDM implementation.

- Encourage countries to balance the three pillars of sustainable development:

The flexible spirit of the CDM allows host countries to determine their own sustainable development criteria for CDM projects as required by their own development needs. This contrasts sharply with a top-down imposition by some central international agency. However, the results of this study show that environment always comes in last after economic development and social concerns. The UN should encourage countries to balance the three pillars of sustainable development, for example, through providing a guideline of a minimum level of environmental criteria.

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Appendix A:

Appendix A.1: Assessment Methodologies Analyzed in Literature Review

A. Multi-Attributive Assessment of CDM (Swiss Federal Institute of Technology)

Criteria

Social Criteria

- Stakeholder participation
- Improved services availability
- Equal distribution of project turnover
- Capacity development

Environmental Criteria

- Fossil energy resources
- Air quality
- Water quality
- Land resource

Economic Criteria

- Regional economy
- Microeconomic efficiency of project
- Employment generation
- Sustainable technology transfer

Method

Indicators are selected for the criteria, and each criterion is given a score in the range of -1 to 1. Some criteria may be given a minimum “threshold” value that must be achieved before a project is approved. The scores from the various criteria are weighted according to the country’s preference and aggregated by adding them together. If all the criteria scores meet any existing threshold scores, and the aggregate score is higher than the predetermined minimum score, then the project is approved.

References

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- Sutter, Christoph. Sustainability Check-up for CDM Projects. Zurich: Swiss Federal Institute of Technology, 2003.

B. Multi-Criteria Assessment for CDM Projects (Tyndall Centre)

Criteria

Carbon Criteria

- Net carbon sequestered
- Internal rate of return
- Risk of leakage and natural hazards
- Eligibility for CDM

Ecological Criteria

- Regional ecological value
- Impact on habitat contiguity
- Species richness
- Impact on hydrology
- Erosion processes
- Soil fertility

Social Development Criteria

- Household income
- Clarification of property rights
- Forest resources access to poorest households
- Involvement of community-based formal and non-formal organizations in project design, management and decision-making
- Number of local people participating in project activities and who perceive benefits
- Investment in education, health services and capacity building

Method

Developed specifically for forestry and land-use projects, the choice of criteria reflects the narrow scope of the methodology. No specific methodology for measurement is given, only suggestions that these be developed with the local community. The method is meant for a qualitative analysis of project benefits. Stakeholders and experts are given the criteria and asked to rank them, or grade them with percentage weighting. The aim is to determine the distribution of benefits to the local community.

References

Brown, Katrina, and Esteve Corbera. A Multi-Criteria Assessment Framework for Carbon-Mitigation Projects: Putting "Development" in the Centre of Decision-Making. Norwich, UK: Tyndall Centre for Climate Change Research, 2003.

C. CICERO Methodology

Criteria

Environmental impacts

- Water resources availability
- Water resources quality
- Air quality
- Soil erosion
- Soil contamination
- Noise level
- Ozone depleting substances
- Biodiversity
- Land use

Development impacts

- Economic effects
- Effects on trade balance
- Effects on regional economy
- Output foregone
- Human capital
- Institutional capacity

Equity impacts

- Income distribution effects
- Poverty reduction
- Distribution of environmental benefits by income classes

Method

There is no methodology proposed for calculating the benefits of a project, only the criteria are listed. These are graded in a scale of low negative impact to strong positive impact. As the variables are ordinal, they cannot be aggregated directly, although no method for aggregation is offered. Additionally, some criteria are labeled as “core.” The score for these must be neutral or positive for the project to proceed.

References

Kolshus, Hans H., et al. Can the Clean Development Mechanism Attain Both Cost-Effectiveness and Sustainable Development Objectives? Oslo, Norway: CICERO, 2001.

D. International Institute for Environment & Development

Criteria/Indicators

<i>Dimension</i>	<i>Global</i>	<i>National</i>	<i>Local (project)</i>
Economic	GDP GDP/Per Capita	Trade Taxes	Employment
Environmental	GHG Emissions Biodiversity	Biodiversity Air Quality Water Quality	Local Air Quality Local Water Quality
Social	HDI	Employment Poverty Reduction	Health Community Participation Capacity Development

Method

Presented not as a thorough evaluation method, but as a rough matrix for gauging the benefit of potential CDM projects, this table presents indicators that can be used for evaluating projects at different levels. As it is only a rough matrix, there is no methodology for aggregation presented, nor weighting.

References

Huq, Saleemul. Applying Sustainable Development Criteria to CDM Projects: Pc Experience. Washington, DC: The World Bank Group, 2002.

E. The SouthSouthNorth Matrix Tool

Criteria

Local/Regional/Global Environment

- Water Quality and Quantity
- Air Quality
- Other Pollutants
- Soil Condition
- Biodiversity

Social Sustainability and Development

- Employment
- Livelihood of the poor
- Access to energy services
- Human and institutional capacity

Economic and Technological Development

- Employment
- Balance of payments
- Technological self-reliance

Method

Each criteria is scored on a scale from -2 (major negative impact) to +2 (major positive impact). The scores for each subset are then added up and must be no less than -1 for the project to be approved. Additionally, the score for an individual criterion cannot be -2. There is no weighting associated with the aggregation in this method.

References

- SouthSouthNorth. The Southsouthnorth Sustainable Development & Ranking Matrix Tool. Cape Town, South Africa: The SouthSouthNorth Project, 2003.
- Thorne, Steve, and Emilio Lebre La Rovere. Criteria and Indicators for Appraising Clean Development (CDM) Projects: HELIO International, 1999.

SouthSouthNorth Project Appraisal Matrix (Used in case studies in Brazil)

Criteria

Eligibility Criteria

- Energy project activities qualifying for the CDM
- Real and measurable benefits
- Positive contribution to sustainable development
- Owner allows adequate transparency

Additionality filters

- Environmental additionality
- Financial additionality
- Investment additionality
- Technological additionality

Sustainability Indicators

- Contribution to the mitigation of global climate change
- Contribution to local environmental sustainability
- Contribution to net employment generation
- Contribution to the sustainability of the balance of payments
- Contribution to macroeconomic sustainability
- Cost-effectiveness
- Contribution to technological self-reliance
- Contribution to the sustainable use of natural resources

Feasibility Indicators

- Maximization of project owner and Southern country benefits
- Possibilities of South-South axis of technology and information transfers
- Chances of success in current policy and institutional environment
- Barriers to implementation
- Possibilities for regional integration
- Project owners willingness to champion the project
- The ability of project owner to influence national political will
- Possibility of leakage
- Sectoral spread
- Local/regional replicability

Method

The eligibility criteria are given yes/no answers; all criteria must pass before the project is approved. Once these tests have passed, the other criteria are given a score or -3 (very negative) to +3 (very positive). The ranking is, generally, qualitative and involves stakeholders and experts in the particular project. The scores are added directly and although there is no explicit minimum score, it is suggested that one should be set.

References

Thorne, Steve, and Stefan Raubenheimer. Sustainable Development (SD) Appraisal of Clean Development Mechanism (CDM) Projects -- Experiences from the SouthSouthNorth Project (SSN): SouthSouthNorth Project, 2002.

F. Susac Evaluation Criteria

Criteria

Economic

- Reducing the burden on imports of energy on a macro-level
- Increased investment in a priority sector of the economy
- Contributing to competitiveness at a microlevel, like industry
- Positive effects on the trade balance
- Improved local economy (effects on GDP)
- Reduction of energy intensity at a microlevel
- Increasing share in the contribution of renewable energy to the energy supply mix of a macro-level
- Increase of sustainable energy deployment
- Increase of energy productivity

Environmental

- Global environmental measures should result in the reduction of greenhouse gases emissions (CO₂, CH₄, N₂O), as per convention (baseline development, additionality calculation)
- Local environmental efforts should result in reduction of local impacting emissions (the pollutants SO₂, NO_x, CO, NMVOC) (reduced air pollution, reduced water pollution, conservation of bio-diversity, reduced soil erosion caused by deforestation)

Social

- Increased local employment
- More equitable distribution of resources (reduction of wealth disparities)
- Increase in percentage of rural and periurban population with access to power supply
- Affordability
- Capacity building (e.g. transfer of technical skills)
- Health impacts

Appendix A.2: Criteria for Selected Countries

<i>Country</i>	<i>SD Categories</i>	<i>Proposed CDM Criteria/Guideline</i>
India ²⁵	<i>Social</i>	The CDM project activity should lead to alleviation of poverty by generating additional employment, removal of social disparities and contributing to provision of basic amenities to people leading to improvement in their quality of life.
	<i>Environmental</i>	This should include a discussion of the impact of the project activity on resource sustainability and resource degradation, if any, due to the proposed activity; biodiversity-friendliness; impact on human health; reduction of levels of pollution in general.
	<i>Economic</i>	The CDM project activity should bring in additional investment consistent with the needs of the people.
	<i>Technical</i>	The CDM project activity should lead to transfer of environmentally safe and sound technologies with a priority to the renewables sector or energy efficiency projects that are comparable to best practices in order to assist in upgrading of the technological base.
Kenya ²⁶	<i>Economic/Social</i>	To be supportive of and consistent with national development priorities and be linked to poverty reduction;
	<i>Social</i>	To contribute to the enhancement of national institutional and human capacity building;
	<i>General</i>	To demonstrate a firm and tangible contribution to sustainable development;
		To accord highest priority to activities that generate maximum economic, social, and environmental benefits;
	<i>Environmental</i>	To address community needs and priorities through effective public participation in project design, planning, and implementation to ensure equitable distribution of sustainable development benefits;
		To contribute to global efforts to achieve stabilization of greenhouse gas concentrations in the atmosphere in accordance with Article 2 of the Convention;
		To implement technologies that are locally appropriate, environmentally friendly, and energy efficient
		To be consistent with the objectives of Agenda 21 and relevant environmental conventions, such as the Convention on Biological Diversity, the Ramsar Convention on Wetlands, and the Convention to Combat

