Inter-American
Development Bank

Environmental
Safeguards Unit

Addressing Climate Risk Management in IDB Operations

Options for Project Screening and Analysis, Based on Emerging International Guidance and Practice

Maarten van Aalst

December 2011

Addressing Climate Risk Management in IDB Operations

Options for Project Screening and Analysis, Based on Emerging International Guidance and Practice

Maarten van Aalst

Inter-American Development Bank

2011

http://www.iadb.org

Acknowledgments

This paper was prepared under the guidance of Paul Suding, Environmental Safeguards Unit (VPS/ESG), Inter-American Development Bank, and in collaboration with Fareeha Iqbal, working on a related assignment. It is based on document analysis and conversations with a range of staff and experts from International Financial Institutions (IFI).

The author would like to thank Paul Suding and Fareeha Iqbal, as well as those in other development banks that have provided information relevant to this work, including Sebastian Veit, Daniele Ponzi, Ian O'Donnell, Ian Noble, Ana Bucher, Vladimir Stenek, Alan Miller, Craig Davies, and many others who have contributed through discussions or specific inputs, including Ian Burton, Omar Dario Cardona, Allan Lavell, Tom Mitchell, and Roger Pulwarty.

The views and opinions expressed in this paper are those of the author alone and do not necessarily represent the official position of the Inter-American Development Bank or any other agency mentioned in this report. All errors and omissions are the sole responsibility of the author.

Acronyms

ADB	Asian Development Bank
AfDB	African Development Bank
CAPEX	Capital Expenditure
CARICOM	Caribbean Community
CAS	Country Assistance Strategies (WBG)
CCA	Climate Change Adaptation
CCAIRR	Climate Change Adaptation through Integrated Risk Reduction
CDB	Caribbean Development Bank
CLIMAP	Climate Change Adaptation Project for the Pacific
CRMA	Climate Risk Management and Adaptation
DANIDA	Danish International Development Agency
DFID	Department for International Development (UK)
DGIS	Netherlands Ministry of Foreign Affairs
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EIA	Environmental Impact Assessment
EIB	European Investment Bank
ERG	Emergency Response Grants (CBD)
ESG	Environmental Safeguards Unit
ESIA	Environmental and Social Impact Assessment
EU	European Union
GDP	Gross Domestic Product
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
IBRD	International Bank for Reconstruction and Development (WBG)
ICSID	International Centre for Settlement of Investment Disputes (WBG)

IDA	International Development Association (WBG)
IDB	Inter-American Development Bank
IDS	Institute of Development Studies
IFC	International Finance Corporation (WBG)
IFI	International Financial Institutions
IPCC	Intergovernmental Panel on Climate Change
IRI	International Research Institute for Climate and Society
IRL	Immediate Response Loans (CBD)
M&E	Monitoring and Evaluation
MDB	Multilateral Development Bank
MIGA	Multilateral Investment Guarantee Agency (WBG)
NHIA	NAACCR Hispanic Identification Algorithm
NSG	Non-Sovereign Guaranteed Projects
OECD	Organization for Economic Cooperation and Development
OPEX	Operational Expenditure
ORCHID	Opportunities and Risks of Climate Change and Disasters (UK)
SCR	Strengthening Climate Resilience
SG	Sovereign Guaranteed Projects
UKCIP	United Kingdom Climate Impacts Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WB	World Bank (IBRD and IDA)
WBG	World Bank Group (IBRD, IDA, IFC, MIGA, ICSID)

Table of Contents

1. Introduction

1.1 Scope and purpose

The Inter-American Development Bank's (IDB) 2010 Analytical Framework for Climate Change Action identified the need to develop a set of cross-sectoral guidelines to improve the IDB's performance, including its performance in climate proofing, to ensure that investments in infrastructure and other areas that may be sensitive to the impacts of climate change are able to withstand those impacts.

This mandate includes two elements: the project itself should not be at risk as the climate changes, and, in addition, it should not contribute to vulnerability to climate change (maladaptation).

A discussion of some of the issues related to these elements is already included to some extent in the IDB's Environment and Safeguards Compliance Policy and Disaster Risk Management Policy. However, these policies do not systematically address additional threats of a changing climate. Hence, the IDB's Environmental Safeguards Unit is scoping out pragmatic approaches to addressing climate risk management in the IDB project cycle from a safeguards point of view (this process complements other ongoing efforts that look at the integration of approaches related to climate change into IDB's future portfolio).

This paper contributes to that scoping out of options by identifying some key elements of a conceptual framework for addressing climate change vulnerability in IDB-financed projects in the public and private sectors, and builds on experience in policy and practice in other multilateral development banks (MDBs). The aim is to identify opportunities for, and constraints to, safeguards-based approaches to climate risk management in the project cycle to ensure that the solutions adopted are effective, efficient, and realistic in light of knowledge and capacity constraints, and relative priorities when taking into account other risks that IDB operations face.

