The World Bank
1818 H Street, NW, Washington, DC 20433, USA

Mr. Jose Domingos Miguez
Chairperson
CDM Executive Board

Mr. Hans Jurgen Stehr
Vice Chair
CDM Executive Board

Members of the CDM Executive Board

c/o UNFCCC Secretariat
P.O. Box 260124
D-53153 Bonn
Germany

Washington DC, April 21, 2006

Submission on Regional Distribution of CDM Project Activities

Dear Mr. Miguez,
Dear Mr. Stehr,
Honorable Members of the CDM Executive Board,

The World Bank appreciates this opportunity to share our experience and views on the regional distribution of CDM projects and the capacity of Non-Annex I countries to undertake CDM projects. Recognizing that the CDM alone cannot correct all existing imbalances between countries, this submission suggests ways that may help the CDM reach its full potential in more countries.

Our submission is made in response to the decision of the first Meeting of the Parties to the Kyoto Protocol (Montreal, December 2005) on "Further guidance relating to the Clean Development Mechanisms" (paragraphs 32-36) as well as in response to the call for input on the subject matter issued by the 23rd meeting of the CDM Executive Board and with a view to the preparation by the Board of its own report to the Parties on this matter.

The submission draws on the World Bank's experience with development projects and almost ten years of involvement with the project-based mechanisms. It also reflects the World Bank's approach to carbon finance as recently approved by the Bank's Board of Executive Directors. The submission was elaborated with input from the World Bank's

regional departments, which include an increasing number of World Bank CDM project activities in their operational portfolios.

Attachment I to this submission letter contains observations and recommendations for consideration by the CDM Executive Board and the Parties. Attachment II contains further information and observations on the development of the World Bank CDM project portfolio, experience with the CDM in the World Bank's regional departments, the CF-Assist capacity building program, and the impact of regulatory and methodological decisions on regional distribution.

We hope that the submission will provide useful input into considerations on the regional distribution of CDM projects, including its causes and effects especially on small countries and poor communities in the developing world. We would be happy to provide further clarification, if this were deemed helpful by the CDM Executive Board, the UNFCCC Secretariat, or any of the Parties to the Kyoto Protocol.

With kind regards,

James Warren Evans
Director
Environment Department
The World Bank

Attachment I

Observations and recommendations regarding the regional distribution of CDM project activities

The World Bank, 20 April 2006

1. **The current portfolio of CDM projects is unevenly distributed across continents and across countries in the same continent.**

   (a) The uneven distribution of CDM project activities reflects, first of all, the uneven state of economic development and the different attractiveness for investment of many developing countries. It is not surprising that investments in CDM activities largely follow trends in foreign direct investment.

   (b) The World Bank's carbon finance portfolio is more evenly distributed between continents and countries than the overall CDM portfolio, suggesting that many private sector buyers focus on low risk CDM projects in low risk countries.

   (c) Public institutions, such as the World Bank, can contribute to a more even distribution of CDM activities in a competitive market environment, provided that (i) public and private funding to support CDM institutions, build capacity and prepare CDM projects in target countries is made available to them, and (ii) CDM activities are in tune with the overall economic development in project countries.

   (d) The emergence of so called unilateral CDM projects in some countries (e.g., South Asia, Brazil) should be welcomed and supported as one step to improve access to the CDM and achieve a more even distribution of CDM projects across countries.

2. **Typically less developed countries benefit much less from the CDM. Some of the reasons are:**

   (a) The energy economy of many developing countries is weak, resulting in very low emissions due to low levels of fossil fuel use and thus few opportunities to reduce greenhouse gases from fossil fuels. Countries with economies in transition are a noted exception.

   (b) There is a lack of a general enabling investment environment and market opportunities due to weak public institutions and capital markets, poor security, limited economic activity, and distorted incentives. For instance, subsidized fossil energy prices discourage investment in renewable energy projects. And public sector entities and the informal private sector have often insufficient capacity and incentive to experiment with innovative, yet complex international regulatory mechanisms such as the CDM.

(c) The capacity of project sponsors to learn about and utilize new market opportunities and to prepare and implement a CDM project is limited and often not worth building for just one single, perhaps small CDM project. Likewise, a local service sector that could support the CDM is not mature in many less developed countries, which makes it more difficult for project developers to access the carbon market.

(d) The capacity of the public sector to support CDM projects is not yet available in many less developed countries. Public sector capacity will take time to develop and may not be worth building in countries with more urgent needs and priorities and only limited CDM potential. Models for cooperation and sharing of public CDM resources between host countries do not yet exist and are not supported by the CDM modalities and procedures; and cross-border CDM projects face additional procedural uncertainties and methodological difficulties. The timely development of a CDM pipeline is thus severely constrained in some countries.

(e) Given prevailing risk ratings, many projects in less developed countries find it difficult to obtain investment finance for (baseline) projects, which could serve as the foundation for a CDM project activity. While grant funding could help close the financing gap and provide incentives for project preparation and implementation, there is still significant uncertainty regarding the acceptability of grants (ODA) and Global Environmental Facility (GEF) resources in combination with CDM project activities.

(f) The window of opportunity to benefit from the CDM in the first commitment period is rapidly closing. This fact, and the uncertainty regarding the value of CERs beyond 2012, continues to put a premium on relatively more developed countries that possess efficient private sector capacity and fast public procedures for preparing, approving and implementing CDM projects.

(g) Some activities through which less developed countries could mitigate greenhouse gases are ineligible under the CDM, such as most activities in the field of land use and preservation of natural resources. Yet, improvements in land use practices can be beneficial for both climate change mitigation and adaptation, and often represent the only opportunity for large segments of the rural poor to participate in the CDM. Likewise, in some developing countries there are some sources of untapped, naturally occurring methane emissions from lakes and volcanic activity, which have an impact on climate change and which could be used as an energy source, but these sources are ineligible under the CDM, because of their non-anthropogenic nature.