²⁵ http://www.pembina.org/pdf/publications/user_guide_2nd_ed.pdf (2/11/04 access)

²⁶ http://www.pembina.org/pdf/publications/user_guide_2nd_ed.pdf (2/11/04 access)

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		Desertification, as well as with local and national environmental management laws.
		Contribution to the improvement of the social, economic and environmental conditions of Nicaragua.
Nicaragua ²⁷	<i>Environmental</i>	Contribution to the implementation of environmental plans and strategies - Biodiversity, Climate Change, Desertification, among others
		Contribution to the implementation of National Development Plans and Strategies
		Contribution to the mitigation of global CC
Morocco	<i>Economic</i>	Contribution to the sustainability of the local environment
		Contribution to the sustainable use of natural resources
		Contribution to the durability of balance of payments
	<i>Technology</i>	Positive contribution to the macro-economic plan
		Effects on costs
		Contribution to technology autonomy
	<i>Social</i>	Contribution to the creation of employment
	Technologically Feasible	
Peru ²⁸	<i>Environmental</i>	Full compliance and not in conflict with sectoral policies
		Socially accepted
		Global Environment: greenhouse gas emissions reduction
Bangladesh ²⁹	<i>Economic</i>	Local environment improvement (air, water, soil, etc.)
		Efficient resource utilization
		Contributes to reduction of foreign expenditures
	<i>Social</i>	Contributes to national debt reduction
		Cost-effectiveness
		Poverty Alleviation
	<i>Technology</i>	Creation of new jobs
		Creation of new economic activities
		Positive impacts on local communities
		Positive Health Impact
		Gender Equity
		Transfer of clean and cost effective technologies.
		Contribution to the sustainable use of natural resources.
Ease of adaptation to local condition.		

²⁷ <http://www.up.umnw.ethz.ch/publications/CoP->

9_Side_Event_Sustainability_Assessment/UNDP%20experiences.ppt (2/11/04 access)

²⁸ http://cop9.str3.com/SlideRepository/2003_12_6_171/peru/peru.ppt (2/11/04 access)

²⁹ <http://unfccc.int/cop9/se/present/bangladesh.pps> (2/11/04 access)

Appendix B:

Appendix B.1: Survey Methodologies

The survey was conducted in two phases. The first approach of the survey compiled the email addresses of 151 missions represented at the United Nations, which were found mainly on the website <http://membres.lycos.fr/jomag/onu.htm>. This survey was conducted primarily within the missions represented at the UN. The second approach of the survey changed slightly the questions posed to the respondents as well the form of the letter asking for the participation of the respondents to our survey. This approach focused on key contacts in 128 countries.

The initial phase of the survey was designed as an email which stated who we were and the project we were involved in. It asked the 151 missions to respond to four questions. The initial survey was sent via email to the 151 missions at the UN, which was followed up by an email reminding the missions of their participation in our survey.

Since the first phase of our survey included surveys sent via email to all 151 UN missions, no coverage error was detected. Additionally, we attempted to contact the seven countries included in the Case Studies section of this report. Of these seven countries only India responded. We did not include these six other countries in the response rate, but we utilized all the case study countries' information to conduct data analysis. Due to the volume of work occurring at the UN as well as their busy schedules we anticipated challenges. The response rate to this initial phase of the survey turned out low.

Our survey team readjusted the strategy in order to maximize the number of responses to the survey. New contacts and email addresses of specific respondents from 128 countries were obtained from a several websites including <http://unfccc.int/resource/nfp.html>. Four new questions were written up in a new email addressed to each of our new contacts. Included in the new survey were our stated objectives: the importance of the survey in gathering data regarding CDM-related capacity-building programs, and the importance in understanding the challenges and roles each country was facing with regard to CDM programs. In addition, of the 128 total number of countries contacted in the second approach of the survey, 43 contacts within countries that already had an established DNA; and 20 countries without DNA's, were attempted to be reached via telephone calls.

The second approach to the survey through new email contacts, direct access to countries DNA's as well as phone numbers greatly increased the response rate. Phone calls were followed by more phone calls during an intense session of approximately one and a half weeks. This approach to the survey proved much more successful than our first attempts via email alone. The total responses from the countries contacted with the new survey and approach was 27. Moreover, the rate at which countries from various geographic areas of the world added significant data for our analysis. Challenges to our second phase of the survey included time constraints as well as difficulty in contacting the respondents located in numerous and different time zones. Nevertheless, the answers to the questions the contacts provided us in the second phase of the survey offered significant information for the survey team to proceed in compiling and analyzing the data.

Appendix B.2: Survey Form

Good Afternoon:

My colleagues and I are currently working on a report concerning sustainable development and the Kyoto Protocol's Clean Development Mechanism (CDM). The study is being conducted through Columbia University's School of International and Public Affairs. The aim of the study is to assess where countries stand in establishing institutional capacity for implementing CDM projects, and what types of capacity building activities may be needed. We were referred to you as an important source of information for completing this project.

To this end, your input on three brief questions would be very useful. We do not expect all countries to be equally advanced on taking advantage of the CDM; it is as important to understand what challenges countries face as it is to know who is taking a lead role. The key questions we would like your input on are:

1. Has your country established a Designated National Authority (DNA) for approving project investments under the CDM?
 - a. If yes, what is the name of the authority and to what agency does it report?
2. Does your country have a set of Sustainable Development criteria established for use in the CDM?
 - a. If so, what criteria have you chosen or where can we find a published or digital copy of them?
3. Has your country discussed and/or begun any CDM projects?
 - a. If so, what types of projects?

This study is likely to be an important tool in targeting CDM-related capacity-building programs to the agencies and countries that need it. The UN's Division for Sustainable Development has already expressed interest in the results. Questions about the UN's involvement can be directed to Roger Rauffer at xxx.

Thank you in advance for all your help and contribution. The final report will acknowledge the countries who have participated. To respond, feel free to hit reply and answer in the postscript below.

Sincerely,

(Student's Name)

P.S.

4. Has your country established a Designated National Authority (DNA) for approving project investments under the CDM?
 - a. If yes, what is the name of the authority and to what agency does it report?

5. Does your country have a set of Sustainable Development criteria established for use in the CDM?
 - a. If so, what criteria have you chosen or where can we find a published or digital copy of them?

6. Has your country discussed and/or begun any CDM projects?
 - a. If so, what types of projects?

Appendix B.3: Survey Respondents

Country Name	DNA	S.D. Criteria	Discussed/Begun Projects	Notes:
Albania	No	No	No project at all	Has not ratified Kyoto Protocol yet
Argentina	Yes	No	None	
Bahrain	No	No	None	In the process of nominating a focal point for climate change studies.
Belize	No	No	Yes, has discussed energy and reforestation projects	
Bhutan	Yes	Yes	Two pilot programs.	Hydro/afforestation Project
Bolivia	Yes	Yes	None	
Brazil	Yes	Yes	Not yet. 50-70 proposed projects	
Cambodia	Interim	No	Pilot projects	
China	Yes	Yes	1 approved project. 1 pending project	Focus on renewable and energy efficiency projects
Colombia	Yes	In Process	None	
Cook Islands	No	No	No	Had set up work shops for CDM project
Djibouti	No	No	Yes, began studies in energy, transport, & waste sector	Potential projects: 1.geothermal energy 2.Increase urban public transportations 3.treatment for generators
Dominican Republic	No	Yes	None	Has Memorandum of Agreement with the World Bank and Natural Conservancy in Dominican Republic for reforestation project

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Egypt	Yes	No	None	
Fiji	N/A	N/A	N/A	Non responsive answer
Guatemala	Yes	None	No	
India	Yes	Yes	Six projects are approved	
Jamaica	Interim	No	One project began project	Windmill program
Kazakhstan	No	No	No officially approved projects. 2 potential ones	
Liberia	No	No	None	Will address CDM issues later. Maybe with the UNEP
Republic of Macedonia	No	No	None	
Madagascar	Yes	No	Discussed 1 project	Discussed afforestation project with Japan
Malaysia	Yes	No	No	
Maldives	No	No	Pilot project	Donor: Japan. It focuses on renewable energy
Mali	Yes	No	Proposed one (hydro) with a Swiss private firm	
Marshall Is	N/A	N/A	N/A	Non Responsive Answer
Moldova				
Morocco	Yes	Yes	Three projects approved	1st Project: methane recovery in waste sector (landfill rehabilitation, gas to energy) 2nd Project: heat recovery enhancement for power generation at phosphoric acid and fertilizer production plant 3rd Project: Wind Park

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Nicaragua	Yes	Yes	One approved. Two are on their way.	1. Biogas 2. Hydro 3. Wind 4. Geochemical
Philippines	Interim	In process	None	
Samoa	No	No	No	No capacity to CDM project
Uganda	No	Preliminary	No	
Uruguay	Yes	Yes	None	
Vanuatu	N/A	N/A	N/A	Non Responsive Answer
Zambia	No	In process	No projects yet. Just Draft.	Working on establishing DNA
Zimbabwe	No	No	One proposed project	The World Bank provides assistances Min-hydro project was proposed, but Not implemented because the withdrawal funding of the donors (E7)

Appendix C:

Appendix C.1: Country Summaries

A. Brazil

1. Does your country have clear SD criteria for CDM project approval? If yes, what are they, and are there any weights involved?