The paper will identify procedures employed in other MDBs (primarily the main MDBs—the World Bank Group (WBG), including the International Finance Corporation (IFC); the Asian Development Bank (ADB); the African Development Bank (AfDB); and

the European Bank for Reconstruction and Development (EBRD) —as well as the Caribbean Development Bank (CDB), given its strong regional overlap) and recommended in Organization for Economic Cooperation and Development (OECD) guidance. Most experience elsewhere (the World Bank (WB): the International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA)), AfDB, ADB, and CDB) has been in relation to the public or sovereign-guaranteed (SG) project cycle, but there is experience emerging with respect to the private or non-sovereign guaranteed (NSG) project cycle (e.g., IFC, EBRD).

The report will explain how ex ante climate proofing in the project cycle relates to other bank activities concerning adaptation to climate change, such as: (i) accounting and analysis for IDB reporting with respect to climate change, (ii) incorporating adaptation in country and sector-level programming, (iii) local and project-level pilot or case studies to gain practical experience, and (iv) capacity development within the IDB and its client countries.

1.2 Risk management approach

Adopting a risk-based approach for taking into climate change is an initial recommendation that is reflected in almost all approaches employed, as well as being recommended in the main policies adopted in recent years by other MDBs. The early thinking on adaptation often focused on long-term planning for gradual changes in average climate conditions based on model scenarios for 2050 or 2100. In contrast, current approaches focus on management of a range of climate risks relating not only to average climate conditions (such as annual average temperature or rainfall), but also to variability and extremes. These approaches regard adaptation as an immediate concern that also affects planning for the coming years and decades, rather than only being a concern for long-term investments. A risk management approach also explicitly addresses the notion of uncertainty (not only based on future emission paths, but also on limited data on, and/or limited understanding of, the climate system, as well as the inherent variability in the climate system[1]).

[1] A good analogy is betting on a sports game, say a basketball or soccer match. It is very difficult to predict in advance precisely where the ball will be at any point in time in the game (analogous to predicting the weather far into the future). However, if you have some prior knowledge of the two teams, it may be possible to predict the outcome of the game with some level of accuracy in terms of

A key issue to recognize in such a risk management approach is that climate change is seldom the most important matter on people's minds when they are planning an investment, and, in fact, it should not be. Climate change is just an additional consideration to take into account among a whole range of issues. The key question is how to ensure that climate change is not ignored where it is important, that it is addressed effectively where information and options to act on it are available, and that we are able to quickly identify when it may not be of the highest relevance. This, of course, applies to many other aspects of an investment decision, including issues such as the risk of exchange rate fluctuations.

The only reason that climate change is different is that it is really a new issue that people have not dealt with before, so they are not used to considering it. In addition, proper climate risk analysis may require the use of fairly complex information, which tends to put people off. Unfortunately, we do know whether climate change has the potential to have major impacts on development and on individual development investments (e.g., IPCC, 2007).

A key element of a climate risk management approach is not to take adaptation as the starting point, but, rather, the original investment (or policy initiative). For instance, the OECD's Integrating Climate Change Adaptation into Development Co-operation: Policy Guidance (OECD, 2009) proposes a "climate lens" for development projects, which looks at the following four elements:

- Vulnerability: how vulnerable is the project to the impacts of climate change?
- Consideration of climate risks: to what extent have climate change risks already been taken into account?
- Climate proofing: can the measure be adjusted to better take into account the risks posed by climate change?

---

whether it is more likely for a team to win or lose, and possibly even to predict the score (analogous to different aspects of the climate that may be predicted with some accuracy sometime in the future). Clearly, the ability to make such predictions depends on: (i) the nature of the bet (win/lose, score, who scores, etc.), (ii) the information available (e.g., statistics from these two teams, which may be more or less helpful depending on whether they play in the same competition), and (iii) the importance of predictable factors based on the information available relative to other factors. These factors include chance. For instance, if one team is last and the other is first in ranking in the same competition, the outcome can be predicted with some confidence; if the teams are close in ranking, other factors may become more important (such as who plays in a home game, whether key players are fit, who played in previous games, etc.). There may be a higher element of pure chance. Whether or not it makes sense to bet on the outcome of a game (other than for the fun of it)—and, if so, what information to consider when placing the bet—depends on the circumstances of the game and the information available.

- Maladaptation: does the measure inadvertently increase vulnerability to climate change?

Almost all of the approaches described below contain these elements in one way or another.

Finally, it is important to recognize that adaptation is usually not just about deterministic planning for a quantifiably different future. As stated by the ADB (ADB, 2010a), "In the framework of climate change adaptation, in which uncertainty is inherent, identification of optimal interventions is less relevant than the identification of adaptation measures that are robust to uncertain future conditions. Adaptation planning seeks to identify 'no regrets' and 'low regrets' interventions." Acknowledging this dimension of risk management under uncertainty is essential to arriving at appropriate safeguards strategies that are feasible to implement, given data constraints, and result in meaningful project improvements.

1.3 Synergies with natural hazard risk management

In adopting a risk management approach, there is clear overlap with risk management of natural hazards (e.g., Burton and van Aalst, 1999; Mitchell and van Aalst, 2009; also addressed in the forthcoming Intergovernmental Panel on Climate Change's (IPCC) Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation). This overlap between natural hazard risk management and climate change adaptation has already been evident in some of the regions affected disproportionally by both disasters and climate change, such as small island states (the CDB in the Caribbean and the WB and ADB in the Pacific) and several other hazard-prone countries (e.g., the Philippines).

