FINAL DRAFT

Background Document for the November 2010 IAIA Climate Change and Impact Assessment Symposium

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Abbreviations and Acronyms:

ADAPT	Assessment and Design for Adaptation to Climate Change
AfDB	African Development Bank
AsDB	Asian Development Bank
ASEI	Asia Solar Energy Initiative
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAN	California Climate Action Network
CCIP	Climate Change Implementation Plans
CEAA	Canadian Environmental Assessment Act
CEIF	Clean Energy Investment Framework
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act (CEQA):
CIDA	Canadian International Development Agency
CIF	Climate Investment Funds
CLIMAP	Climate Change Adaptation Program for the Pacific
CPRS	Carbon Pollution Reduction Scheme
CRMA	Climate Risk Management and Adaptation Strategy
CSAC	California State Association of Counties
CTF	Clean Technology Fund
DANIDA	Danish International Development Agency
DEFRA	Department for Environment and Food and Rural Affairs)
DFID	UK's Department for International Development
EBRD	European Bank for Reconstruction and Development
EBRD	European Bank for Reconstruction and Development
EC	European Council
EIR	Environmental Impact Report
EPBC	Environment Protection and Biodiversity Conservation
ESAP	Environmental and Social Assessment Procedures
ESCP	Environmental and Safeguard Compliance Policy
ESP	Environmental and Social Policy
EU	European Union
GTZ	German Technical Cooperation
IAIA	International Association of Impacts Assessment
IBO	International Bilateral Organizations
IBRD	International Bank for Reconstruction and Development
IDB	Inter-American Development Bank
IFC	International Finance Corporation
JICA	Japan International Cooperation Agency
MEA	Manual of Environmental Appraisal
MFI	Multilateral Financial Institutions
NEMA	National Environmental Management Act
NEPA	United States National Environmental Protection Act
ODA	Overseas Development Administration
OECD	Organization for Economic Co-operation and Development

OPR	Office of Planning and Regulation
ORCHID	Opportunities and Risks from Climate Change and Disasters
SDR	Safeguard Diagnostic Review
SEA	Strategic Environmental Assessment
SEI	Sustainable Energy Initiative
SLoCaT	Sustainable Low-Carbon Transport
SPS	Safeguard Policy Statement
USAID	United States Agency for International Development
UCS	Use of Country Systems

EXECUTIVE SUMMARY

The International Association for Impact Assessment (IAIA), a professional forum for advancing innovation, development and communication of best practices in impact assessment, in conjunction with the World Bank, is hosting a 2-day Symposium on November 15-16, in Washington, DC, on the topic of Climate Change and Impact Assessment. The purpose of the Symposium is to bring together international experts and practitioners in impact assessment and climate change to review the latest studies and work linking impact assessment and climate change and explore ways to advance collaborative work among experts in climate change and impact assessment (IA)[1] professionals. The Symposium will also explore the application of strategic environmental assessment (SEA) and cumulative effects assessment (CEA).

The purpose of this report is to provide the current "state of practice" details underlying the Symposium's main discussion points. Firstly, it provides a detailed overview of how the Multilateral Development Banks (MDBs) and International Financial Institutions (IFIs) are incorporating climate change risks and impacts into their corporate strategies and their due diligence procedures, particularly Environmental Impact Assessment (EIA). Secondly, it provides a detailed overview of how countries are adjusting their due diligence procedures to integrate climate change risks and impacts. Lastly, it attempts to draw lessons learned and best practices to assess the impacts of the climate change on the project and the impacts of the project on climate change.

Main Findings:

How are MDBs and IFIs incorporating climate change risks and impacts into their corporate strategies and their due diligence procedures?

First, while most MDBs and IFIs have incorporated climate change into their corporate strategies, these strategies are non-binding and do not address climate change risks and impacts. The expanding climate change portfolios among the MDBs and IFIs are mostly derived from recently created climate change guidance policies rather than the existing procedures and safeguards. Most of the overarching climate change guidance and policies are non-binding in nature. Although they may carry significant moral or political weight, they create no obligations that would ensure a strict adherence to climate change, as posited in their respective climate change guidance and strategies. In this way, EIAs may still be made to address climate change, but may lack the strong legal background to do so.