(h) Some activities relevant for less developed economies face methodological hurdles and cannot be, or have not yet been, reached by the CDM incentive, such as measures to improve energy efficiency at the household level or in transport, and measures to reduce or replace biomass use from non-sustainable sources. Likewise, the preparation of projects eligible for CDM under the existing rules for afforestation and reforestation is very complex. In particular, the now proposed very conservative methodology for projects involving non-renewable biomass will greatly reduce the opportunities for less developed countries and the rural poor to benefit from the CDM.

(i) Small projects, which are typically found in less developed countries, face proportionally higher transaction costs. This situation has not been sufficiently addressed by the rules for small-scale projects, because the size limits for small scale projects of type II and III are too low and because the rules to bundle small scale projects are, in our view, unnecessarily restrictive, as they impose the size limit for small projects also on bundles of small projects.

3. A few countries are receiving the majority of CDM project activities.

(a) These countries have built relevant institutions and promoted the CDM in their country early on or strongly in recent time, often supported by a few motivated individuals in government or the private sector.

(b) Some countries have defined relevant and efficient procedures and have prepared better emission inventories and baseline data, and they are thus better prepared to generate emission reductions than their peers.

(c) Successful countries tend to have an enabling investment climate with stable fiscal and regulatory regimes, better access to capital and financing and a more active well established formal private sector, which is able to handle a complex regulatory environment, and which vigorously pursues CDM opportunities and benefits from learning by doing.

(d) Some countries are perceived by buyers and project developers as "better" CDM hosts than other countries, often as a result of the underlying factors noted above, such that resources for CDM project development tend to be concentrated on a few countries.

4. Measures for consideration to improve access to the CDM:

(a) *Enabling investment climate*: First and foremost, the creation of an enabling general investment framework in host countries will go a long way to ensure that all countries can attract CDM projects and benefit from the CDM. For instance, reforms in the energy sector may not only reduce the cost of energy for consumers, but may also encourage more investment in the sector and greater opportunities for CDM related activities.

(b) *Capacity building initiatives* should assist the private sector in host countries with the identification and development of CDM projects. Buyer governments could fund such capacity building and/or support it through a program of dedicated purchases from supported countries. Experience shows that hands-on training combined with long-term market incentives works best. Such capacity building should help create a "critical mass" of people and CDM expertise in host countries.

(c) *Host country institutions*, in particular the establishment of DNA capacity, should be supported in countries with a relevant CDM potential and over time become self-funding from project proceeds. Where this potential does not exist, regional cooperation and outsourcing of CDM-related administrative tasks could be explored. In this context, multilateral organizations could take on a service-provider role for certain countries. Governments and capacity support for CDM

institutions should avoid creating complex and unnecessary administrations with lengthy and expensive procedures, which tends to diminish the attractiveness of a country as a CDM host.

(d) *Development assistance*: Many projects in less developed countries can only be undertaken with ODA support. The availability of ODA to fill a financing gap, which often exists despite the sale of emission reductions, should not be a reason to question the additionality and eligibility of the project as a CDM project. On the contrary, the combination of the CDM with other sources of financial assistance (including GEF) can help developing countries to undertake CDM projects and meet their long-term sustainable development objectives. Given the pivotal role of multilateral financing as a major source of investment flows to less developed countries, the enabling and capacity development roles of such funding for CDM projects should be recognized and accepted.

(e) *CDM in development planning*: Host country governments, multilateral financial institutions and other development organizations should integrate GHG mitigation options and related incentives, in particular the CDM, into longer-term country and sector development plans. A strategic approach to carbon finance could blend country level structural assistance (e.g. energy sector reform), lending programs for energy projects (such as the World Bank's Energy for Rural Transformation program in Africa), and the study and systematic exploitation of related carbon finance opportunities to unlock CDM and development potentials in less developed countries that are heavily dependent on international assistance. However, such a strategy would require a reliable international climate regime or an equivalent incentive, which would provide the market signal for emission reductions and which would need to extend far beyond the first commitment period (2012).

(f) *CDM market institutions*: The constraints associated with overcoming unfavorable macroeconomic factors such as risks related to exchange rates, interest rates and political developments could be addressed by encouraging the inclusion of CDM project activities in facilitation, risk mitigation and insurance instruments under the multilateral systems such as MIGA. Private sector insurance and risk hedging instruments are not yet well developed for the CDM market, nor is there sufficient transparency regarding contract prices and conditions. Both are essential elements of an efficient market infrastructure and should be encouraged. As is demonstrated by the World Bank's portfolio approach to CDM projects, the existence in the market of risk mitigation instruments and generally a well developed market infrastructure would stimulate buying from high risk countries.

(g) *Eligibility of project activities*: The Parties to the Kyoto Protocol and the CDM regulatory system should step up efforts to make all GHG mitigating and sequestration activities eligible to benefit from the CDM, including those involving naturally occurring GHG emissions and the protection of natural forests and other land use activities. Existing constraints on currently eligible land use activities should be removed, in particular (i) the cap on CDM afforestation and reforestation projects, which cannot supply more than one per cent of Annex I countries' 1990 emissions, (ii) the rule that temporary and long-term credits must

be replaced with "permanent" credits after a maximum of 60 years, regardless of the state of the underlying CDM-supported forests, and (iii) the exclusion of avoided deforestation and forest and land management from the CDM.

(h) *Access to the CDM*: The modalities and methodologies for household level and very small project activities should be developed further to facilitate access to the CDM of such sources of emissions. This would require providing ways of linking public and private regulatory and incentive systems with the CDM, for instance through appropriate modalities and methodologies for conducting activities under a program of activities. This should include application of approved methodologies to an aggregate of small project activities. The latter would unlock CDM projects in the energy efficiency field and enhance the impact of the CDM on sustainable development and could significantly improve the livelihood of poor communities in poor countries.