This overlap creates several opportunities, as recognized by a number of MDBs.

First, integrating adaptation safeguards with safeguards addressing hazard risk management (as promoted within the CDB) could be considered.

Second, there are tools and a substantial knowledge base on disaster risk management methods that could be employed to assist in climate risk screening and assessment. This is also acknowledged by several other MDBs (e.g., CDB, 2009, ADB, 2010a).

At the same time, there are, of course, aspects of adaptation to climate change that are not addressed in a pure disaster risk management context, such as the impact of gradual changes in agricultural productivity or water management (and, vice-versa, adaptation approaches of course do not address geophysical hazards, such as volcanoes and earthquakes). Nevertheless, recognizing the overlaps and distinctions, an integrated approach might be considered.

2. Experience of other MDBs on entry points for including climate risk management in the project cycle

2.1 Overview

Several development agencies have undertaken different types of portfolio-screening exercises (see Klein et al., 2007 for an overview), e.g., the Danish International Development Agency's (DANIDA) climate change screening matrix; the Opportunities and Risks of Climate Change and Disasters (ORCHID), which is the UK Department for International Development's (DFID) climate and disaster screening tool; and the expert judgment approach of the Department of Development Cooperation of the Netherlands Ministry of Foreign Affairs (DGIS).

However, this section will focus instead on tools primarily developed specifically for project preparation, particularly with a safeguards perspective or, in a more opportunity-driven mode, to help project developers identify, assess, and address climate risks.

Table 1 presents an overview of key aspects of how the various MDBs stand on the integration of climate risk management into their safeguards systems. A separate paragraph on private sector aspects of this issue is included below.

Table 1: Overview of key initiatives on systematic climate proofing in development banks

Asian Development Bank (ADB)	The ADB pioneered climate proofing methods in the Pacific, including tools for country and project assessment developed as part of the Climate Change Adaptation Project for the Pacific (CLIMAP) program (ADB, 2005) and including the Climate Change Adaptation through Integrated Risk Reduction (CCAIRR) approach. These tools and approaches have not been formally integrated into ADB safeguards.

	More recently, the ADB's Pacific region conducted a full assessment of its ongoing portfolio and is the first of the ADB's five regions to develop a plan to "climate proof" all vulnerable investment projects (ADB, 2010a and ADB, 2010b). The ADB has connected the climate risk management and disaster risk management agendas (ADB, 2008, 2010a). Specifically for disaster risks (including elements of change, but without explicit guidance on this), a non-mandatory screening tool has been tested in Nepal and is now being introduced in three other countries. With this tool, a project is classified as being in several risk categories based on a relatively straightforward set of questions (by sector, environment, hazard, exposure, stakeholder, and risk knowledge elements). Further tools are being developed for the next steps once a project has been classified as high risk.
African Development Bank (AfDB)	In 2008, the AfDB adopted a Climate Risk Management and Adaptation Strategy (AfDB, 2008), which, among other things, mandates development of a common environmental safeguards standard that incorporates climate change. Further implementation of safeguards is underway, but not yet fully completed. The approach includes linkage to the disaster risk management agenda. The safeguards department of the AfDB already develop a gender and climate change mainstreaming checklist (AfDB, 2009), which aims to provide project managers with a tool for effective mainstreaming of gender in programs and projects related to climate change in order to: (i) facilitate the identification of gender and climate issues, (ii) provide entry points for the mainstreaming of gender-related issues in climate change projects; and (iii) guide project managers to take gender and climate change into consideration when planning, designing, implementing, monitoring, and evaluating projects. In terms of climate proofing, this checklist mainly helps to ask the right questions and does not include formal requirements or technical guidance on how to assess climate risks and weigh their importance.
Caribbean Development Bank (CDB)	The CDB closely links its adaptation work to disaster risk management efforts. This is formalized in the Disaster Management Strategy and Operational Guidelines (CDB, 2009), which provide a comprehensive approach to disaster risk management and climate change adaptation. The guidelines include mainstreaming of disaster risk management and climate change adaptation into: (i) strategic

	planning, (ii) the project cycle, (iii) country strategy papers, (iv) poverty reduction papers, (v) policy-based loans, and (vi) professional capacity building. One aspect of the project cycle is the regular Environmental Impact Assessment (EIA), which can be used to integrate climate and disaster concerns. Guidance on the integration of natural hazards into the EIA process is included in the CDB/Caribbean Community (CARICOM) sourcebook (CDB and CARICOM, 2004).
World Bank (WB) (IBRD/IDA)	The World Bank has developed several analytical documents suggesting a climate risk management approach, including the integration of current and long-term climate risks, and a screening approach to identifying high-risk cases (Burton and van Aalst, 1999, 2004; van Aalst, 2006). Because of project managers' wariness of "unfunded mandates," the main approach has been to develop an awareness of the issue and an evidence base, and provide tools that can be used to identify risk and adaptation options (e.g., the ADAPT screening and decision-making tool). Chose an opportunity-driven, awareness raising approach, integrating into the country assistance strategies (CAS), sector strategies, and then trickling into project design. A solid investment is being made in making standardized climate information available (WB climate change data portal), including some disaster data and socio-economic information.
European Bank for Reconstruction and Development (EBRD)	The EBRD is looking at adaptation, including how to mainstream adaptation into operations, including project appraisal, environmental concerns, and social due diligence. This may include developing an approach for planning new and retrofitted infrastructure and other fixed assets to take climate risk into account, including a review of codes and design standards. It may also encompass infrastructure and fixed assets in vulnerable areas, such as coastal zones subject to sea-level rise or areas suffering from water scarcity. Since 2009, the EBRD has been undertaking 12 case studies in all of its key climate-affected sectors, with a relatively rapid assessment approach (generally 5 days for a consultant to analyze the project). The approach is pragmatic, project-led rather than compliance-led, and aims at building the evidence base and identifying the best entry points for climate risk management into the project cycle.