Second, generally, safeguards reviewed have not directly included climate change issues. It is very clear that EIA has been overwhelmingly accepted as a formal environmental assessment procedure by most MDBs and IFIs. All the development banks and agencies reviewed have

[1] For this report, EIA is defined as "a structured a process for considering the implications, for people and their environment, of proposed actions while there is still an opportunity to modify (or even, if appropriate, abandon) the proposals. It is applied at all levels of decision-making, from policies to specific projects" (IAIA 2010) Although there are several impact assessment approaches this report focuses on only Environmental Impact Assessments (EIA) and Strategic Impact Assessments (SEA) which are two of the tools for carrying out impact assessment referred to in this report. See the IAIA website for more details: http://www.iaia.org/iaiawiki/impactassessment.ashx

already established EIA processes as an essential part of project approval. Although tailored to individual bank/agency polices and operations, safeguards reviewed over time have not directly included climate change issues. Being mindful of the quite recent and rapidly evolving nature of climate change, it would be safe to say that most banks and development agencies have not been able to mainstream their EIA procedures with climate change in a formal way.

Third, GHG emissions baselines are beginning to be set amidst little capacity. There is a potential tendency for development banks to begin setting baselines for GHG emissions. The pace has been set by IFC and EBRD and others may follow. However, the lack of technical capacities and coherent methodological approaches may have grave implications on EIAs.

Fourth, in general, development banks have focused on the conduction of solid analytical pieces of climate-change related work to underpin future investment lending in sectors like energy, transport, water and forestry. *These efforts have generally focused on mitigation of GHG emissions and sometimes on adaptations.*

Fifth, there seems to be no systematic or coordinated approach in addressing climate change. It was unclear as to whether or not the development banks and agencies have followed any systematic plan to either focus at the sector level, at the project level, or both when it comes to climate change investments and portfolios. EIAs are applied where investments are made at the project level, and SEAs are applied where projects are approved for the sector level. Furthermore, it is unclear as to whether or not the development banks and agencies are coordinating among themselves with respect to programs and project prioritization (sector or project) and the collective redress of climate change impacts and adaptations, particularly for developing country clients.

How are countries adjusting their due diligence procedures to integrate climate change risks and impacts?

First, generally, climate change has not been integrated into most countries' EIA systems. The consideration of climate change into countries' EIA systems is at the infancy stage for most countries. Although the EIA has a tremendous potential to assess the climate resilience of projects, or to assess their contribution to the reduction of GHG emissions, climate change has not yet been identified in the EIA legislation of most countries, with the exception of Canada and New Zealand.

Second, countries are increasingly seeking guidance on how to incorporate climate change considerations in EIA. Countries have begun calling for guidance procedures to support their EIA systems. While some guidance exists for both SEA (New Zealand) and EIA (Canada) to account for climate change, there is limited information on the step by step procedures to consider climate change mitigation and adaptation into impact assessments. No consensus has emerged so far regarding the most appropriate and effective guidance, methods, or combinations of methods. In the absence of guidance and legislation considering GHG emissions and climate change, risks in EIAs have looked more arbitrary than planned.

Third, the limited capacity of environmental regulation entities is a major constraint for more aggressive domestic EIA legislation to support climate change efforts. For example**,** although

South Africa recognizes the need for a national climate change policy, it has been hindered by capacity gaps to respond to, and plan aggressively for, the emerging climate change threats.

1.0 Introduction:

The International Association for Impact Assessment (IAIA), a professional forum for advancing innovation, development and communication of best practices in impact assessment, in conjunction with the World Bank, is hosting a 2-day Symposium, November 15-16, in Washington, DC, on the topic of Climate Change and Impact Assessment. The purpose of the Symposium is to bring together international experts and practitioners in impact assessment and climate change to review the latest studies and work linking impact assessment and climate change and explore ways to advance collaborative work among experts in climate change and IA professionals. Participants in the Symposium will also explore the application of strategic environmental assessment (SEA) and cumulative effects assessment (CEA).

The purpose of this report is to provide the current "state of practice" details underlying the Symposium's main discussion points. Firstly, it provides a detailed overview of how the Multilateral Development Banks (MDBs) and International Financial Institutions (IFIs) are incorporating climate change risks and impacts into their corporate strategies and their due diligence procedures, particularly Environmental Impact Assessment (EIA). The MDBs discussed in the report are the African Development Bank (AfDB), the Asian Development Bank (AsDB), the European Bank for Reconstruction and Development (EBRD), the Inter-American Development Bank (IDB), and the World Bank (WB)[2]. The IFIs discussed in the report include the Canadian International Development Agency (CIDA), the Danish International Development Agency (DANIDA), the Department for International Development (DFID), the German Technical Cooperation (GTZ), the International Finance Corporation (IFC),[3] the Japanese International Cooperation Agency (JICA), the Organization for Economic Co-operation and Development (OECD), and the United States Agency for International Development (USAID).