(i) *Development related emissions*: In this context it would be important to clarify that any emissions due to higher output levels to satisfy demand (and which are thus associated with the development effect of the CDM) should not be applied as a discount to emission reductions from the CDM projects activity. This can be achieved by systematically assuming that baseline output would grow as much as project output – as is already accepted methodological practice for power generation CDM projects.

(j) *Approved CDM methodologies* create in some cases a significant barrier for less developed countries, which may not have the information and expertise that is required to apply these methodologies. It would therefore be helpful to determine, on the basis of empirical studies, that certain project types in certain countries and for a certain period of time are additional *per se*. It would also be helpful to develop simplified and standardized versions of some data intensive methodologies, for instance through providing standard baseline and default factors for typical situations in less developed countries. Furthermore, the expertise that is available in development organizations such as the World Bank could be used to systematically screen approved methodologies and identify alternatives that better reflect the reality in less developed countries.

(k) *Conservatism in methodologies* puts less developed countries further at a disadvantage, because their higher risks and poorer information compared to more advanced countries can result in more conservative assessments when applying a CDM methodology. The assessment of methodologies by the CDM Executive Board and its panels and working groups should therefore always consider how a methodology would be applied under the more challenging conditions of less developed countries, how it would affect access to CDM projects, and which remedies could be included in the methodology.

Attachment II

Further information and observations regarding the regional distribution of CDM project activities

The World Bank, 20 April 2006

The present note is part of the World Bank's submission to the CDM Executive Board on the regional distribution of CDM projects. The note contains four sections that report details on the

- regional distribution of CDM projects in the World Bank's project pipeline;
- lessons learned from conducting CDM operations by World Bank's regional departments;
- information on the Bank's Carbon Finance Assist capacity building program; and
- concerns regarding the impact of regulatory and methodological decisions on the distribution of CDM projects.

The Parties to the Kyoto Protocol, at their first meeting in Montreal in December 2006, voiced concerns regarding the regional distribution of CDM project activities. The relevant paragraphs 32-36 in their decision on "Further guidance relating to the clean development mechanism" are annexed at the back of this note.

A. Regional distribution in the World Bank's CDM Pipeline[1]

The World Bank's projects pipeline by region

Experience with the Prototype Carbon Fund, has shown a shift in regional distribution of projects. Whereas Latin America was strongly represented in the Bank's early project pipeline, East Asia caught up quickly over the past several years.

> As reported in the PCF 2002 Annual Report, East Asia accounted for eight percent of the PCF pipeline in 2002, making it the region with the lowest share of expected payments from the fund. In the same year, Latin America accounted for 28 percent of the pipeline based on expected ERPA value while Eastern Europe and Africa accounted for 27 and 26 percent, respectively. Projects in South Asia represented 11 percent of expected ERPA value. In the next several years, East Asia grew to approximately one third of the expected pipeline in terms of ERPA value (PCF annual reports 2002-5).

The current trend in East Asia, particularly China, producing high volume projects that bring the region higher carbon revenues for fewer projects executed, is expected to continue.

> East Asia has signed five ERPAs with a value of $48 million (excluding HFC-23). In comparison, 18 ERPAs have been signed in Latin America with a value of $55 million. This is primarily explained by the fact that the average contract volume across the World Bank pipeline (excluding HFC-23) is approximately one million tons carbon dioxide equivalent (tCO_2e), while the average contract volume in China is nearly 2 million tCO_2e. Examining the World Bank carbon finance

[1] Includes projects at all stages of development from Project Idea Note (PIN) approved, including projects at an intermediate stage with a Carbon Finance Document (CFD) approved and those with an Emission Reduction Purchase Agreement (ERPA) signed.

pipeline, East Asia has identified projects with an expected value of $292 million for 34 projects (including those signed to date, excluding HFC-23). These 34 projects are located in six countries: Cambodia (1), China (22), Indonesia (4), Laos (1), Mongolia (1), Philippines (7). Latin America, on the other hand, has 42 projects identified (including those signed to date) with an expected ERPA value of $181 million. The Latin America pipeline includes projects in 17 countries: Argentina (2), Brazil (7), Chile (5), Colombia (5), Costa Rica (2), Dominican Republic (1), Ecuador (2), Guatemala (1), Guyana (1), Honduras (2), Mexico (6), Nicaragua (1), Panama (1), Peru (3), Trinidad and Tobago (1), Uruguay (1), Venezuela (1). Thus, carbon finance is expected to bring significant additional revenue to high volume projects in a few countries in East Asia, while in Latin America total carbon revenues are expected to be lower, but to be shared amongst a greater number of countries and projects.

The World Bank is making a concerted effort to develop projects in Africa, in particular by working with the World Bank regional staff to develop potential CDM projects in conjunction with World Bank lending operations.

While only two ERPAs have been signed in Africa to date, Africa ranks third after Latin America and East Asia in terms of both the number (31 projects) and expected ERPA value ($125 million) of identified CDM projects in the World Bank Carbon Funds pipeline. The World Bank is currently developing 31 projects in Africa in 14 countries: Benin (1), Congo (1), Ethiopia (3), Ghana (2), Kenya (1), Madagascar (1), Mali (2), Niger (1), Nigeria (3), Rwanda (1), Sierra Leone (1), South Africa (3), Tanzania (2), Uganda (8), and one project spanning Kenya, Tanzania and Uganda. However, many of these projects are at an early stage of development, several are making slow progress, and others may eventually drop from the portfolio. The overall project situation in the Bank's Africa pipeline shows the opportunities, but also the difficulties of successfully implementing CDM projects in Africa.

The World Bank signed its first ERPA for a project in the Middle East and North Africa Region in 2006.

Six additional projects are under development in three countries with an expected value of $62.5 million, giving this region the lowest expected share of the World Bank Carbon Funds. The Middle East and North Africa pipeline includes projects in Egypt (4), Tunisia (2) and Iran (1).