Brazil has developed clear Sustainable Development criteria for CDM project approval. All CDM project proponents must state how the project activity will contribute to sustainable development in the following categories:

Annex III¹

The project participants will state whether and how the project activity will contribute to sustainable development, in regards to the following aspects:

a) Contribution to local environmental sustainability

Assess the mitigation of local environmental impacts (solid wastes, liquid effluents, atmospheric pollutants, etc.) caused by the project in comparison with the estimated local environmental impacts for the reference scenario.

b) Contribution to development of working conditions and net job creation

Assess the commitment of the project to social and workplace responsibilities, health and education programs and defense of civil rights. Also assess the improvement in the qualitative and quantitative level of employment (direct and indirect) comparing the project scenario with the reference scenario.

c) Contribution to the distribution of income

Assess the direct and indirect effects of the quality of life of low-income populations, noting the socio-economic benefits provided by the project in relation to the reference scenario.

d) Contribution to training and technological development

Assess the degree of technological innovation of the project in relation to the reference scenario and the technologies used in activities comparable to those called for in the project. Also assess the possibility of reproduction of the technologies used, taking account of their demonstration effect, and evaluating the origin of the equipment, the existence of royalties and technology licenses and the need for international technical assistance.

e) Contribution to regional integration and linkages with other sectors

The contribution to regional development can be measured in terms of the integration of the project with other socio-economic activities in the region where it is implanted.

2. Are there approved CDM projects? Do you know how criteria were applied?

¹ Annex III of Resolution #1, dated September 11, 2003

In accordance with Brazilian legislation, there have not yet been any officially approved CDM projects. According to Jose' Domingos Gonzalez Miguez, Manager of the Climatic Changes Program, Brazil cannot legally approve CDM projects until there is appropriate national legislation. Therefore, the government has been granting conditional letters of approval that are conditional on the acceptance of the Kyoto Protocol, and passage of appropriate national legislation. Currently there are between 50-70 CDM projects at varying stages of development. Of these projects, Mr. Miguez estimated that approximately 20 are "well developed". Further research is needed to determine how many conditional approval letters have been granted and specifically how the criteria were applied.

3. What is the structure of DNA?

The Designated National Authority (DNA) in Brazil is the *Interministerial Commission for Global Climate Change*, established by Presidential Decree on July 7th 1999. CIMGC is chaired by the Minister of Science and Technology and the vice-chair is the Minister of the Environment. It is also composed of members of the following ministries: Foreign Relations; Agriculture; Livestock and Supply, Transportation; Mines and Energy; Development, Industry and Foreign Trade, and the Chief of Staff (Casa Civil) of the Presidency of the Republic. The Executive Secretariat of the Commission is under the responsibility of the Ministry of Science and Technology. The Commission represents all sectors of activities described in Annex A of the Kyoto Protocol. In order to obtain approval for project activities under CDM, project proponents must submit all relevant information to the Commission. The Commission issues a final decision on the approval of project activities.

4. What is your country's National Sustainable Development Strategy?

Agenda 21-Brazil has been developed as the framework for sustainable development in Brazil. This framework aims to contribute to establish the strategic benchmarks for a Brazil 21st Century Project which will mobilize society and encourage participation towards the goals of sustainable development. Additionally, Brazil has developed the *Brazilian National Communication* which follows the guidelines contained in the position paper of the group of developing countries (G77 and China), prepared in a seminar held in Geneva, Switzerland, on February 25 and 26, 1996. This document discusses the use of renewable energies, energy conservation/efficiency, and climate change.

Additional Questions:

1. How do the identified criteria compare with the national SD strategy?

The criteria seem to be closely linked with the national sustainable development strategy Agenda 21 – Brazil.² The NSDS serves as the broader framework for the development of the criteria.

2. Is one of the three pillars (env., social, economic, other?) preferred over others? How do you know this, and why do you think this is so?

Using the criteria categories stated in Annex III of Resolution #1 (September 11, 2003) it appears that the economic pillar is stressed greater than the others.

Environment

- local environmental sustainability

² <http://www.un.org/esa/agenda21/natinfo/countr/brazil/natur.htm>

Economic

- net job creation and working conditions
- distribution of income
- training and technological development
- regional integration and linkages with other sectors

3. Does the location of the DNA in a particular government office influence which criteria are emphasized?

The DNA is chaired by the Minister of Science and Technology and the vice-chair is the Minister of the Environment. It is difficult to tell how this structure influences the application of criteria; however projects are approved by a vote of the nine Ministries that are included in the DNA.³

4. Do the projects (approved or proposed) favor a specific sector (energy, transport, forestry, etc.)? Is this a hint to which pillar is preferred?

Energy appears to be the favored sector for proposed projects. Below is a tally of the 13 proposed projects reported by CDM Watch.⁴

Renewables: 5

Fuel Switching, Sinks and sequestration, Gas Capture or destruction: 1

Gas Capture or destruction: 5

Fuel Switching, Transport: 1

Fuel Switching, Waste Incineration 1

5. Is CDM pursued with great seriousness or did the US withdrawal have a noticeable effect?

Although Brazil remains committed to the Kyoto protocol and is moving forward with CDM, it is clear that the US' withdrawal has created significant uncertainty. Project approval is dependent on passage of appropriate Brazilian legislation which is in turn dependent on the Kyoto Protocol going into force.

³ Gonzalez Miguez, José Domingos, Manager of the Climatic Changes Program under Multi-year Activity Program Executive Secretary of the Interministerial Commission on Global Climate Change. E-mail communication on March 24, 2004 with

⁴ www.cdmwatch.org

B. China

1. Does your country have clear SD criteria for CDM project approval? If yes, what are they, and are there any weights involved?

Under the National Sustainable Development Strategy called *Program of Action for Sustainable Development*, China has established sustainable development criteria for CDM projects. Nevertheless, the criteria and sustainable development indicators remain ambiguous. The SD criteria are a set of human-centered guidelines in hopes of reaching harmony between man and nature.

Social Indicators

- Quality of life improvement and income distribution
- Poverty relief
- Level of energy supply increases to urban and rural areas
- Predictability to local communities
- Minimize risk, negative socio-economic, environmental impacts, financial viability
- Need to be first approved by the state or local levels concerning social issues

Environmental Indicators

- Levels of CO₂ reduction in local area
- Project should bring about GHGs emission reduction benefit
- Improve air quality in China
- Increase efficiency in utilization of resources

Economic Indicators

- Create jobs and economic benefits
- Increase development in western China
- Increase foreign exchange

2. Are there approved CDM projects? Do you know how criteria were applied?

There are nineteen project proposals submitted to China's DNA. Two of them are from non-Annex I countries, Republic of Korea and Malaysia.⁵ However, so far only one project has been approved by both the Chinese DNA and the investor's DNA. The approved project is a wind farm project located in Huitengxile, developed by Inner Mongolia Wind Power Company with Dutch CERUPT.⁶ Although the project has been approved by both DNAs, the project has not begun. This project met most of the CDM criteria set by China. The criteria applied such as Dutch government enters this project voluntary. Both social and environmental impact assessment have predicted positive impacts in regional areas. It is expected to create jobs and brings in foreign exchange. This project will provide energy to rural areas in Huitengxile and will assist development process in Central China.

3. What is the structure of DNA?

State Development Planning Commission (SDPC) is a federal agency, which is acting as China's DNA. SDPC is formed by the Ministry of the Environment and the Ministry of Science and

⁵ Lu, Xuedu. Ministry of Science and Technology in China. Personal Interview. March 15, 2004.

⁶ Michaelowa, Axel. Zhang, Shouchuan. Krause, Karsten. Grimm Bernhard. Koch Tobias. *The Clean Development Mechanism and China's Energy Sector: Opportunities and Barrier*. April 5, 2003: p. 121.

technology and fully funded by the Central Chinese government. SDPC's responsibilities include drawing up any additional eligibility requirements for CDM projects in China, and it also will be the official agency to grant the required "national approval" letter, which certifies that proposed projects promote sustainable development.⁷ SDPC is also the leading agency on domestic climate changes regulating all climate change related projects in China; however international climate change treaty negotiations are conducted by the Ministry of Foreign Affairs.

4. What is your country's National Sustainable Development Strategy?

China published its first national sustainable development strategy plan called the Program of Action for Sustainable Development in compliance with the Agenda 21 in 1992. This document defined sustainable development. Also, it set China's goals and challenges in balancing economic development, social development, ecological conservation, environmental protection, and rational exploitation of natural resources. This strategy plan centers on economic growth and proceeding from the needs to improve the quality of life for the Chinese people.⁸ According to the Strategy, "China will actively seek investment from the international community for projects which assist in the slowing of climate change", and CDM projects are the tool of achieving these goals.⁹

Additional questions:

a. How do the identified criteria compare with the national SD strategy?

The identified criteria follow closely to the national SD strategy. The national SD strategy focuses on western development in regional and local settings. The identified criteria weight smaller projects and projects in rural areas of western and central China heavily. Since the criteria and sustainable development indicators remain ambiguous, the Chinese government tends to manipulate these criteria to fit the potential CDM projects for economic benefits.

b. Is one of the three pillars preferred over others? How do you know this, and why do you think this is so?

In my opinion, the Chinese government prefers economic development over the other two pillars. In the SD strategy, it clearly stated, "China will actively seek investment from the international community for projects which assist in the slowing of climate change".¹⁰ The national SD strategy allows China to use CDM as a selling point to attract foreign investments and economic development.

c. Does the location of the DNA in a particular government office influence which criteria are emphasized?

⁷ People Daily. Program of Action for Sustainable Development in China in the Early 21st Century (Part III). July, 26, 2003.

⁸ People Daily, 2003

⁹ People Daily, 2003

¹⁰ People Daily, 2003

Even though the DNA is hosted by the Ministry of the Environment to manage internal CDM issues, it did not influence the criteria's emphasis. On the other hand, the emphasis of technology transfer fell is due to the involvement of the Ministry of Science and Technology. The criteria emphasized poverty relief, technology transfer, small projects, and economic development in Western China, but not domestic or global environmental issues. However, due to the Ministry of Foreign Affairs is in charge of external CDM issues, some of the criteria emphasized host country national sovereignty, such as investor country shall not be involved with Chinese internal political process.

d. Do the projects (approved or proposed) favor a specific sector (energy, transport, forestry, etc.)? Is this a hint to which pillar is preferred?