Secondly, this report provides a detailed overview of how countries are adjusting their due diligence procedures to integrate climate change risks and impacts. The countries reviewed are Australia, Canada, China, Mexico, New Zealand, Poland, South Africa, The Netherlands, and the United States of America (USA).

Lastly, the report attempts to draw lessons learned and best practices to assess the impacts of the climate change on the project and the impacts of the project on climate change. While the consideration of climate change is fast evolving in the development discourse, it requires that some of the discussions in this report are continually reviewed. It is also possible that MDBs, IFIs, and countries are actively involved in climate change processes that are not yet made public. In this regard, the information presented here is restricted to the available public information and perhaps should be used as background reference only. Any further information required should be directed to the specific institutions. This paper does not focus on the science of climate change, for which the reader is directed to the extensive peer reviewed reports of the

[2] The caption "World Bank" refers to the International Bank for Reconstruction and Development and the International Development Association (IBRD/IDA).
[3] The International Finance Corporation (IFC) is referred to as a member of the "World Bank Group" but with distinguished roles and due diligence procedures.

Intergovernmental Panel on Climate Change (http://www.ipcc.ch/). At the same time, the paper does not focus on the preparation of EIA's, for which the reader is directed to the International Association of Assessment (http://www.iaia.org) for an in-depth understanding of environmental assessment procedures.

1.2 Scope of this Study

This report presents a comparative analysis of selected countries and financial corporations, and how they are incorporating climate change into their environmental due diligences, particularly on EIAs. Environmental due diligence refers to EIA's used as a transactional guide for environmental investment portfolios. It will also include a mix of policies and measures with the overarching objective of reducing projects' impacts on the environment and vice versa. Climate change is referred to as "a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change may be due to natural internal processes or external forces or to persistent anthropogenic changes in the composition of the atmosphere or in land use"[4]. In this study, we primarily looked at EIA and Climate Change Strategies of multilateral financial organizations, international bilateral organizations, and countries. A key objective of this study is to provide insight into the various approaches taken in different countries and organizations and facilitate an exchange of information on how climate change is being addressed across financial organizations and countries. Our analysis is guided by two principal sets of questions:

- Are MDBs, IFIs, and Client Countries incorporating climate change into their environmental due diligence, particularly EIAs?
- What is the status of climate change strategies for the selected MFIs, IFI's and Countries?

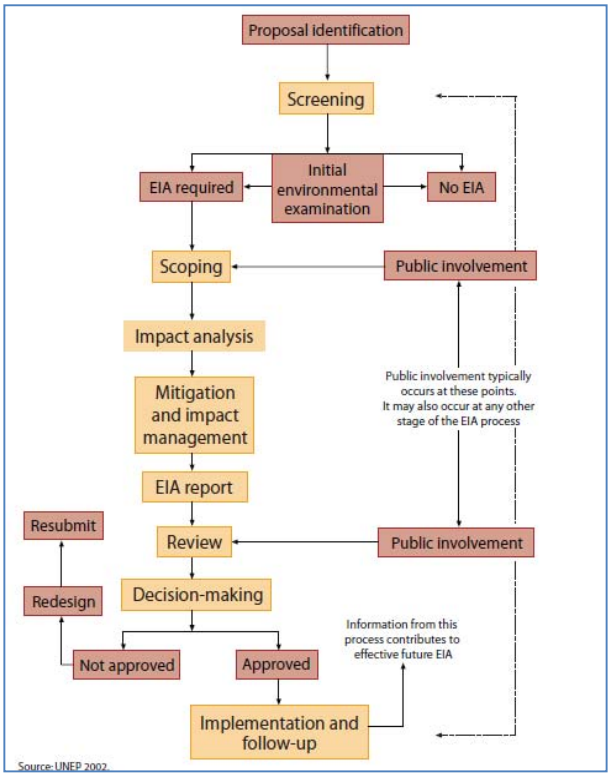
For the purposes of this analysis, the approaches of a total of 6 multilateral financial institutions, 7 international bilateral organizations and 11 countries have been reviewed and summarized (See sections A and B). The selection of these countries was based on accessibility of the information. A comparative analysis was carried out, focusing on more up-to-date documents, and was performed primarily as a desk-study. Where necessary and possible, this analysis was complemented with information gathered through interviews and personal communication with bank staff involved in the development of the respective national and corporate strategies.