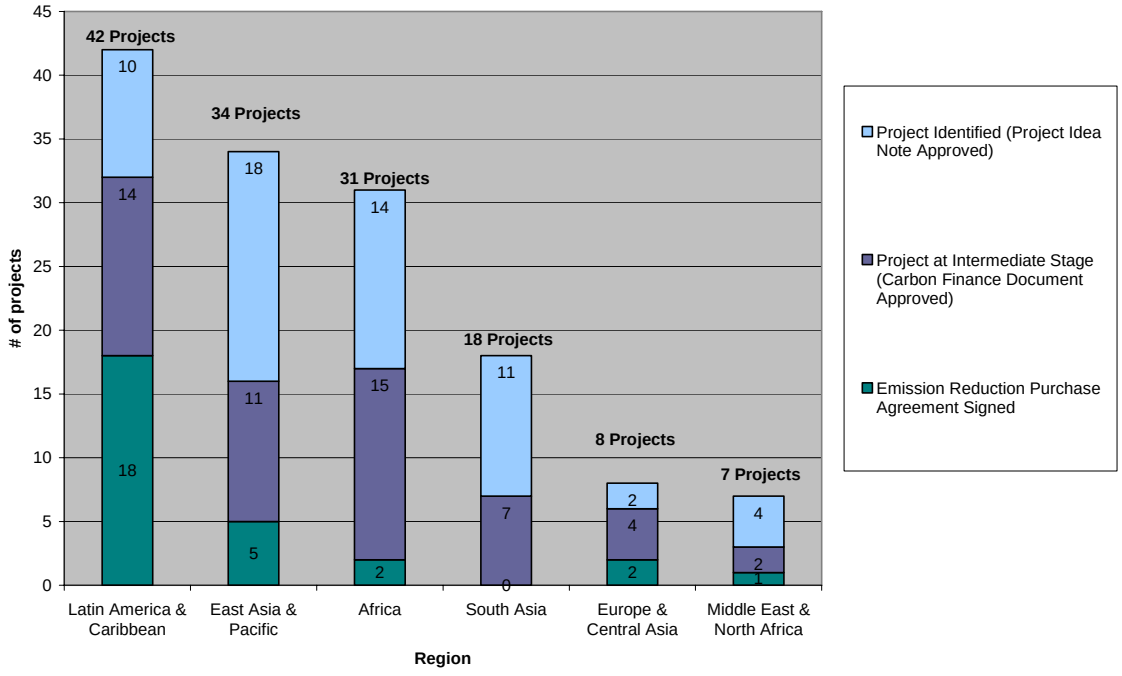
In the South Asia Region, Central Asia and Eastern Europe projects are being developed, but the signing of ERPAs has been slow.

South Asia has yet to sign an ERPA, but has identified 18 projects that are currently under preparation in five countries: India (11), Nepal (2), Afghanistan (2), Sri Lanka (2), Pakistan (1). The total expected ERPA value for the South Asia pipeline is $107 million.

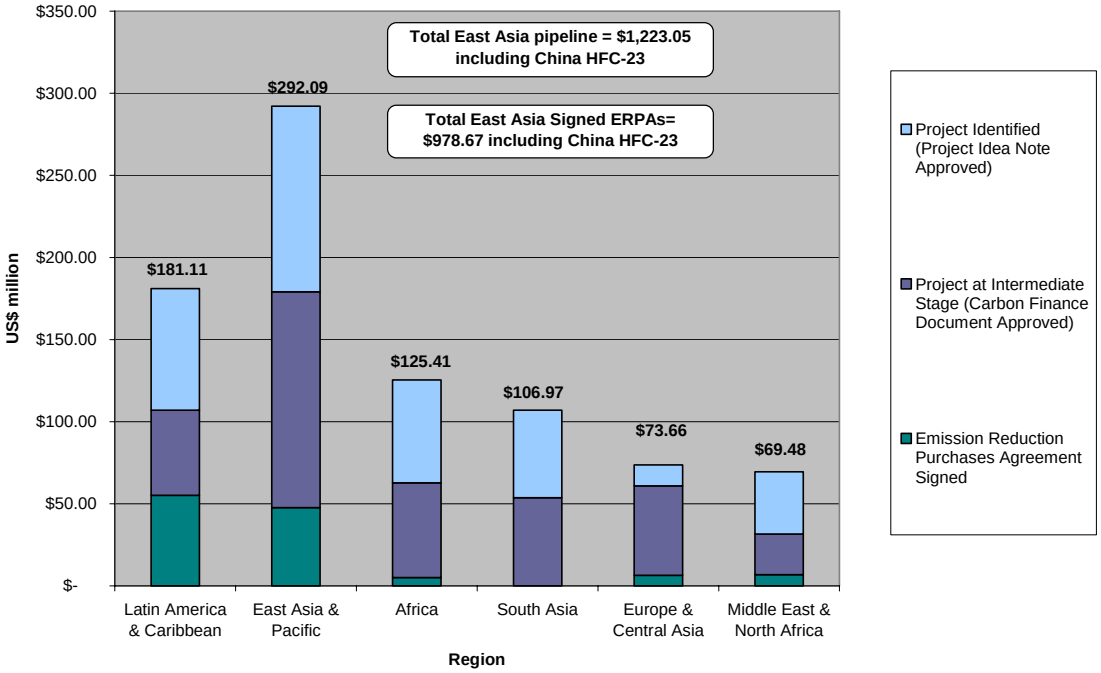
In Eastern Europe and Central Asia, eight CDM projects are under consideration: Azerbaijan (2), Albania (1), Georgia (1), Moldova (3), Uzbekistan (1); together they are expected to generate approximately $74 million in carbon revenues. This includes two ERPAs that have been signed in the region to date with a value of $6.5 million. Business development is continuing in the above countries and will likely be expanded in Central Asia and South Eastern Europe over the next 12 months to address some of the regional imbalances. This project pipeline is not necessarily indicative of the overall CDM activities in the region as EU, EBRD, Danish and Austrian governments and Japanese buyers have all be active in the region.