	The results will be used to inform a careful assessment of risk management techniques and options that may be appropriate for the EBRD to consider, based on practical experience from a set of real projects that are taken to the EBRD board for implementation (learning by doing). An example is a recently approved water supply rehabilitation project in Tajikistan, where a climate risk assessment identified significant challenges, which are being addressed through an add-on grant from the Special Climate Change Fund. This will be complemented, over time, by adjustments in the EBRD environmental and social policies, including compliance and performance requirements. Integration of climate risk management into formal policies does raise competitive issues (the EBRD competing with the IFC and the European Investment Bank (EIB), for instance). It would be good for the institutions to develop standards together. In the case of the EBRD, this may happen as part of the new European Union (EU) EIA standards (currently under development by the European Commission (EC)), which would apply to all commercial and non-commercial lending institutions. Experience gained by the EBRD indicates that most climate risk management adjustments in the cases addressed so far have not simply been concerned with deterministic risk management, such as engineering changes based on specific quantitative trend information from climate data and/or projections. Instead, most cases have exhibited a more holistic risk management approach and identified ways to increase the robustness of investments, given potential trends and/or increasing risks (see also some of the private sector considerations in Section 2.3).
IFC (WBG)	The IFC has also undertaken several case studies, but it has taken a more in-depth approach compared to the EBRD, with more detailed examination of agribusiness in Ghana, hydropower in Nepal, and manufacturing (pulp and paper) in Pakistan. In addition, the IFC has examined the risks facing financial institutions (see Annex 1). The IFC analysis notes that financial institutions have their own specific objectives and procedures, and many of the risks listed in Annex 1 may already be part of the standard risk management processes of these institutions. Rather than creating new instruments for climate-related risks, the challenge is to integrate "investment-relevant information" into existing procedures.

	The notion of "investment-relevant" information is quite an essential concept, and it sets a fairly high bar regarding when and where climate risk information can be integrated into investment planning. In its analysis of a set of private sector case studies—where climate change did have relevant implications—the IFC (IFC, 2010b) notes that: "Undertaking robust risk assessments for the pilot studies was a complex process, and future improvements will require investment in research at all steps in the risk assessment chain. Until these uncertainties are better resolved, it can be difficult to justify expenditure on physical adaptation actions to clients." (IFC, 2010b) Going forward, the IFC will initiate the development of more general tools that will address climate risks and investments, but it is not yet clear how findings from these analytical processes will be fed into the project cycle. A key entry point may be the upcoming review of IFC performance standards, which may include climate risk factors (not yet fully decided).

2.2 Key issues at various stages of the project cycle

2.2.1 Project preparation and analysis

All MDBs agree that effective integration of climate change risks can only be achieved when these are identified early on in the project cycle—for instance, as part of feasibility studies—so that a wide range of alternative options can be weighed as an integral part of overall project design.

In terms of further project analysis, several EIA/Environmental and Social Impact Assessment (ESIA) guidelines already include entry points for climate risk assessments. For example, several EIA guidelines already mention hazard analysis, although mainly with respect to assessing the risk that the project may pose to the environment during a hazard event (e.g., environmental spills) rather than the risk that the environment may pose to the project and/or its outcomes. When these guidelines do mention hazard analysis, the EIA policies are, for the most part, rather unspecific in terms of specifying how a risk assessment should be conducted.

In some cases, there is a close link of ESIA guidelines to the standards in the countries or regions where the MDBs operate. When countries have their own stringent EIA guidelines that already include climate risk management, MDBs can simply follow those

guidelines. In other cases, the country standards may be more limited than those of a comprehensive risk assessment as part of an EIA, but they may include relevant sub-standards, such as good building codes (which may or may not yet be adjusted to changing climate conditions).

In the case of the EBRD, EU EIA guidelines automatically apply (and also provide a level playing field among different financial institutions operating in the same market).

For private sector operations (but possibly even for sovereign lending), the notion of a level playing field is increasingly becoming a concern: if some MDBs adopt more stringent climate risk management requirements than others, they may be seen as having a comparative disadvantage in the eyes of their potential clients.

2.2.2 Project approval

In terms of compliance at the board approval stage, none of the development agencies have a full-fledged safeguards policy on adaptation that needs to be fulfilled. However, there are many cases where board members have asked critical questions when adaptation concerns have not been addressed. Screening tools, with some standardized follow-up action for high-risk cases, will be an easy way for project managers to respond to such concerns, even when no formal policy has been adopted and no formal compliance is required.