The approved project favored the energy sector. This project will increase energy production for both urban and rural population. Also, the energy production will potentially promote economic development in Western and Central China to relief poverty. Also, the Chinese government established a report listing all the preferred CDM projects and energy efficiency improvement projects dominated this list.¹¹ This is a hint to economic pillar is preferred and social pillar comes second. According to Ms. Lu, Ministry of Science and Technology, the criteria for forestry sector presented by the Chinese government are so tight that it almost makes carbon sink projects impossible.¹²

e. Is CDM pursued with great seriousness or did the US withdrawal have a noticeable effect?

The Chinese government pursued sustainable development in a much more aggressive way before the U.S. withdrew from the Kyoto Protocol. The National SD strategy, DNA, CDM criteria were all established prior to the year of 2000. According to Li Jun Feng, Energy Research Institute and National Development and Reform Commission (NDRC), "Furthermore, the government is still not strongly committed to the CDM, as the Kyoto Protocol has not entered into force. Nor are there many Annex I buyers around."¹³

¹¹ Michaelowa, 2003

¹² Lu, Xuedu. Ministry of Science and Technology. Personal Interview. Mar 20, 2004

¹³ Jorund Buen. Point Carbon. June 4, 2003.

C. Egypt

1. Does your country have clear SD criteria for CDM project approval? If yes, what are they, and are there any weights involved?

One of our project activities is to assist them with this issue. This will take place either this or next year. Currently they have none. The reason there is no yet clear set of sustainable development (SD) criteria through which they can evaluate CDM projects is the fact that they are still in the planning stages of trying to decide how and who will deal with CDM beside the DNA¹⁴.

However, the Egyptian Environmental Affairs Agency (EEAA) along with the DNA office have created a first national criteria for project approval.¹⁵

Social Criteria:

- Improve quality of life
- Alleviate poverty
- Improve equity

Economic criteria

- Provide financial returns to local entities
- Transfer new technology

Environmental criteria

- Reduce GHG emissions
- Conserve local resources
- Provide improved health and other environmental benefits

2. Are there approved CDM projects? Do you know how criteria were applied?

No, CDM projects have been approved yet. In general, UNEP has advised Egypt that the approval process should involve the line-ministry concerned with the sector of the project, NGO of CDA from the project locality, EEAA, the Investments Authority (GAFI), and other relevant institutions. A key concerns it to avoid making the project approval process too cumbersome or complicated that would increase the projects' transaction cost and drive CDM investors away to other countries in the region. The project approval process is an issue that is an on-going discussion between UNEP and EEAA¹⁶.

3. What is the structure of DNA?

The DNA will consist of three to four full time EEAA staff that will work on climate change issues as well as CDM issues. They have requested that they would be on the government pay roll so that when the UNEP project phases out; they remain in their positions and not linked to a

¹⁴ Kamel, Sami. Energy Economist. UNEP Riase Center. Email communication March 5, 2004

¹⁵ Second National Workshop of Capacity Development for the Clean Development Mechanism in Egypt (phase II). Power-point presentation. April 30, 2004.

¹⁶ Kamel, Sami. Energy Economist. UNEP Riase Center. Email communication March 5, 2004

donor-related budget for their salaries. Both the DNA and the Climate Change Unit are situated at the Ministry of Environment¹⁷.

The Designated National Authority for CDM (DNA) in Egypt is composed of:

-The Egyptian Council for CDM (EC-CDM).

-The Egyptian Bureau for CDM (EB-CDM).

Which is the permanent secretariat of the Egyptian Council operating at the Climate Change Unit and the EEAA-Ministry of state for Environmental Affairs.¹⁸

(Dr. Mohamed Shahawi who is also the head of the Climate Change Unit at the Ministry of Environment currently heads the DNA.)

4. What is your country's National Sustainable Development Strategy?

Several donors in Egypt have funded the production of studies and documents on sustainable development. UNDP in Cairo, World Bank, and GTZ are among them. However, there is not one, nationally approved, sustainable development strategy.

Additional Questions:

1. How do the identified criteria compare with the national SD strategy?

There is no yet a clear set of sustainable development (SD) criteria through which they can evaluate CDM projects is the fact that they are still in the planning stages of trying to decide how and who will deal with CDM beside the DNA.

2. If there are no criteria, why not? How is this being resolved?

The Egyptian DNA is currently going through several possible structures and scenarios for how the national CDM project approval committee will function and which ministries should be included in its membership. According to Samir Kamal (UNEP) there is a need for certain investment projects to do an Environmental Impact Assessment (EIA). He expects that a CDM investor would be required to submit a report describing the environmental impact of the project to the EEAA for their approval. EEAA will assess the report based on the set a criteria it already has for certain private investment projects in certain sectors and may request a full-fledged EIA before they approve a project¹⁹.

3. Is one of the three pillars (env., social, economic, other?) preferred over others? How do you know this, and why do you think this is so?

As for the other two elements of SD (social and economic) it is not clear yet how will they be addressed, but the economic one will be easy to quantify (x number of jobs created through the CDM project, clean energy technology transfer, etc.)²⁰

¹⁷ Tantawi, Samir. Environmental Researcher-CCU. Egyptian Environmental Affairs Agency. Personal communication: March 29, 2004.

¹⁸ Second National Workshop of Capacity Development for the Clean Development Mechanism in Egypt (phase II). Power-point presentation. April 30, 2004.

¹⁹ Kamel, Sami. Energy Economist. UNEP Riase Center. Email communication: March 5, 2004

²⁰ Kamel, Sami. Energy Economist. UNEP Riase Center. Email communication: March 5, 2004

4. Does the location of the DNA in a particular government office influence which criteria are emphasized?

In terms of which element of SD will be stressed upon more than the other, Mr. Samir Kamel stated that the EIA would be the most critical element in the approval of a CDM project in Egypt. This is because the rules and regulations set by the EEAA for EIAs are clear, comprehensive, and fully enforced. The other two elements may or may not be fully covered in the approval process primarily because there are not yet clear set of rules for them. However, if the formation and composition of the national CDM committee were representative enough including all relevant stakeholders, I would expect the project approval process to deal equally with all three SD aspects.

5. Do the projects (approved or proposed) favor a specific sector (energy, transport, forestry, etc.)? Is this a hint to which pillar is preferred?

As for the type of CDM projects to be approved, I think the national CDM committee will approve all CDM projects with no special preference to particular sectors. However, I would expect that the majority of CDM projects to be implemented in Egypt will be in the following sectors: large-scale grid connected wind energy farms, fuel switching (e.g. heavy fuel to natural gas) in industrial processes, solid waste CH₄ flaring or electricity generation, and other²¹. This is primarily due to certain characteristics within Egypt's energy sector.

6. Is CDM pursued with great seriousness or did the US withdrawal have a noticeable effect?

The way I see it, the US is attempting to get involved with Egypt and surrounding areas such as Morocco. Egypt on the other hand is working on implementing workable DNA committee, such as having work plans for the creation of a DNA. However, Egypt, as in many developing countries, the issue of whether a CDM project addresses SD in the country is a controversial and complex issue. No policymakers seem to agree on one definition for sustainable development. The CDM Executive Board decided not to give any guidelines on this issue and completely left it for each host country to decide on this issue.

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²¹ Kamel, Sami. Energy Economist. UNEP Risoe Center. Email communication March 5, 2004

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Second National Workshop of Capacity Development for the Clean development Mechanism in
Egypt (phase II). Cairo: 31 April -1 May 2004.

D. India

1. Does your country have clear SD criteria for CDM project approval? If yes, what are they, and are there any weights involved?

India has clear Sustainable Development criteria for CDM project approval. The CDM criteria were mainly drawn from the existing criteria used by the government in approving projects across the country. The CDM project should be oriented towards improving the quality of life of the very poor from the environmental standpoint. The criteria can be grouped into following categories²²:

Criteria	Possible Indicators
Environmentally benign	No net negative environment impacts, no deterioration of agriculture activity, soil degradation and other natural resources from the project activity
Foreign Exchange	Net increase in foreign exchange
Economically attractive	Increasing local employment, income generation and
Social relevance	High local community acceptance, willingness to participate, Poverty alleviation, addressing drought, not depriving access to existing living resources (viz., water, fuel, food etc.),
Capacity enhancement	Increasing awareness, local capacity
Technology friendly	Technology appropriateness, no dumping and import of second hand equipments, technology at par with recent levels, transfer of technology (environmentally sound and safe)
Location	Economically backward areas
Project promoter's capacity	Able to demonstrate adequate technical, managerial (own or hired) and financial capacity(taken care by the due diligence by the debt lenders and buyers)

²² Background Paper, World Bank - TERI – MOEF National Strategy Study for CDM Implementation in India: Launch and Public Workshop 21-22 October 2003 and Indian Government's official CDM website, <http://www.envfor.nic.in/cc/cdm/endorsed.htm>

Priority sectors ²³	Based on current performance indicators (but not resulting in biasing other sectors)
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2. Are there approved CDM projects? Do you know how criteria were applied?

The major types of projects submitted for approval include renewable energy (biomass, wind etc.), fuel switching, energy efficiency, petrochemicals and refinery, and power sector. Indian government has approved seventeen projects²⁴. The first six approved projects are basically energy efficiency, biomass and wind power projects ranging from 7.5MW to 15MW. These six CERUPT²⁵ supported projects together propose an estimated reduction of 2, 64, 66,549 tons of carbon dioxide²⁶.

3. What is the structure of DNA?

The head of the Designated Nodal Agency (DNA) is the Secretary of Ministry of Environment and Forest. The DNA also consists of the secretaries from six line ministries mainly ministry of external affairs, power, science and technology. CDM projects are required to obtain various approvals from the local bodies, namely the Pollution Control Board, Village bodies etc., before they come to DNA for final approval. If needed the project may be referred to any line ministries for specific technical approval. The DNA head owns the final authority in approving any CDM project.