The graph below shows the World Bank project pipeline (number of projects) by regional distribution and stage of projects development. The second graph depicts the same information on the basis of approximate ERPA values. Both graphs exclude the two very large HFC projects in China in the Bank's portfolio, because their inclusion would unreasonably distort the distribution by ERPA values as shown in Graph 2.

Graph 1 -- Regional Distribution of Word Bank CDM Project Pipeline by number of projects



Graph 2 -- Regional Distribution of World Bank CDM Project Pipeline by contract volume



Comparison with the overall CDM project pipeline

Compared with the overall CDM pipeline, as tracked, for instance, by the UNEP Risø Centre (http://www.cd4cdm.org), the World Bank carbon finance project pipeline shows a more balanced regional distribution. In the overall CDM pipeline, 95 percent of projects are in Latin America and Asia with Africa, the Middle East and North Africa, and Europe and Central Asia regions each hosting less than two percent of CDM projects. In the World Bank pipeline, 67 percent of projects are in Latin America and Asia with 22 percent of projects in Africa, six percent of projects in Europe and Central Asia, and five percent of projects in the Middle East and North Africa.

The World Bank Carbon Finance pipeline includes a greater number of projects in under-represented regions and a greater diversity of countries within these regions, notably in the case of Africa. While the Risø Centre identifies 13 projects in Africa in five countries, the World Bank is currently working on 31 projects in 14 African countries.

Purchasing Priorities

The World Bank Carbon Funds each have regional and technological distribution goals or preferences resulting in different purchasing priorities. Across the funds, the strategic objectives of the Carbon Finance Unit are to:

(1) develop carbon assets in technologies or countries that have yet to benefit from carbon finance;
(2) develop carbon assets in sectors, using a programmatic approach or in activities of large scale where Bank intermediation is key to opening the market or bringing the project to the market; and
(3) promote synergies between carbon finance, sustainable development and poverty alleviation.

Developing projects for the Community Development Carbon Fund is a current priority of the World Bank Carbon Finance Unit. The CDCF intends to invest at least 25 percent of the fund, with a total capitalization of $128.6 million, in purchasing emission reductions generated from projects located in priority countries. These are defined as

(1) World Bank's International Development Association (IDA) list of countries;
(2) countries with a population of less than 75 million; or
(3) countries designated as least developed countries by the United Nations.

The CDCF is also making a special effort to develop projects in Africa, particularly Sub-Saharan African countries.

The BioCarbon Fund intends to allocate a large part of its portfolio to Africa in order to fulfill the Fund's goal of extending the benefits of the carbon market to rural, less affluent communities. As a result, LULUCF projects account for 26 percent of projects under development in Africa by the World Bank Carbon Finance Unit.

B. Lessons learned from implementing CDM projects by region

The World Bank's carbon finance operations are increasingly being undertaken by the World Bank's five regional departments. The text in this chapter reflects observations and

recommendations that are based on the Bank's regions' day to day experience with carbon finance operations. While some of the issues may be related to the nature and role of the World Bank in the carbon market, we believe that many of the concerns reflect broader market issues.

1. Latin America

The Latin America and the Caribbean (LAC) region has the strongest project portfolio among the various regions of the World Bank. The Bank's carbon finance in the region was successful due to significant work done in the countries in the region during the Activities Implemented Jointly (AIJ) pilot phase and the involvement of the private sector in the region during the AIJ phase. The portfolio is characterized by the predominance of small projects financed by the private sector. Going forward, the pipeline for carbon finance projects for multilateral institutions in the LAC region is expected to weaken due to the very strong involvement of private sector brokers and carbon funds. This results from a number of structural characteristics:

- The energy sector in LAC is largely private sector, whereas institutions such as the World Bank's main energy dialogue interlocutors are in the public and urban sector. Interlocutors are typically ministries and, increasingly, municipalities, but mayor's offices lack capacity.
- CDM methodologies are only now being developed for application in the transport sector.
- Transactions have tended to be small, but desired scale-up results in greater CDM market competition for the larger deals.
- There is a lack of available financing for energy projects in the LAC region, especially CDM-eligible renewable energy/energy efficiency projects: many projects fail to take-off due to a lack of necessary financing.
- Carbon finance operations of most multilaterals are largely free-standing with no association with or underlying finance from the multilateral due to constraints on credit line operations in these countries.
- Preparing and processing CDM transaction continues to be manpower intensive; and the opportunity costs for engaging multilateral staff in CDM projects and manpower development continues to be very high.
- Caribbean countries have not benefited from World Bank carbon finance largely due to projects being small and unattractive due to the current transaction costs for CDM projects. The absence of an enabling investment climate in many of these countries for major sectors has not facilitated CDM transactions.
- The possibility of aggregating several sub-projects into larger, umbrella projects (a program of CDM activities) will facilitate greater mainstreaming of carbon finance in the operations of multilateral funding agencies like the World Bank. These will facilitate the scaling-up of carbon finance business, while minimizing the transaction costs per unit emission reductions.

2. Sub-Saharan Africa

Most sub-Saharan African countries (except South Africa) have very limited fossil fuel-related GHG emissions, while their traditional (rural) economies are largely based on biomass. This translates into a disadvantage in terms of access to a significant pipeline of CDM projects that mitigate fossil fuel related emissions. With some exception, such as oil production in Nigeria, in many African countries, viable CDM projects are premised on GHG reductions from biomass usage, including waste management, energy efficiency measures at the level of house holds or small production facilities, and land use and forestry projects. Several of the project types that could generate emission reductions in Africa are currently not eligible (such as land use and forest projects other than a/reforestation) or face methodological difficulties. Landfill gas projects

are a notable exception, but even this project type has recently been made more difficult by the decision of the CDM Executive Board on the methodology for composting projects.