2.2.3 Project implementation

None of the MDBs have specific tools to monitor climate risk management during project implementation if such tools have not been integrated into the regular project design tools that are monitored as part of regular supervision.

It would be useful to develop ways to better manage evolving climate information and integrate it into project implementation, for instance, by providing guidance and/or information sources to implementing agencies and/or contractors. Many investments may benefit from better use of climate information on a range of timescales—not only long-term climate scenarios, but also near-term climate projections and seasonal forecasts—to map operational climate risks for the upcoming months and years, and possibly even map

"regular" early warning for hazardous conditions (e.g., the International Research Institute for Climate and Society (IRI), etc.)

2.2.4 Monitoring and evaluation

There is rapidly growing interest in measuring progress on adaptation. Approaches to achieving this typically involve a combination of outcome and process indicators.

So far, little experience has been gained in long-term monitoring and evaluation of systematic climate risk management in MDB operations. Success in this regard is typically being tracked in terms of the number of projects that have been climate proofed and/or in terms of the business volume specifically addressing adaptation (including additional grant financing).

For example, the CDB's Disaster Management Strategy and Operational Guidelines include output indicators on Outcome 2 (disaster risk management (DRM) and climate change adaptation (CCA) are effectively addressed by the CDB):

Output: DRM and CCA mainstreamed within the CDB:

- Number of technical assistance projects directly addressing DRM/CCA
- Number of capital projects, including specific DRM/CCA measures
- Number of country strategy papers addressing DRM and CCA issues
- Number of professional DRM/CCA capacity building interventions
- Number of Emergency Response Grants Loans (ERGs and Immediate Response Loans (IRLs), where 70% or more of the initial amount requested is actually disbursed

A wider (but similar) range of indicators is included in the AfDB's Climate Risk Management and Adaptation Strategy.

The application of safeguards to climate risk management can be one of the sources of information for the monitoring and evaluation of adaptation efforts. This by-product of the safeguards procedures should be considered in their design.

Note that a growing number of countries are also implementing their own adaptation plans, which may include monitoring and evaluation. It is recommended that the IDB and country monitoring and evaluation (M&E) are aligned in this regard where possible.

2.3 Specific private sector considerations

Private sector investments are affected by a range of climate-related risks (see Figure 1), thereby being somewhat similar to government projects, but including a different, or at least additional, set of considerations.[2]

Figure 1: United Kingdom Climate Impacts Programme (UKCIP) classification of climate-related risks facing the private sector (UKCIP, 2010)

In the case of public utilities and other semi-governmental agencies, there is usually some willingness to integrate longer-term considerations into investment planning for substantive reasons. In the case of pure private sector operations, the EBRD experience

[2] An additional perspective on private sector risk management comes from the UK, where a specific new element is the climate change legislation (similar climate change laws are under development in several developing countries as well). This creates yet another dimension to private sector climate risk management. The intention of the Climate Change Act 2008 is to create a framework for building the UK's capacity to adapt. Under the Act, the UK Government requires public authorities and some businesses, such as utilities and transport operators, to report how they assess and manage the risks of climate change. UKCIP notes that this mandate presently covers only 90 companies, but that its influence could extend much further through supply chains.

does not yet point to a strong willingness to borrow funds for additional climate risk management requirements. This should, of course, be different when the case can be made not on the basis of sustainable development and increased resilience of societies, but on the basis of the short-term bottom line of the business at stake.

But, for now, two key concerns come up, both related to the financing of the additional costs:

The first concern has to do with the process of conducting the additional analysis to ensure proper climate risk management during project preparation and appraisal. While many government counterparts are interested in integrating climate risk management considerations in decision making, private sector actors are often not convinced of their relevance. So far, the additional costs of performing ESIAs that include climate risk management are often 25% of the original costs. In the case of the EBRD, these costs have so far been borne by the EBRD rather than the client (whereas, normally, ESIA costs are the client's responsibility).

The second concern has to do with the additional financing needed to implement the recommended adjustments eventually required from climate change adaptation. When additional investment is required to address climate change concerns, few private sector clients are willing to borrow funds, so there is a need to explore modalities to add grant financing (e.g., in the case of privately managed infrastructure such as port facilities).

This unwillingness to dedicate funds for additional investment is one area where the lack of safeguards is currently hampering progress: it is sometimes used against MDBs that may wish to push for stronger climate risk management integration into projects (clients are arguing that the MDBs cannot impose these standards, given that the respective climate adaptation standards are not in the MDBs' policies). However, given clients' reservations, the case needs to be made convincingly, and this may require building on further experience as well as being somewhat selective in choosing high-risk cases to engage first. Any formal requirements would ideally be applied in similar ways by all competing financial institutions. (Note that opportunities can also become risks, namely, if a particular company does not take advantage of the opportunities, but competitors do).

2.4 General barriers and constraints

2.4.1 Awareness, human resources

Many MDBs commented on the need to have sufficient awareness and expertise, not only in central departments, but also within the sector teams to appreciate the opportunities. This may require investments in internal networks, training, and practical tools such as consultant rosters.