4. What is your country's National Sustainable Development Strategy?

India's sustainable development strategy is focused on removing poverty and achieving economic development without causing damage to the environment. The Programme of Action for Sustainable Development Worldwide, Agenda 21, was adopted India at the Earth Summit in Rio de Janeiro in 1992.

- Sustainable and equitable use of resources for meeting the needs of the present and future generations without causing damage to environment.
- To prevent further damage to our life-support systems;
- To conserve and nurture the biological diversity, gene pool and other resources for long term food security.

--State of the Environment Report - 1999, Ministry of Environment and Forests, Government of India²⁷.

²³Renewable energy technology, such as wind, solar, and small-scale hydro-power; (ii) clean, sustainably grown biomass (no waste); (iii) energy efficiency improvement; (iv) fossil fuel switch and methane recovery; (v) clean (coal) power technologies. (vi) LULUCF (viii) Agriculture

²⁴ Babu, Y.D., TERI, India. Personal Interview, March 30, 2004.

²⁵ Indian Government's official CDM website, <http://www.envfor.nic.in/cc/cdm/endorsed.htm>

²⁶The Economic times, Times News Network, Wednesday, October 16, 2002
<http://economictimes.indiatimes.com/cms.dll/articleshow?articid=25293519>

1.1.1 ²⁷ Sustainable Development Concept, <http://sdnp.delhi.nic.in/>

Additional Questions:

1. *How do the identified criteria compare with the national SD strategy?*

The CDM project criteria closely follow the national sustainability strategy. The DNA has not developed any additional SD criteria and has stressed through the head of DNA that no new SD criteria will be developed and imposed by DNA. But any CDM project should not lead to negative impacts. This is because, most of the projects are required to obtain various approvals from the local bodies, namely the Pollution Control Board, Village bodies etc., before setting up the project. Hence any additional criteria will delay the process of approval by DNA.

2. *Is one of the three pillars preferred over others? How do you know this, and why do you think this is so?*

The government of India has approved seventeen projects and majority of them are in energy sector. This shows a clear inclination of the government towards focusing its interest in particular sector. The government has given a particular attention towards economic development with CDM projects. According to Ministry of Environment and Forest “the funding for CDM project activity should not lead to diversion of official development assistance.” And “the CDM project activity should bring in additional investment consistent with the needs of the people.”

3. *Does the location of the DNA in a particular government office influence which criteria are emphasized?*

The location of DNA in a particular government office does influence the criteria. The ministry of Environment and Forest was influential in promoting biomass and wind energy projects rather than simple power plants which generates more pollution.

4. *Do the projects (approved or proposed) favor a specific sector (energy, transport, forestry, etc.)? Is this a hint to which pillar is preferred?*

Looking at the present statistics, it seems that energy projects are preferred over others sectors. The approved World Bank project is under the prototype carbon fund and CERUPT projects are basically wind and biomass energy. Looking at these projects it looks environmental and economic pillars were more preferred.

5. *Is CDM pursued with great seriousness or did the US withdrawal have a noticeable effect?*

India was among the pioneering countries to come up with the CDM criteria and showed its commitment for CDM. The government has approved seventeen projects under the Marrakesh Accord to enable parties to embrace CDM without waiting for Kyoto to come into force.

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E. Kazakhstan

1. Does your country have clear SD criteria for CDM project approval? If yes, what are they, and are there any weights involved?

There are currently no SD criteria for project approval in Kazakhstan. As a new independent state Kazakhstan still has a lot of work ahead on establishing legislation basis including legislation on sustainable development. There are certain priorities being established by the framework of Agenda 21-Kazakhstan which will become a basis for the future SD/CDM projects criteria.

2. Are there approved CDM projects? Do you know how criteria were applied?

There are no officially approved CDM projects since there is no legislation on CDM criteria as well as officially national sustainable development strategy. However, there are 2 potential JI/CDM Projects which have already been approved and will be considered as JI/CDM projects upon the legislation on SD and CDM for Kazakhstan be established and come into force:

- 1) Hurricane Co. Project on Utilization of Associated Gas on Kumkol Oil Field, expected GHG emission reduction is 500,000 tons;
- 2) The Japanese State "NEDO" Co. Model Project on Energy Saving at the Ural Power Plant with the Ministry of Energy and Mineral Resources of the RoK.

3. What is the structure of DNA?

On March 15, 2000 in Astana, the Ministry of Natural Resources and Environmental Protection of the Republic of Kazakhstan and US Agency for International Development signed Memorandum on cooperation in the field of climate change issues and established Interdepartmental Coordination Center on Global Climate Change Issues. IDC is a prototype of national JI/CDM body where experts from various Ministers work together. National CDM institutions: Ministry of Energy and Mineral Resources; Ministry of Economy and Budget Planning; Ministry of Environment Protection; Public Fund "Coordination Center on Climate Change". Also, the Department on Sustainable Development is planning to be established at the Ministry of Environment Protection.

4. What is your country's National Sustainable Development Strategy?

The Concept of Ecological Safety, which outlines the key elements of environmental policy for the coming years, was approved in 1996 and the Council on Sustainable Development was created. A Republic of Kazakhstan Government Decree "On Approval of an Action Plan for Implementation of the Concept of Ecological Safety" was issued on February 3, 1997. The development of a National Environment Action Plan for the Sustainable Development of the Republic of Kazakhstan (NEAPSD) was identified as the first phase of the country's long-term strategy (up to the year 2000).

Additional Questions:

1. How do the identified criteria compare with the national SD strategy?

It is difficult to make comparison between the CDM criteria and SD strategy for Kazakhstan since there is no officially approved sustainable development strategy yet as well as approved CDM criteria.

2. If there are no criteria, why not? How is this being resolved?

Kazakhstan has been working on issues of global climate change since it has become independent. However, as a new independent state Kazakhstan still has a lot of work ahead on establishing legislation basis including legislation on sustainable development. There are certain priorities being established by the framework of Agenda 21-Kazakhstan which will become a basis for the future SD/CDM projects criteria.

3. Is one of the three pillars (env., social, economic, other?) preferred over others? How do you know this, and why do you think this is so?

Kazakhstan certainly gives environmental issues a careful consideration while selecting projects for CDM and is very interested in environment protection. At the same time, socio-economic issues are nonetheless predominant, especially, taking into account that Kazakhstan is far from being a main CO₂ emission country.

4. Does the location of the DNA in a particular government office influence which criteria are emphasized?

The Department on Sustainable Development is planning to be established at the Ministry of Environment Protection. Probably, the Ministry of Energy will have an impact on the choice of respective criteria for energy sector for the future CDM criteria.

5. Do the projects (approved or proposed) favor a specific sector (energy, transport, forestry, etc.)? Is this a hint to which pillar is preferred?

There are no officially approved CDM projects since there is no legislation on CDM criteria as well as officially national sustainable development strategy. However, there are 2 potential JI/CDM Projects which both focus on the energy sector.

6. Is CDM pursued with great seriousness or did the US withdrawal have a noticeable effect?

Kazakhstan approaches CDM issues seriously and withdrawal of the US from the Kyoto Protocol didn't influence the initial position of Kazakhstan on climate change issues.

Sources of Information Used:

- 1) Ministry of Environment Protection of the Republic of Kazakhstan
- 2) www.climate.kz
- 3) National Environment Centre for Sustainable Development (NECSD)

F. Philippines

1. Does your country have clear SD criteria for CDM project approval? If yes, what are they, and are there any weights involved?

No, there are none. However, according to Joy Goco, head of the Inter-Agency Committee on Climate Change (IACCC, the proposed institution that will take on the functions of the DNA of the Philippines), the IACCC is “currently in the process of developing the sustainable development criteria for CDM projects although at present we are using initial sustainable development indicators in the evaluation of potential CDM projects.”²⁸ In the absence of these criteria, the Philippines uses the Philippine Agenda 21 (PA21) as its overall guide for Sustainable Development and potential CDM activities:

In summary, sustainable development at the project level would require the use of the following six tests of sustainability viz.:

Economic viability. The great majority will benefit from the project and will not cause serious harm or damage to the minority affected;

Ecological viability. There will be no significant alteration of the ecological functions of the environment and regeneration capacity of natural resources;

Technological viability. The use of environmentally sound technology will be adopted in the production process;

Political viability. The people participate in the planning and implementation of the project. They also own and share the project benefits;

Socio-Cultural Viability. The values, beliefs and world view of a community that are consistent with human ecological principles (e.g. peacekeeping, life-giving) will not be opposed, but be enhanced;

Institutional Viability. Responsible institutions have the capacity to sustain development activities. The CDM, as defined in Article 12, aims to assist Parties not included in Annex I to achieve sustainable development, and at the same time to assist Parties included in Annex I to comply with their emission reduction commitments. With this definition, Parties not included in Annex I must have their own set of criteria for sustainable development in order to ensure that the CDM projects to be implemented are really sustainable.

Applying the six tests of sustainability defined under PA 21, CDM projects that aim to reduce GHG emissions would certainly meet the criteria. Because of the revenues that can be derived from selling carbon credits, mitigation options that were not economically viable before would be economically viable under the CDM. CDM projects are ecologically viable, since they aim to reduce GHG emissions, thereby preventing dangerous anthropogenic interference with the climate system. Reducing GHG emissions entails the adoption of environmentally sound technologies that are widely accepted by the community. With the UNIDO CDM initiative, various CDM and industrial stakeholders are to cooperate in the planning and implementation of CDM projects as part of the political viability of sustainable objectives. Lastly, institutional viability is also a key factor in the UNIDO CDM initiative under its capacity building activities.”²⁹

²⁸ Goco, Joyceline. Head of the Inter-Agency Committee on Climate Change. Personal Communications.