Most countries in sub-Saharan Africa have very limited access to electricity. In countries such as Uganda, the access rate is between 5 and 10% of the population. Countries like Uganda have traditionally relied on hydro resources to generate electricity. Climatic changes and over-use of the hydro resource have led to substantially reduced hydroelectric generation in the past few years. The government is turning to emergency thermal generation to keep supply up. A simple CDM methodology that would reward clean generation from hydro or bagasse would provide much-needed energy services to the country. One obstacle to more hydropower projects in Africa is the combined margin methodology in ACM002, which insists on compiling complex dispatch data, which only a handful of African countries have.

Many African countries suffer from high rates of technical and non-technical energy losses. Efforts to bring these losses under control could benefit from CDM, if methodologies were available that could handle the technical, economic and social complexity of addressing this situation.

Very few African countries have sanitary landfills. Yet, with growing urbanization, they generate a lot of waste, much of it with a high organic content. Due to the lack of infrastructure to manage waste streams, this waste is often simply discharged in dumpsites. With some investment, these dumpsites can be managed to include composting of waste. There are many opportunities for solid waste composting projects in the Africa region. However, the new composting methodology negatively affects these projects. Because emission reductions are not awarded at the time of the composting activity, but only over the very long time horizon of the methane being released in the hypothetical landfills, there is a significant loss of emission reductions that are generated but not credited to the project. Hence, private sector investment in composting projects has become relatively unattractive given Africa's high risk investment conditions.

There are some large, untapped sources of methane emissions from lakes and volcanic activity in Africa and other developing countries. These sources have an impact on the world's climate and potentially on the safety of local communities. Yet activities to reduce such emissions are currently not eligible under CDM rules, because these emissions are not anthropogenic.

The CDM can only be relevant in many parts of Africa if it encourages more clean energy choices, including the ability and the ease of use of the CDM as a tool to:
- bring more clean generation to the grid, e.g. regional hydroelectric and/or gas projects;
- encourage distributed and off-grid energy access;
- promote cleaner and modern biomass resources.

Official development assistance (ODA) has an important role to play in improving CDM prospects in sub-Saharan Africa and in least developed countries in general. ODA is needed for activities including:
- providing resources for designing, preparing and implementing pilot projects that can be taken to scale or replicated with carbon finance;
- bridging the financing gap existing in most projects in the region; and
- alleviating CDM transaction costs.

The CDM has the potential to provide useful resources to abate barriers to rural development efforts, especially in the areas of waste-to-energy (agricultural, animal, urban waste), water and sanitation, and transport. Given the household to small village-scale of these activities, tapping this potential would require the CDM to adopt rules that encourage program-based activities.

This would include allowing bundles of micro-projects of varying crediting period and composition which may exceed 15MW of installed capacity.

More CDM opportunities in Africa and other least developed countries could be unlocked in the portfolio of multilateral financial institutions by a closer, strategic association between lending for projects or other operational activities and carbon finance operations.

In many less developed countries, key sectors for the CDM are managed by public agencies with inadequate capacity and incentive structures to experiment with innovative mechanisms like the CDM. Multilateral agencies could offer CDM-related services for public sector clients, whereby the multilateral agency would take on the process of preparing a CDM project through to certification and sale of the emission reductions.

3. North Africa and Middle East

World Bank carbon finance deals in North Africa and countries in the Middle East have proved to be very sensitive to the recently rapid upward trend in carbon prices and the non-availability of transparent market data, including data on prices, risks, project types, volumes and so forth. Several potential project developers are arguing that the speculative nature of the carbon finance business suggest that it is better to hold back on projects and wait until prices go higher. While this issue is expected to be temporary, it has prevented a more effective outreach towards potential project developers in the region.

It takes considerable time and effort to bring local financial intermediaries into the CDM business, because of the lack of knowledge of the underlying financial mechanisms that could be developed to take full advantage of the CDM, particularly in middle income countries. More targeted technical assistance would be needed to address this knowledge gap.

The bundling and programming approaches to the CDM are promising, but the methodological uncertainties are holding back the development of CDM projects based on this approach.

4. South East Asia

Some countries in South East Asia have a well established and independent private sector (e.g. India), which is more inclined to take risks and access the CDM market than others still living with a large informal sector (Bangladesh, Sri Lanka). The flourishing of so called unilateral CDM projects in India (and in Brazil) is a sign of the strength of the market where the capacity to prepare and undertake CDM projects exists.

Capturing a larger share of the CDM market is dependent on a country's ability to promote the implementation of CDM projects at a much higher rate than competitor countries. This necessitates:

(i) a proactive strategy of strengthening the capacity of domestic institutions (including Banks and financial institutions) and project developers, and
(ii) the provision of clear guidance about project eligibility and sectoral baselines.

Some countries, such as Nepal, Bhutan and Sri Lanka, have only the potential to develop small CDM projects (of less than 150,000 tCO2e), which should be bundled for their preparation to be economically feasible. A country with weak financial intermediaries, including risk adverse financial institutions, and poorly organized industrial associations will not be able to promote bundling adequately and will therefore remain unattractive to potential buyers.

Developing a workable framework for bundling of CDM projects, evaluation of various bundling options and developing bundling organizations, which can pursue CDM project activities in the context of an incentive program, are critical to help reduce transaction costs. The decision that bundles of small scale project shall not exceed the limit set for individual small scale projects, has made it more difficult to pursue small projects in some countries.

Developing the capacity of newly created DNAs in less developed countries such as Bangladesh and Pakistan takes time and requires financing, which often goes beyond one country's capacity. During this period, only limited CDM promotion can be undertaken by the DNA and the level of CDM awareness will likely remain minimal among potential stakeholders.

The security situation of some countries, such as Nepal and Afghanistan, prevents the free movement of persons and goods and therefore substantially reduces the development potential of CDM operations

In the less developed countries, fair access to, or availability of, relevant data inhibits the timely preparation of PDDs. And the lack of a strong consulting profession in a country reduces the quality of methodologies and PDDs being prepared and therefore reduces the likelihood of approval by the Executive Board.

5. East Asia and Pacific, including small island states

Investment in capacity building is an essential precondition for generating a healthy project pipeline. This requires strengthening of Designated National Authorities and other relevant institutions to assist with government decision making, process CDM projects, and make information available to interested individuals and firms.