2.4.2 Methods/tools/data

There are essentially two approaches to integrating climate risk management into safeguards policies.

One approach is to simply require project managers to check boxes in checklists: (a) is the project at risk? and (b) if so, has the risk been managed properly? Implementation then relies purely on project managers' due diligence.

The other approach is to formally require some sort of scoring or set specific standards to assess risks, especially in relation to the initial screening that determines if further in-depth work is needed in the assessment process. Such an approach (although it still includes some qualitative assessment) has been taken by the ADB in its draft hazard risk screening and by the World Bank, in a more quantitative way, in its ADAPT tool.

In the latter case, but even in more informal screening approaches, it is advisable to provide clear guidance on the preferred methods and data to use, so that task managers can be assured that their approaches will not be questioned by their clients (or managers) and the institution at large can be assured that similar standards are being applied across different projects and sectors. Except for the World Bank, none of the MDBs currently have such standardized datasets and tools that are recommended for use, but several MDBs have expressed the desirability of having them.

3. Relation to other Bank activities

3.1 Accounting and analysis for IDB reporting with respect to climate change

While the safeguards themselves might initially be rather loose, it would be worth establishing an effective analysis system to monitor implementation of the safeguards, assess consistency in the application of the guidance for this monitoring, and track implementation progress over time.

3.2 Relation of safeguards analysis to country and sector-level programming

Given the growing awareness of climate change, general country and sector-level planning should increasingly be climate-smart. Translating this awareness into country programming primarily lies in ensuring integration of climate change management early in the project concept stage (as discussed above).

Having safeguards requirements in formal policies may be a trigger for earlier consideration of climate change elements. On the other hand, in the initial stages, it might be equally promising (and more efficient in terms of building experience ahead of formal policy adoption) to focus on pilot cases in high-risk sectors and/or regions with interested task managers (see next sub-section).

Coupling investment perspective with policy and planning perspective (e.g., coastal defenses that have implications for land use behind them) is recommended.

3.3 The role of pilot or case studies in gaining practical experience

Several MDBs have commented that it is very important to first focus on low-hanging fruit to build experience. This may include focusing on high-risk cases, evident by current appearances of variability and extremes, and/or looking for investments that have long lifetimes and involve irreversible decisions.

3.4 Capacity building

As noted above, many MDBs have highlighted the critical issue of capacity in assessing risks and integrating them into project work. This includes not only the IDB (with respect to safeguards and within sector teams), but also country governments that are clients and private sector counterparts.

Indeed, ideally a growing portion of the role of safeguards would eventually shift to client countries (for government projects in terms of the government's own implementation and for private sector operations in terms of the government's regulatory role). These considerations could be built into the safeguards development strategy.

4. Conclusions/recommendations

This paper has looked at options for the integration of climate risk management into IDB screening and analysis based on the experience of other development banks.

The main findings and suggestions are:

1. In all MDBs, the level of ambition in terms of systematically addressing climate risk is rising.
2. Almost all MDBs have adopted a risk-based approach to climate risk management, which is sometimes fully integrated with disaster risk management tools.
3. Although some MDBs have expressed a desire to formally mandate climate risk assessment, at this stage none have developed separate safeguards fully.
4. When MDBs already have some safeguards addressing climate risk in place, these safeguards typically are in the form of a checklist—whether a safeguard is triggered is left to a project manager's discretion. However, several MDBs are currently in the process of developing more elaborate guidance regarding safeguards, with closer links to sector experience. In some cases, a process is underway toward formal integration of climate risk management into the full EIA/ESIA guidelines.
5. Experience shows that it is essential not to start integrating climate risk management into operations purely from a compliance perspective. Instead, development of safeguards should go hand in hand with growing practical experience concerning their development in a growing range of bank operations (including tool development) and with increasing awareness of the issue and expertise in safeguards development in sector teams.
6. A change in mentality and full integration of climate risk management into project design are essential, while weighing the options available given the availability of climate information that is relevant to the decision-making context (depending on the

time and spatial scale, and the certainty and magnitude of trends relative to other factors).

7. To this end, a relatively simple initial screening process (probably not mandatory) should be applied early on in the project cycle to alert project developers to the fact that climate change management considerations should be looked at when developing the project.
8. In addition, it is essential to build confidence and experience through specific types of assessment and adjusted operations in high-risk sectors and/or environments. Again, a risk screening approach can initially be used to focus on high-risk cases, with medium-risk cases being addressed if and when there is sufficient awareness of need and capacity for climate change management among sector staff.
9. Using the screening partly to identify opportunities for mobilizing additional grant financing to make the investment more robust can help increase the interest of task managers and clients (a "carrot" compared to the "stick" of formal safeguards requirements). It is also possible to consider initially funding the additional screening costs during project feasibility studies and/or appraisal temporarily from separate (trust fund?) budgets held by a safeguards unit.
10. Closer collaboration among MDBs is needed and is likely to be accomplished most effectively through an informal group that looks at compliance and climate risk management (possibly with a special sub-group that looks at private sector issues):

    a.) to develop similar compliance standards (and also ensure a level playing field, in particular for private sector lending)
    b.) to share the development of methods and tools, including general approaches (to include experience gained from case studies) and data sources

11. When developing safeguards concerning climate risk management, it is important to make sure that these safeguards also generate information on monitoring and evaluation.
12. Deterministic risk management should not be the only focus. Even for private sector investments, the main adjustments are not simply deterministic risk management adjustments, such as engineering changes based on specific quantitative trend

information from climate data and/or projections. Instead, the focus should facilitate a more general risk management approach that also identifies ways to increase the robustness of investments, given potential trends and/or rising risks. This also means focusing not only on structural, but also nonstructural adaptation options (such as the demand for management of the water supply).