²⁹ Alice B. Herrera. Report from the UNIDO project UC/RAS/01/107: “Capacity Mobilization to Enable Industrial Projects under the Clean Development Mechanism”. Project Manager: Peter Pembleton.

2. Are there approved CDM projects? Do you know how criteria were applied?

Currently, there are no approved CDM projects. There are, however, several CDM projects in the developmental phase and are in the pipeline to be evaluated once the DNA is established officially and criteria are set. The priority areas for CDM opportunities are mostly in the renewable energy, manufacturing and agricultural sectors.

3. What is the structure of DNA?

The proposed DNA in the Philippines is the Inter-Agency Committee on Climate Change. The IACCC has been around since 1991 and was created by Presidential Order 220 to coordinate the Philippines' climate-change related activities. The IACCC is co-chaired by the Department of Environment and Natural Resources (DENR) and the Department of Science and Technology (DOST). The Environmental Management Bureau of the DENR serves as the secretariat for the IACCC. Member composition of the IACCC includes the Department of Foreign Affairs (DFA), Department of Energy (DOE), National Economic Development Agency (NEDA), Philippine Atmospheric and Geologic Authority (PAGASA), the Department of Public Works and Housing, Forest Management Bureau (FMB), the Philippine Senate, Philippine National (PNCC), National Mapping (NAMRIA), and the Department of Transportation and Communication (DOTC). Their objective of this de-facto DNA is to gain national approval towards the end of this year (2004). The national elections this coming May has delayed the designation. However, activities such as capacity building for CDM and institutional strengthening still continue. Expansion of the IACCC will also include members from the private sector, which will be key in advancing CDM buy-in in the country.³⁰

4. What is your country's National Sustainable Development Strategy?

Philippine Agenda 21 serves as the framework for sustainable development in the Philippines. <http://www.psdn.org.ph/agenda21/start.htm>

“The Philippine Agenda (PA) 21 serves as the current national action agenda for sustainable development for the 21st century. It was adopted on 26 September 1996. The action agenda is based on the imperatives of the current national situation and the emerging landscape for sustainable development. PA 21 envisions a better quality of life for all. It adheres to the following principles of sustainable development:

Primacy of Developing Full Human Potential. People are at the core of development initiatives;

Holistic Science and Appropriate Technology. The search for solutions to the complex of development problems has to be undertaken from the perspective that considers specific problems within their larger social and ecological context. This approach facilitates the development and use of appropriate technology;

Cultural, Moral and Spiritual Sensitivity. Nurturing the inherent strengths of local and indigenous knowledge, practices and beliefs while respecting the cultural diversity, moral norms and spiritual essence of Filipino society;

Self-determination. Respecting the rights and relying on the inherent capacity of the country and its people to decide on the course of their own development;

³⁰ Robert Yap. Environmental Economist at KLIMA. Personal communications.

National Sovereignty. Self-determination at the national level where the norms of society and the specifics of the local ecology inform national governance. It includes human and environmental security as well as achieving and ensuring security and self-reliance in basic staple foods. Recognizing the crucial role of farmers and fisher folk in providing the nutritional needs of the nation;

Gender Sensitivity. Recognizing the important and complementary roles and the empowering of both men and women in development;

Peace, Order and National Unity. Ensure the right of all to a peaceful and secure existence;

Social Justice, Inter-, Intra-Generational and Spatial Equity. Ensuring social cohesion and harmony through equitable distribution of resources and providing the various sectors of society with equal access to development opportunities and benefits today and in the future;

Participatory Democracy. Ensuring the participation and empowering of all sectors of society in developmental decision-making and processes and operationalizing inter-sectoral and multi-sectoral consensus;

Institutional Viability. Recognizing that sustainable development is a shared, collective and indivisible responsibility which calls for institutional structures that are founded on the spirit of solidarity, convergence and partnership between and among different stakeholders;

Viable, Sound and Broadly Based Economic Development. Development founded on a stable economy where the benefits of economic progress are equitably shared across ages, communities, genders, social classes, ethnic groups, geographical units and generations;

Sustainable Population. Achieving a sustainable population level, structure and distribution while taking cognizance of the limited carrying capacity of nature and the interlinking of population, culture, resources, environment and development;

Ecological Soundness. Recognizing nature as our common heritage and thus respecting the limited carrying capacity and integrity of nature in the development process to ensure the right of present and future generations to this heritage;

Bio-geographical Equity and Community-Based Resource Management. Recognizing that, since communities residing within or adjacent to an ecosystem of a bio-geographic region will be the ones most directly and immediately exposed to the positive and negative impacts on that ecosystem, they should be given prior claim to the developmental decisions affecting that ecosystem, including management of the resources. To ensure bio-geographical equity, other affected communities should be involved in such decisions;

Global Cooperation. Building upon and contributing to the diverse capacities of individual nations.

Additional Questions:

1. How do the identified criteria compare with the national SD strategy?

While the Philippines currently does not have specific SD criteria for CDM projects, the interim DNA (IACCC: Inter-Agency Committee on Climate Change) is developing a set of criteria based on existing national strategies (Philippine Agenda 21 (PA 21). With PA 21 as the template, “applying

the six tests of sustainability defined under PA 21, CDM projects that aim to reduce GHG emissions would certainly meet the criteria³¹ and cover quite comprehensively the national SD strategy.

2. If there are no criteria, why not? How is this being resolved?

The interim DNA is currently developing this set of criteria. They are informing their criteria based on existing sets of sustainability criteria per project type. I.e., for energy projects, DOE's SD criteria will be used.

3. Is one of the three pillars (env., social, economic, other?) preferred over others? How do you know this, and why do you think this is so?

As a matter of policy, technology transfer and economic progress is given the most attention because most of the potential gains for the country will come mostly from the energy and manufacturing sectors. In addition, CDM projects such as sequestration are not being considered because they offer little in terms of technological transfer. However, environmental and social criteria will receive close attention as well since the interim DNA is housed within the Department of Environment and Natural Resources and NGOs and civil society are quite involved.

4. Does the location of the DNA in a particular government office influence which criteria are emphasized?

Certainly, because the co-chair of the IACCC is also the DOST (Dept. of Science and Technology), technology transfer will be one of the criteria emphasized to help the Philippines build a cleaner energy infrastructure.

5. Do the projects (approved or proposed) favor a specific sector (energy, transport, forestry, etc.)? Is this a hint to which pillar is preferred?

Renewable energy, manufacturing (cement and steel), and agricultural waste-to-energy projects are being prioritized due to high potential to reduce GHG and save energy and money. Sinks or sequestration projects are not being considered at all as they offer little returns relative to other project types.

6. Is CDM pursued with great seriousness or did the US withdrawal have a noticeable effect?

Despite the US withdrawal, the Philippines sees great opportunity to transition to a cleaner energy system and continues to pursue CDM opportunities, despite political setbacks. Once the private sector gets involved towards the end of the year, CDM will become more credible and take off.

³¹ Alice B. Herrera. Report from the UNIDO project UC/RAS/01/107: "Capacity Mobilization to Enable Industrial Projects under the Clean Development Mechanism". Project Manager: Peter Pembleton.

G. Uganda

1. Does your country have clear SD criteria for CDM project approval? If yes, what are they, and are there any weights involved?

Uganda has a preliminary list of criteria which include the following five categories (email from Philip Gwage):

1. Climate change mitigation (environmental) - project should lead to improved energy use or more environmental cover.
2. Improvement of incomes - especially for the very poor.
3. Improved quality of life – such as health, literacy, and access to drinking water.
4. Food security- project should increase food production.
5. Regional balance- development should focus on areas with poverty.

Detailed description:

Criteria	Detail
Climate Change Mitigation	Afforestation
	Woodlots
	Keep cities green programs
	Preservation of rare tree species e.g. Mvule
Improved incomes	Employment generation
	Income generating activities
Improved quality of life	Improved health
	Improved literacy rates
	Improved accessibility
	Improved access and quality of drinking water
Food security	Improved quality
	Increased quantity
	Improved handling and storage
Regional balance	North
	West
	Central
	East
Total weights	

Note the heavy emphasis on poverty alleviation/quality of life parameters. Environment and technology transfer are not as prominent. Two new categories: food and regional distribution. This is a preliminary analysis, though, since they will be accompanied by a weighting scheme.

2. Are there approved CDM projects? Do you know how criteria were applied?

There are no approved projects. However, UCCEE and government officials have identified possible projects in the energy sector such as hydropower and photovoltaic, and in the transport sector, which accounts for 75% of emissions, such as limiting traffic congestion (document 3, 4 p. 3, and Philip Gwage). These projects emphasize poverty alleviation, as well as technology transfers. Some warn that Uganda's poverty and low quantity of total carbon emissions will inevitably limit the scope of such projects, though.

They emphasize the potential for sequestration (document 5, and perhaps project from document 3 - forestry) and they emphasize the need for improving ways to attract investors and limit bureaucracy (document 4 – opening remarks, and document 3 p. 1, and UIA, p. 28).

3. What is the structure of DNA?

There is no DNC (national CDM authority) in Uganda. The final DNA will probably be housed in the Dept. of Meteorology, in the Ministry of Natural Resources or Water Lands and Environment and will be assisted by other ministries, such as Ministry of Energy and Mineral Development (document 2 p. 5, document 3 p. 31, document 4). Uganda is involved in CD4CDM, a capacity building project aided by the UNEP's UCCEE and funded by the Dutch government. The purpose of this capacity building is to provide both legal (institutional) and technical capacity for CDM projects.

4. What is your country's National Sustainable Development Strategy?

There are various documents, including the Government National Development Plan, which have been used in drafting preliminary criteria. No National SD Strategy has been identified.

Additional Questions:

a. How do the identified criteria compare with the national SD strategy?