It is not surprising that large, fossil fuel dependent countries with large volumes of GHG emissions from energy and other sources offer significantly greater opportunities for CDM projects than other countries. Large projects, such as HFC-23 projects in China, can be essential for generating appropriate liquidity and adequate confidence in the carbon market. Experience shows that such projects do not shift attention away from other sectors, but rather provide examples, knowledge and incentives that attract interest and unlock opportunities in other sectors in these countries.

While few and small CDM projects may be very significant for small countries and poor, low carbon economies (Laos, Cambodia, small island states), such opportunities are not realized by the market due to high entry and transaction costs relative to the volume of emissions reductions that can be earned. Targeted capacity support, assisted by ODA, to prepare and process CDM activities would be essential to unlock this opportunity for these countries.

6. Eastern Europe and Central Asia

Most countries in the Eastern Europe and Central Asia region that could undertake CDM projects have not yet made use of the CDM opportunity. Several countries have not yet ratified the Kyoto Protocol or have unresolved queries regarding their status as a member of the Protocol and hence their eligibility to undertake CDM projects, notably the former Yugoslavian republics, Turkey, and Kazakhstan.

While the World Bank has been working with several governments in the region, the political and administrative decision making process has often been slow. CDM awareness raising efforts in the region started as early as 1998, and they continue with a recent focus on the Caucasus region. These efforts include the development of project ideas in the gas and oil sector.

Many of the CDM countries in the ECA region are economies in transition, which do have significant emission reduction potentials due to their historically high and inefficient energy use. Unlocking this potential requires information, capacity building and integration of CDM project activities into the reform and economic transformation process. The ongoing economic transformation, the fact that markets are not yet fully functional and that historic data is not a good guide for the future situation in these countries makes it more difficult to prepare CDM projects, define baselines, demonstrate additionality and apply approved methodologies to many project types in these countries.

The large potential in district heating and energy efficiency projects in transitional economies remains largely untapped; and it has been difficult to develop methodologies for these types of projects. For instance, where the retrofitting of a district heating project increases energy efficiency and thus output and closes a supply gap, the emissions associated with this increase should not be used to discount emission reductions from the project. That is, it should be acceptable to assume an increase in baseline supply thus that there is no discounting of emission reductions due to the development effect of the project, as is already accepted practice in methodologies for electricity generation projects.

Problems encountered in the ECA region with regard to the preparation of CDM projects include:
- a lack of capacity of the project sponsor to implement projects (aside from financial barriers);
- the inability to make use of new market opportunities (such as CDM);
- the inability of the project sponsor to develop credible CDM project idea notes and complete underlying feasibility studies;
- the low technical capacity in the private sector and in Designated National Authorities or relevant government ministries; and
- the lack of clear CDM approval procedures in the government.

To address this situation, we have been and plan to continue organizing workshops in some countries with practical sessions on how to develop PINs. We started this initiative in 2005 in the South Caucasus countries and plan to continue efforts in 2006/ 2007 in South East Europe and Central Asia. These workshops are sector specific and have a targeted audience, e.g. the oil and gas sector in Azerbaijan and Uzbekistan, district heating, power and hydro power in Azerbaijan, Kyrgyz Republic and Tajikistan, renewable energy in all countries. There is a need to support these capacity building efforts by limited assistance for DNAs in countries where no or few projects have been processed by the DNA. Capacity building and project development effort would also be greatly supported, if CDM methodology development and approval procedures were more streamlined and simpler with shorter turnaround times, if methodologies were more easily accessible in a searchable database, and if elements of approved methodologies could be recombined, which would facilitate their application to a more diverse project population.

The CDM has not yet entered the mainstream of the operational business in many private sector entities and in national and international public institutions (including the World Bank). The preparedness for the CDM and the preparation of CDM projects often still relies on a few highly motivated people. The high opportunity costs of embarking on a new, complicated and highly regulated business with uncertain political future results in a great deal of inertia for many in relevant positions.

C. Capacity building activities for the CDM

Carbon Finance-Assist (CF-Assist) program at the World Bank is a US$15 million capacity building and technical assistance program established by the World Bank in fiscal year 2005 to enable the full engagement of developing countries and economies in transition in the carbon market.

CF-Assist is aimed at assisting countries in the development and implementation of CDM and JI projects. CF-Assist works with developing countries and economies in transition for three to five year periods to develop sound governance structures, where local institutions have the capacity to prepare and review projects for approval, the private sector has procedures in place to identify opportunities and bring them to market, and the lending sector uses carbon finance as a means to reduce project risks.

Other capacity building activities are on-going in many regions. These programs include workshops and seminars with public and private organizations, development of sectoral baselines, DNA strengthening, and so forth.

The program also provides limited support for capacity building efforts in applicant entities. It has assisted with the development of the Validation and Verification Manual, which is now widely used by designated operational entities and applicant entities both for CDM and JI projects. The program is currently supporting an updated version of the Manual – a process that involves contributions from designated operational and applicant entities and which is assisted by training workshops.

Through CF-Assist and earlier capacity building activities a number of important lessons were learned:

(1) *Closing window of opportunity*: Implementing CDM projects such as a wind or geo-thermal power generation that replace coal or oil fired power plants takes time, in particular for environmental clearances, power purchase agreements, financing arrangements, CDM regulatory approval, and construction. Typically, there is at least a three to five-year period before any emission reductions are produced. Given the long lead times involved, the period for which such projects receive carbon finance is increasingly short, thus making the effect of carbon incentives less and less attractive.

(2) *Institutional structures*: In many of the less developed countries, institutional structures such as the Designated National Authorities are yet to be established or need adequate support. Establishing such institutions takes time, a feature that exacerbates the constraints of project development.