5. Sources

African Development Bank (AfDB). 2008. *AfDB Group Climate Risk Management and Adaptation Strategy (CRMA)*. Tunis: AfDB.

African Development Bank (AfDB). 2009. "Information note on the checklist for mainstreaming gender and climate change in projects." ADB/BD/IF/2009/330. Tunis: AfDB.

Asian Development Bank (ADB). 2005. *Climate Proofing: A Risk-based Approach to Adaptation*. Manila: ADB. http://www.adb.org/documents/Reports/Climate-Proofing/.

Asian Development Bank (ADB). 2008. *Positioning ADB's Disaster and Emergency Assistance Policy in a Changing Regional Environment*. Manila: ADB.

Asian Development Bank (ADB). 2009a. *Understanding and responding to climate change in developing Asia*. Manila: ADB.

Asian Development Bank (ADB). 2009b. *ADB Draft Risk Screening Tool (September 2009)*. Manila: ADB.

Asian Development Bank (ADB). 2010a. "Addressing Climate Change in Asia and the Pacific, Priorities for Action." IN.112-10. Presented to the ADB Board on 14 May 2010. Manila: ADB.

Asian Development Bank (ADB). 2010b. *Climate Change in the Pacific: Stepping Up Responses in the Face of Rising Impacts*. Manila: ADB. http://www.adb.org/documents/reports/climate-change-pac/default.asp.

Agrawala, S. and Fankhauser, S. 2008. *Economic aspects of adaptation to climate change. Costs, benefits and policy instruments*. Paris: OECD.

Agrawala, S., Matus, A., Kramer, G. et al. 2010. "Incorporating climate change impacts and adaptation in Environmental Impact Assessments: Opportunities and Challenges." OECD Environmental Working Paper No. 24. Paris: OECD.

Agrawala, S. and van Aalst, M. 2008. "Adapting development cooperation to adapt to climate change." *Climate Policy*. 2(8), 183-193.

Bettencourt, S., Croad, R., Freeman, P. et al. 2006. *Not if, but when. Adapting to natural hazards in the Pacific Islands Region*. Washington, DC: World Bank.

Burton, I. and van Aalst, M.K. 1999. *Come Hell or High Water: Integrating Climate Change Vulnerability and Adaptation into Bank Work*. World Bank Environment Department Papers, 72. Washington, DC: World Bank.

Burton, I. and van Aalst, M.K. 2004. *Look Before You Leap. A Risk Management Approach for Climate Change Adaptation in World Bank Operations*. Washington, DC: World Bank.

Canadian Standards Association. 2010. *Infrastructure in permafrost: A guideline for climate change adaptation*. Technical guide, plus 4011-10. Mississauga, Canada: Canadian Standards Association.

Cardona, O.D. 2009. *Indicators of Disaster Risk and Risk Management − Program for Latin America and the Caribbean: Summary Report*. Third Edition. Updated 2009. Washington, DC: Inter-American Development Bank, Infrastructure and Environment Sector. 50 pp.

Caribbean Development Bank (CDB). 2009. *Disaster Management Strategy and Operational Guidelines*. Bridgetown, Barbados: Caribbean Development Bank.

Caribbean Development Bank (CDB) and CARICOM. 2004. *Sourcebook on the integration of natural hazards into environmental impact assessment (EIA)*. NHIA-EIA sourcebook. Bridgetown, Barbados: Caribbean Development Bank.

EBRD. n.d. *Environmental and Social Standards, PR 1: Environmental and Social Appraisal and Management*. London: EBRD. http://www.ebrd.com/downloads/about/sustainability/ESP_PR01_Eng.pdf.

EBRD. n.d. *Environmental and Social Standards, PR 4: Community Health, Safety and Security*. London: EBRD. http://www.ebrd.com/downloads/about/sustainability/ESP_PR04_Eng.pdf.

GTZ. 2009. International Workshop on Mainstreaming Adaptation to Climate Change Guidance and Tools, GTZ.

IFC. 2010a. *Climate Risk and Financial Institutions. Challenges and Opportunities*. Washington, DC: IFC.

IFC. 2010b. *Climate Risk and Business: Practical Methods for Assessing Risk*. Washington, DC: IFC.

IPCC. 2007. *Climate Change 2007, Fourth Assessment Report of the IPCC*. Cambridge: Cambridge University Press.

Klein, R., Eriksen, S., Næss, L. et al. 2007. "Portfolio screening to support the mainstreaming of adaptation to climate change into development." *Climatic Change*. Vol. 84, No.1, pp. 23-44.