I am not sure, as I never found the National Strategy, specifically, the Government National Development Plan has never been found.

b. If there are no criteria, why not? How is this being resolved?

Preliminary criteria have been identified. However, the different weights have not been decided upon yet. Uganda is currently in the process of resolving these issues, as well as other technical/legal issues through its participation in the UCCEE's CD4CDM.

c. Is one of the three pillars (env., social, economic, other?) preferred over others? How do you know this, and why do you think this is so?

Uganda is one of the least developed countries in the world who's also seen its poverty level worsen in the last few years (document 3, p. 24). Many regions have no access to clean water or sufficient supply of energy. Also, Uganda's dependence on petroleum imports puts a burden on its foreign reserves. For these reasons Uganda has emphasized the socio-economic pillar more than the environmental pillar. Out of the 5 main categories for SD, 4 are focused on poverty alleviation. Also, criteria which were recommended by UCCEE (email of Stanford) with an environmental focus never made it to the final draft.

d. Does the location of the DNA in a particular government office influence which criteria are emphasized?

There is no DNA in Uganda. However, it will probably be located in the Dept. of Meteorology, with significant interdepartmental interaction (document 4, p. 9). This has allowed the Ministry of Energy and Mineral Development, for instance, to take a lead role in emphasizing energy related projects, with a focus on poverty alleviation. Also, the above department is not in the Ministry of Environment, but rather in the Ministry of Natural Resources. This further explains why environmental concerns are far less prominent than socio-economic concerns.

e. Do the projects (approved or proposed) favor a specific sector (energy, transport, forestry, etc.)? Is this a hint to which pillar is preferred?

Without a doubt Uganda is proposing the energy and transport sectors as the target sectors for future projects. This policy was stated also by UCCEE CD4CDM (document 2, p. 5), which identified projects in the energy sector – hydropower and photovoltaic, as well as in the transport sector – reducing traffic congestion in Kampala. The government has since adopted this policy, both through action, as in the Ministry of Energy and Mineral Development’s focus on energy project creation, as well as through official statements, such as the Workshop report stating that the main focus is the energy sector (document 4, p. 3). This suggests that poverty alleviation (through the provision of energy) and economic development (through the additional investment and job creation) are the preferred pillars.

f. Is CDM pursued with great seriousness or did the US withdrawal have a noticeable effect?

It is my impression that the US departure has weakened Uganda’s resolve in creating the institutional framework for CDM. The capacity building process (under UCCEE) has been fairly slow; for instance, a Work Plan for the creation of a DNA has yet to be put in place. Aside from the institutional void, basic guidelines intended to direct entities wishing to submit projects have not been created (document 4, p. 15).

Other issues:

While Uganda is determined to profit from CDM by focusing on high-cost projects in the energy and transport sector, there are reasons to suggest it should consider promoting other projects as well. The fact that Uganda is one of the poorest countries, with very low total CO₂ emissions, puts it at a disadvantage compared to other, more developed, countries. Some have suggested that reforestation and afforestation are more viable since they are very cheap to implement and can be pursued on a small scale basis (document 5, and document 4, p. 15). Also, in light of Uganda’s situation, many have emphasized the need to reduce bureaucracy in the project approval process (document 4, p. 4 and 9) as

well as developing “innovative, simple, flexible, and effective projects” in order to attract investors (document 3, p 1).

Sources:

1.

Overview of capacity development by UCCEE and the list of 12 countries:

Capacity Development for the Clean Development Mechanism

Presented at the workshop on CDM in Central America, San Salvador March 2003.

UNEP/UCCEE. Jorgen Fenhann

[file:///C:/Documents%20and%20Settings/yair%20gelb/Local%20Settings/Temporary%20Internet%20Files/Content.IE5/PK7ARD7Q/352,8,Slide 8](file:///C:/Documents%20and%20Settings/yair%20gelb/Local%20Settings/Temporary%20Internet%20Files/Content.IE5/PK7ARD7Q/352,8,Slide%208)

2.

Good list of contacts in Uganda and abroad and institutions (preliminary of UCCEE process):

Capacity Development for CDM.

Report on first national visit to Uganda.

Final Report by EDRC to UCCEE RISOE National Laboratory, Denmark.

Energy & Development Research Center (EDRC), University of Cape Town. August, 2002.

<http://cd4cdm.org/countries%20and%20regions/sub-Saharan%20Africa/Uganda/National%20visit%20report%20Uganda.doc>

3.

Good background source for available projects, CDM criteria, and the 4 initial task forces- forestry, energy, transportation, SD (UNEP/RISO):

Capacity Building in Clean Development Mechanism in Uganda. Final Report. Ministry of Water, Lands and Environment. Dept. of Meteorology. June 2001.

<http://uneprisoe.org/CDM/CDMCapacityBuildUganda.pdf>

4.

Workshop summary report, good contacts list:

Workshop to Discuss Workplan for Capacity Development for CDM in Uganda.

Phillip Gwage, Department of Meteorology

January 9, 2003.

<http://cd4cdm.org/countries%20and%20regions/sub-Saharan%20Africa/Uganda/First%20National%20Workshop/CDM%20workshop%20report.doc>

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Appendix C.2: Summary of Ministries Forming each Country's DNA

Source: individual country summaries included above.

#	Country	Main Institutions within the DNA Structure
1	Brazil	Ministry of Science and Technology* Ministry of Environment* Ministry of Foreign Relations Ministry of Agriculture Ministry of Livestock and Supply Ministry of Transportation Ministry of Mines and Energy Ministry of Development, Industry and Foreign Trade
2	China	Ministry of Environment* Ministry of Science and Technology
3	India	Ministry of Environment and Forest* Ministry of Science and Technology Ministry of Power Ministry of External Affairs Ministry of Industry Ministry of Finance
4	Philippines	Department of Environment and Natural Resources* Department of Science and Technology Department of Foreign Affairs Department of Energy National Economic Development Agency Philippine Atmospheric and Geologic Authority Department of Public Works and Housing Forest Management Bureau Philippine Senate Department of Transportation and Communication
5	Uganda	Ministry of Natural Resources, Water Land and Environment* Ministry of Energy and Mineral Development
6	Egypt	Ministry of Environment*
7	Kazakhstan	Ministry of Environment* Ministry of Energy and Mineral Resources Ministry of Economy and Budget Planning

* - the central organ(s) for DNA

Appendix C.3: CDM Projects

Proposed and Approved for Case Study Countries

Source: CDM watch.

Philippines:

- Renewables: 100 MWe Southern Leyte geothermal project
- Renewables: First Farmers Bagasse cogeneration project
- Renewables: North Luzon wind project
- Renewables: Palinpinon 2 geothermal optimization project
- Renewables: Panay Island rice hull to energy project
- Renewables: PV/LPG and biomass project
- Renewables: Victorias Bagasse cogeneration project

Brazil:

- Fuel Switching: V&M do avoided fuel switch project
- Fuel Switching, Transport: Ethanol Fuel project
- Fuel Switching, Sinks and Sequestration, Gas Capture: Plantar project
- Gas Capture: Granja Becker animal waste reduction project
- Gas Capture: NovaGerar landfill gas to energy project
- Gas Capture: USINAVERDE urban solid waste project
- Gas Capture: VEGA Salvador de Bahia landfill gas Project
- Renewables: Aquarius hydroelectric project
- Renewables: BP Solar project
- Renewables: Catanduva biomass project
- Renewables: Onyx landfill gas project
- Renewables: UTE Barreiro fuel switch project
- Renewables: Vale de Rosario bagasse project

Uganda:

- Gas Capture or Destruction: Transalta cattlefeed project
- Renewables: West Nile hydroelectric project
- Sinks and Sequestration: Tree Farms Plantation project

India:

- Energy Efficiency: Birla clinker and conversion factor improvement project
- Energy Efficiency: BOF Gas Waste Heat Electricity Project
- Energy Efficiency: Chennai petroleum refinery residue project
- Energy Efficiency: Indo Gulf Ammonia plant efficiency project
- Energy Efficiency: Karnataka Municipal Water Utility Efficiency Project
- Energy Efficiency: OSIL waste heat power project
- Fuel Switching: TA Sugars cogeneration and fuel switch project
- Gas Capture or Destruction: Gujarat HFC23 decomposition project
- Gas Capture or Destruction: Luknow municipal solid waste project
- Renewables: Balrampur biomass project
- Renewables: Enercon Wind Projects
- Renewables: Haidergarh bagasse co-generation project
- Renewables: Ind-Barath Maharashtra biomass plant
- Renewables: Kalpataru biomass plant, Rajasthan
- Renewables: Sankaneri, Tamil Nadu, wind project

- Renewables: SCM Sugars bagasse project
- Renewables: SRS Bagasse project
- Renewables: Suzlon wind project
- Renewables: Tamil Nadu 18MW biomass project
- Renewables: Tamil Nadu Wind Project
- Renewables: Women for Sustainable Development biomass plants
- Transport: Gasohol Project

Egypt:

- Renewables: Zafarana wind power project

China:

- Energy Efficiency: Fushun steam system efficiency project
- Renewables: Huitengxile wind project

Appendix C.4: Data Used in Creating the Averages Across Non-Annex I Countries:

Source: World Bank's WDI database.