(3) *Access to investment finance*: Many projects identified and eligible under the CDM are yet to achieve financial closure, a trend that is emphasized in the lesser developed countries. In most countries, financial institutions are yet to recognize carbon finance as a valid source of revenue, perceive projects as risky and are therefore apprehensive to lend to them. The World Bank has encouraged financial institutions to lend against its Emission Reduction Purchase Agreements. However, banks only recognize as bankable contracts for purchase of Verified Emission Reductions (where the buyer assumes all regulatory risks pertaining to the CDM) and not for Certified Emission Reductions (where the seller assumes all risks). The reason for this reluctance is the inability to predict the outcome of the methodology approval processes, the likelihood of the project

being registered by the CDM Executive Board, and the uncertainty in the time periods that the registration process will entail, resulting in an inability to quantify the risk involved.

Given that the major barrier to project development is the incumbent time pressure, the continuation of a carbon market beyond 2012 is the key requirement. While Montreal gave a positive signal on market continuity beyond 2012, Parties need to do much more to ensure that no gap will occur in the carbon market between the first and any subsequent commitment period. A significant drop in the carbon markets and CDM project development would not only put at risk some of the capacity that has already been built, but would also negatively impact the creditability of the CDM and the carbon market as a private-public partnership. This in turn is likely to raise costs and risks in the carbon market, and reduce the opportunities for less developed countries to develop their greenhouse gas mitigation potential through use of the CDM.

D. Impact of the CDM regulatory system on regional distribution

The CDM regulatory system and the criteria for approval of methodologies should not be distorted to promote CDM projects in particular countries. However, current experience suggests that less developed countries, in particular in Africa, are systematically put at a disadvantage by the modalities for the CDM and the approved CDM methodologies. This is attributable partly to the particular stage in their economic development – many less developed countries still use insignificant amounts of fossil fuels – and partly to the lack of capacity, high investment risks and low data reliability in these countries.

Low income countries with largely agricultural and rural economies were left out when CDM land use and forestry projects were restricted to afforestation and reforestation, which eliminates a large potential of CDM projects in these countries. But even a/reforestation projects are of limited interest to the market, because of the obligation and liability to replace emission reductions from sequestration after 60 years regardless of the state of the forested area.

The withdrawal of the methodology for projects involving emissions from non-renewable biomass and the subsequent work on a replacement methodology, which is now likely to be highly conservative (if approved), is another blow to projects in Africa and other low income economies, which drastically reduces the opportunities for the rural poor to benefit from the CDM. World Bank's calculations show that the new proposed baseline would reduce claimable emission reductions by about 75% compared to the situation existing prior to the proposed changes, which would make fuel wood replacement projects uneconomical.

Less developed countries do have opportunities in the waste management sector. But the methodology for composting of waste has recently been tightened so much with the imposition of the first order decay model that the resulting emission factor has become unreasonably conservative for African conditions and composting projects are for this reason dropping from the World Bank project pipeline despite their superior ability (in comparison to landfill gas projects) to totally eliminate methane emissions from the biomass waste stream for any future period.

Less developed countries often have mitigation opportunities in energy efficiency, specifically through setting energy efficiency standards, which hardly exist in Africa. The Montreal decision on the CDM has, on the one hand, excluded standards and policies as eligible CDM projects, and on the other hand, introduced programs of activities as eligible CDM project activities. Whether programs of activities will be able to unlock the energy efficiency potential in less developed

countries remains to be seen. The rather restrictive guidance on bundling of small-scale project activities and the size limit of such bundles is reason for skepticism.

Many less developed countries have a great need to increase electricity generation to meet demand and promote development. They could develop renewable energy sources, but often have no access to investment at market conditions. Although such projects have been recognized as eligible under the CDM, there are still methodological issues, for instance in the case of cross-border electricity trade, which is particularly relevant for small and poor developing countries, and emissions from hydro reservoirs. Moreover, the acceptability of combining CDM with ODA to fill funding gaps in such projects and the possible impact on additionality of such funding should be clarified.

Many of the approved methodologies were not developed to cope with the more complex conditions and mitigation opportunities in less developed countries. Developers of CDM projects in more advanced countries may be satisfied with a methodological solution that works for their project and target country. But when this solution becomes an approved or even consolidated methodology, less developed countries can easily find themselves at a disadvantage, since the methodology may not reflect well the prevailing conditions in the less developed country and may require data that is not available under these conditions. Combining elements from approved methodologies may help in this situation and should be permitted. Moreover, experience tells that, once methodological decisions have been made, the CDM regulatory bodies find it difficult to overrule or deviate from them.

Annex:

The Parties to the Kyoto Protocol, at their first meeting in Montreal in December 2006, voiced concerns regarding the regional distribution of CDM project activities. Their decision on "Further guidance relating to the clean development mechanism" contains the following paragraphs 32-36:

32. Requests Parties to submit to the secretariat, by 31 May 2006, their views on systematic or systemic barriers to the equitable distribution of clean development mechanism project activities and options to address these barriers, for consideration by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its second session;

33. Requests the Executive Board, taking into consideration the submissions by Parties referred to in paragraph 32, to report to the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its second session:

(a) Information on the regional and subregional distribution of clean development mechanism project activities with a view to identifying systematic or systemic barriers to their equitable distribution;

(b) Options to address issues referred to in the paragraph 33 (a);

34. Reiterates the request to Parties included in Annex I to the Convention to continue with measures to assist Parties not included in Annex I to the Convention, in particular the least developed countries and small island developing States among them, with building capacity in order to facilitate their participation in the clean development mechanism, taking into account relevant decisions by the Conference of the Parties on capacity-building and on the financial mechanism of the Convention;

35. Reiterates the request to the Parties, within the framework of decision 2/CP.7, to promote capacity-building with a specific view to obtaining more applications for accreditation as designated operational entities from entities located in Parties not included in Annex I to the Convention and invites intergovernmental and non-governmental organizations to contribute to this effort;

36. Requests the Executive Board to broaden participation in the clean development mechanism, including through meetings with a designated national authority forum on a regular basis, in conjunction with meetings of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol and its subsidiary bodies;