Mitchell, T. and van Aalst, M.K. 2009. *Convergence of Disaster Risk Reduction and Climate Change Adaptation. A Review for DFID*. Brighton, UK: IDS.

Mitchell, T., van Aalst, M.K. and Silva Villanueva, P. 2010. *Assessing progress on integrating disaster risk reduction and climate change adaptation in development processes*. Institute of Development Studies (IDS) Strengthening Climate Resilience (SCR) discussion paper 2. Brighton: IDS.

OECD. 2009. *Integrating Climate Change Adaptation into Development Co-operation: Policy Guidance*. Paris, France: OECD.

ProVention. 2007. *Tools for Mainstreaming Disaster Risk Reduction, Guidance Note 7: Environmental Impact Assessment*. Geneva: ProVention. Online at: http://www.proventionconsortium.org/themes/default/pdfs/tools_for_mainstreaming_GN7.pdf.

UKCIP. n.d. United Kingdom Climate Impacts Program (UKCIP). Oxford: UKCIP. http://www.ukcip.org.uk/.

UKCIP. 2010. *A changing climate for business, third edition*. Oxford: UKCIP.

UNFCCC. 2008. *Compendium on methods and tools to evaluate impacts of, and vulnerability and adaptation to, climate change*. Bonn: UNFCCC.

van Aalst, M.K. 2006. *Climate Risk Management. Integrating Climate Change Adaptation into World Bank Operations*. Washington, DC: World Bank.

van Aalst, M.K., Hirsch, D. and Tellam, I. 2007. *Poverty Reduction at Risk. Managing the Impacts of Climate Change on Poverty Alleviation Activities*. Prepared for the Netherlands Ministry of Foreign Affairs/DGIS. Leusden, the Netherlands: Netherlands Climate Assistance Program.

6. Annex 1: Climate-related factors affecting financial performance and conditions for both equity and debt

- Market conditions, particularly supply and demand, can be a key determinant of future prices. Both supply and demand can be sensitive to climate factors. Future climate-driven changes in prices may, in turn, affect the competitiveness of investments.

- Efficiency, output, and performance of assets and equipment may decrease due to changing climate conditions, with consequences for revenue.

- Operational expenditure (OPEX) may increase due to changes in the price, availability, or quality of inputs. Maintenance costs may also increase.

- Insurance costs are likely to increase if climate-related claims continue to rise as projected. A more disquieting possibility, already a reality in some regions, is that insurance companies may completely abandon particular markets.

- Additional capital expenditure (CAPEX) may be required as a result of asset damage or decreased asset performance. Further, complying with environmental regulations may require additional CAPEX to upgrade facilities or equipment to cope with increased pollution risks.

- Staff health, safety, and productivity may be impacted by climate change, and this may lead to increased expenses.

- Loss contingency projections—reserves required to allow for potential disasters or other known risks—may need to increase as the risks of climate change become more likely and better quantified.

- Asset depreciation rates may increase. The rates currently used for accounting purposes generally reflect historical experience, but the effective depreciation rates of assets due to climate change may be considerably higher. Consequently, financial models may overestimate the real useful lives and value of physical assets. Faster capital depreciation could mean that assets need replacing more frequently, negatively affecting projected cash flows.

- Country risk may be aggravated by climate change impacts, particularly in economies where the gross domestic product (GDP) is reliant on scarce water resources, or in smaller economies that are more vulnerable to catastrophic climate events. Significantly, studies show that rising temperatures in some regions are linked to increased risk of armed conflicts.

Source: IFC (2010a)

7. Annex 2: Adaptation types and examples by sector

Climate Change Adaptation Types and Examples by Sector

Sector	Type and Category of Adaptation	Example of Adaptation Options
Agriculture	Share the loss	Crop insurance
	Prevent the loss (structural, technological)	Investment in new capital
	Prevent the loss (market-based)	Removal of market distortions (e.g., water pricing) Liberalization of agricultural trade to buffer regionalized losses
	Change use	Change crops, promote crop diversification Alter planting dates Alter learning practices
	Research	Development of heat- and drought-resistant crops
Coastal zones	Prevent the loss (structural, technological)	Coastal defenses and sea walls Surge barriers Upgrade drainage systems, salt water intrusion barriers
	Prevent the loss (on-site operations)	Sediment managements Beach nourishment Habitat protection (e.g., wetlands, mangroves)
	Prevent the loss (institutional, administrative)	Land use planning
Water	Prevent the loss (structural, technological)	Loss reduction (leakage control, conservation plumbing) Capacity increase (new reservoirs, desalination facilities)
	Prevent the loss (institutional, administrative)	Water allocation (e.g., municipal versus agricultural) Risk management to deal with rainfall variability
	Prevent the loss (market-based) Education and behavioral	Water permits Water pricing Rational water use Rainwater collection
Health	Prevent the loss (structural, technological)	Air-conditioning Building standards
	Prevent the loss (institutional, administrative)	Improvement in public health Vector control programs Disease eradication programs
	Research	Research and development on vector control Vaccines Disease eradication

Source: Organization for Economic Cooperation and Development (OECD). 2009. *Integrating Climate Change Adaptation into Development Cooperation.* Paris.