	Country Name	1999 per capita GHG emissions	1999 GDP (current US\$)	1999 Total Population	Total GHG emissions (metric ton CO ₂ eq.)	1999 GDP/cap (current US\$)
1	Albania	0.49	3.68E+09	3114420	1526065.8	1,180
2	Algeria	3.03	4.76E+10	3.00E+07	90748500	1,589
3	Antigua and Barbuda	5.16	6.51E+08	67430	347938.8	9,662
4	Argentina	3.77	2.84E+11	3.66E+07	137906600	7,755
5	Armenia	0.98	1.85E+09	3144000	3081120	587
6	Azerbaijan	4.21	4.58E+09	7983000	33608430	574
7	Bahamas, The	5.99	4.53E+09	299500	1794005	15,119
8	Bangladesh	0.2	4.60E+10	1.29E+08	25759460	357
9	Barbados	7.64	2.48E+09	266080	2032851.2	9,306
10	Belize	2.67	6.88E+08	232100	619707	2,964
11	Benin	0.21	2.39E+09	6109530	1283001.3	391
12	Bhutan	0.49	4.45E+08	781750	383057.5	569
13	Bolivia	1.38	8.29E+09	8138000	11230440	1,018
14	Botswana	2.35	5.07E+09	1646640	3869604	3,079
15	Brazil	1.79	5.37E+11	1.68E+08	300767435	3,194
16	Burkina Faso	0.09	2.53E+09	1.10E+07	989613	230
17	Burundi	0.04	7.14E+08	6677950	267118	107
18	Cambodia	0.06	3.31E+09	1.18E+07	705402.6	281
19	Cameroon	0.32	9.40E+09	1.46E+07	4658684.8	646
20	Cape Verde	0.33	5.88E+08	423270	139679.1	1,389
21	Chad	0.02	1.56E+09	7485610	149712.2	209
22	Chile	4.16	7.30E+10	1.50E+07	62474048	4,864
23	China	2.25	9.91E+11	1.25E+09	2820588750	791
24	Colombia	1.53	8.48E+10	4.15E+07	63554670	2,043
25	Comoros	0.15	2.23E+08	544280	81642	410
26	Congo, Dem. Rep.	0.04	4.44E+09	4.96E+07	1983114	89
27	Congo, Rep.	0.82	2.35E+09	2933760	2405683.2	802
28	Costa Rica	1.64	1.58E+10	3730420	6117888.8	4,234
29	Cote d'Ivoire	0.78	1.26E+10	1.56E+07	12157384.2	806
30	Djibouti	0.62	5.36E+08	619540	384114.8	865
31	Dominica	1.12	2.66E+08	72200	80864	3,689
32	Dominican Republic	2.83	1.73E+10	8238270	23314304.1	2,104
33	Ecuador	1.87	4.91E+10	1.24E+07	23210440	3,953
34	Egypt, Arab Rep.	1.97	8.91E+10	6.28E+07	123656900	1,419
35	El Salvador	0.94	1.25E+10	6153740	5784515.6	2,024
36	Eritrea	0.15	7.03E+08	3991000	598650	176
37	Ethiopia	0.09	6.45E+09	6.28E+07	5650380	103
38	Georgia	1.02	2.80E+09	5289000	5394780	530

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39	Ghana	0.3	7.71E+09	1.89E+07	5660496	409
40	Grenada	2.18	3.78E+08	97500	212550	3,872
41	Guatemala	0.87	1.83E+10	1.11E+07	9646908	1,652
42	Guinea	0.17	3.46E+09	7250520	1232588.4	477
43	Guinea-Bissau	0.22	2.24E+08	1173380	258143.6	191
44	Guyana	2.23	6.95E+08	756340	1686638.2	919
45	Haiti	0.18	4.15E+09	7803000	1404540	532
46	Honduras	0.8	5.42E+09	6252630	5002104	868
47	India	1.08	4.47E+11	9.99E+08	1078937280	447
48	Indonesia	1.16	1.40E+11	2.04E+08	236139228	688
49	Iran, Islamic Rep.	4.8	9.96E+10	6.28E+07	301267200	1,587
50	Jamaica	4	7.53E+09	2555370	10221480	2,947
51	Jordan	3.07	8.13E+09	4739870	14551400.9	1,716
52	Kazakhstan	7.38	1.69E+10	1.53E+07	112829130	1,104
53	Kenya	0.3	1.05E+10	2.94E+07	8824800	358
54	Kiribati	0.29	4.81E+07	88400	25636	544
55	Korea, Rep.	8.44	4.06E+11	4.66E+07	393447480	8,711
56	Kuwait	24.93	2.92E+10	1924400	47975292	15,165
57	Kyrgyz Republic	0.97	1.25E+09	4864600	4718662	257
58	Lao PDR	0.08	1.45E+09	5157540	412603.2	281
59	Lebanon	3.96	1.65E+10	4271230	16914070.8	3,873
60	Liberia	0.13	4.42E+08	3044050	395726.5	145
61	Libya	8.27	2.83E+10	5171550	42768718.5	5,475
62	Lithuania	3.75	1.07E+10	3531000	13241250	3,017
63	Macedonia, FYR	5.64	3.67E+09	2017000	11375880	1,821
64	Madagascar	0.13	3.72E+09	1.51E+07	1956565	247
65	Malawi	0.08	1.81E+09	1.01E+07	807800	179
66	Malaysia	5.44	7.91E+10	2.27E+07	123542400	3,485
67	Maldives	1.74	5.89E+08	267720	465832.8	2,201
68	Mali	0.05	2.71E+09	1.06E+07	529182.5	256
69	Malta	8.82	3.65E+09	388000	3422160	9,396
70	Mauritania	1.18	9.58E+08	2576180	3039892.4	372
71	Mauritius	2.1	4.18E+09	1174400	2466240	3,555
72	Mexico	3.92	4.80E+11	9.66E+07	378511084	4,976
73	Moldova	1.51	1.17E+09	4288000	6474880	273
74	Mongolia	3.17	9.06E+08	2378320	7539274.4	381
75	Morocco	1.27	3.53E+10	2.82E+07	35862260	1,249
76	Mozambique	0.08	3.98E+09	1.73E+07	1383920	230
77	Namibia	0.07	3.39E+09	1718270	120278.9	1,971
78	Nepal	0.15	5.03E+09	2.25E+07	3374706	224
79	Niger	0.11	2.02E+09	1.05E+07	1152886.9	193
80	Nigeria	0.33	3.65E+10	1.24E+08	40885845	295
81	Oman	8.47	1.57E+10	2348000	19887560	6,691
82	Pakistan	0.73	5.86E+10	1.35E+08	98396700	435
83	Palau	12.86	1.13E+08	18800	241768	6,036
84	Panama	2.94	1.14E+10	2811000	8264340	4,052
85	Papua New Guinea	0.48	3.46E+09	5005920	2402841.6	691
86	Paraguay	0.88	7.74E+09	5151000	4532880	1,503
87	Peru	1.19	5.16E+10	2.56E+07	30419672.5	2,018
88	Philippines	0.98	7.62E+10	7.49E+07	73380626.2	1,017

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89	Qatar	91.48	1.22E+10	565110	51696262.8	21,583
90	Rwanda	0.08	1.93E+09	7492000	599360	258
91	Samoa	0.82	2.32E+08	170370	139703.4	1,362
92	Sao Tome and Principe	0.61	4.69E+07	144900	88389	324
93	Saudi Arabia	11.66	1.61E+11	2.02E+07	235508680	7,980
94	Senegal	0.4	4.67E+09	9287300	3714920	502
95	Seychelles	2.7	6.23E+08	80030	216081	7,789
96	Sierra Leone	0.11	6.69E+08	4932230	542545.3	136
97	Singapore	13.73	8.14E+10	3952000	54260960	20,592
98	Solomon Islands	0.4	3.15E+08	407960	163184	772
99	South Africa	7.95	1.31E+11	4.21E+07	334744528.5	3,113
100	Sri Lanka	0.47	1.57E+10	1.82E+07	8557760	860
101	St. Kitts and Nevis	2.39	3.01E+08	42850	102411.5	7,018
102	St. Lucia	2.1	6.75E+08	153700	322770	4,394
103	St. Vincent and the Grenadines	1.41	3.31E+08	114080	160852.8	2,898
104	Sudan	0.09	1.06E+10	3.06E+07	2750647.5	348
105	Suriname	5.19	8.76E+08	414550	2151514.5	2,113
106	Swaziland	0.38	1.38E+09	1019540	387425.2	1,350
107	Syrian Arab Republic	3.38	1.59E+10	1.58E+07	53376960	1,005
108	Tajikistan	0.83	1.09E+09	6160000	5112800	176
109	Tanzania	0.08	8.64E+09	3.29E+07	2633805.6	262
110	Thailand	3.31	1.22E+11	6.02E+07	199413598	2,031
111	Togo	0.3	1.42E+09	4388600	1316580	324
112	Tonga	1.21	1.50E+08	99600	120516	1,505
113	Trinidad and Tobago	19.41	6.82E+09	1292750	25092277.5	5,278
114	Tunisia	1.85	2.10E+10	9455900	17493415	2,218
115	Turkmenistan	6.36	3.31E+09	5097000	32416920	648
116	Uganda	0.06	5.97E+09	2.16E+07	1297200	276
117	Uruguay	1.98	2.09E+10	3313000	6559740	6,313
118	Uzbekistan	4.78	1.71E+10	2.44E+07	116665460	700
119	Vanuatu	0.42	2.34E+08	193000	81060	1,213
120	Venezuela, RB	5.31	1.03E+11	2.37E+07	125884170	4,358
121	Vietnam	0.6	2.87E+10	7.75E+07	46509000	370
122	Yemen, Rep. Yugoslavia, Fed.	1.07	7.52E+09	1.70E+07	18207687.1	442
123	Rep.	3.72	9.84E+09	1.06E+07	39554760	925
124	Zambia	0.18	3.13E+09	9881210	1778617.8	317
125	Zimbabwe	1.42	5.49E+09	1.24E+07	17591414.4	443
126	Israel	10.01	1.01E+11	6105000	61111050	16,517
127	Bahrain	29.45	6.62E+09	645655.7	19014560.37	10,254
128	Cyprus	7.98	9.24E+09	754000	6016920	12,254
	Total				8440874464	349,313
	Avg.				60,725,716	2,513
					5,495,455,22	
	United States	19.72	9.21E+12	2.79E+08	4	33,038