[4] IPCC Definitions Glossary (2004) : http://www.ipcc.ch/ipccreports/tar/wg1/518.htm

1.3 Incorporating Climate Change into Environmental Impact Assessments

MDBs such as The World Bank, the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, and the Inter-American Development Bank now have well-established EIA procedures, which apply to their lending activities and projects undertaken by borrowing countries. Although their operational policies and requirements vary in certain respects, these MDBs follow a relatively standard EIA procedure as part of their environmental due diligence. However, a consensus is beginning to emerge for EIA documents to consider the incorporation of climate change. The general discussion is that incorporating climate change into banks' environmental assessment due diligence is necessary and can be potentially useful in addressing investment portfolio risks and vulnerabilities. While environmental assessment "due diligence[5]" may suggest that banks exercise extra caution on the environment in the way they conduct their business, climate proofing[6] their procedures may support the identification of project risks and vulnerabilities due to direct impacts of climate change, thereby improving the environmental soundness of investment operations. In this way, it will not just be enough for banks to assess their project's impacts on the environment, but will also assess the impact of the changing environment on their projects.

Figure 1: The Typical EIA Steps



Generally, borrowing countries are responsible for the preparation of EIAs. However, it is the prerogative of the banks to determine whether an EIA is required, and recommend what type would be appropriate for the project. Although detailed steps in the EIA process vary between organizations and countries, there are a number of generic steps that are followed internationally (See Figure 1). With the growing public concern regarding climate change, it is expected that MDBs require most projects in their respective development portfolios to include climate change considerations in the EIA. Regarding the scope of analysis, any current standard output of the EIA may have to address two basic questions:

[5] See Gary M. Lawrence (1994). Due Diligence in Business Transactions. Law Journal Press . Due Diligence is defined as the process of evaluating a prospective business decision by getting information about the financial, legal, and other material (important) state of the other party. The due diligence process varies for different types of companies. With respect to this study the relevant areas of concern may include the financial and environment situation of the company.

[6] The Asian Development Bank defines "climate proofing" as: a shorthand term for identifying risks to a development project, or any other specified natural or human asset, as a consequence of climate variability and change, and ensuring that those risks are reduced to acceptable levels through long-lasting and environmentally sound, economically viable, and socially acceptable changes implemented at one or more of the following stages in the project cycle: planning, design, construction, operation, and decommissioning (ADB, 2005).

- How will the project *affect* climate change?
- How will the project *be affected* by climate change?

Various approaches to address these questions are discussed herein, identifying some of the key efforts by MDBs, IFIs and some selected country systems to address climate change.

The MDBs selected for this review were the World Bank Group (IBRD/IDA and IFC), the African Development Bank (AfDB), the Asian Development Bank (AsDB), the European Bank for Reconstruction and Development (EBRD), and the Inter-American Development Bank (IDB).

Regarding the IFIs, this review also included the safeguards from the Organization for Economic Co-operation and Development (OECD), the Japanese International Cooperation Agency (JICA), the Canadian International Development Agency (CIDA), the Department for International Development (DFID), the German Technical Cooperation (GTZ), the Danish International Development Agency (DANIDA) and the United States Agency for International Development (USAID).

Countries' procedures selected for the study were that of the USA (California to be precise), Canada, Australia, New Zealand and Australia.

2.0 Multilateral Development Banks and Climate Change

This section provides an overview of how the MDBs are incorporating climate change into their respective environmental due diligence procedures. Guiding questions included whether the selected MDBs have safeguard frameworks on EIAs, as well as where they exist, whether they include the consideration of climate change, and if there are overarching climate change policies supporting their lending operations.

2.1.0 The African Development Bank (AfDB)

Environmental and Social Assessment Procedures (2004). For a detailed review of *AfDB Environmental and Social Assessment Procedures (2004)* please see http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-documents/environmental%20and%20social%20assessment%20procedures.pdf

While the environmental policy safeguards (1990) for AfDB acknowledged the significant progress made in the implementation of Agenda 21, the 2004 Environmental Safeguard Policy recognizes the need to protect and conserve global public goods, namely biodiversity and climate change. The primary objective of the Environmental and Social Assessment Procedures (ESAP) is to provide a formal process for the internal and inter-departmental environmental and social review of bank-financed projects, programs and plans with minimal discussions on the extent of climate change considerations that may be required under ESAP. However, the Bank's Medium Term Strategy for 2008-2012[7] has discussed gender equality and climate change as a critical development issue that should be mainstreamed into the key operational plans. Presently, the bank has adopted a Climate Risk Management and Adaptation Strategy (CRMA)[8] and Clean Energy Investment Framework (CEIF, 2008)[9], which address the broader issues of adaptation and mitigation, respectively (see Figure 2).

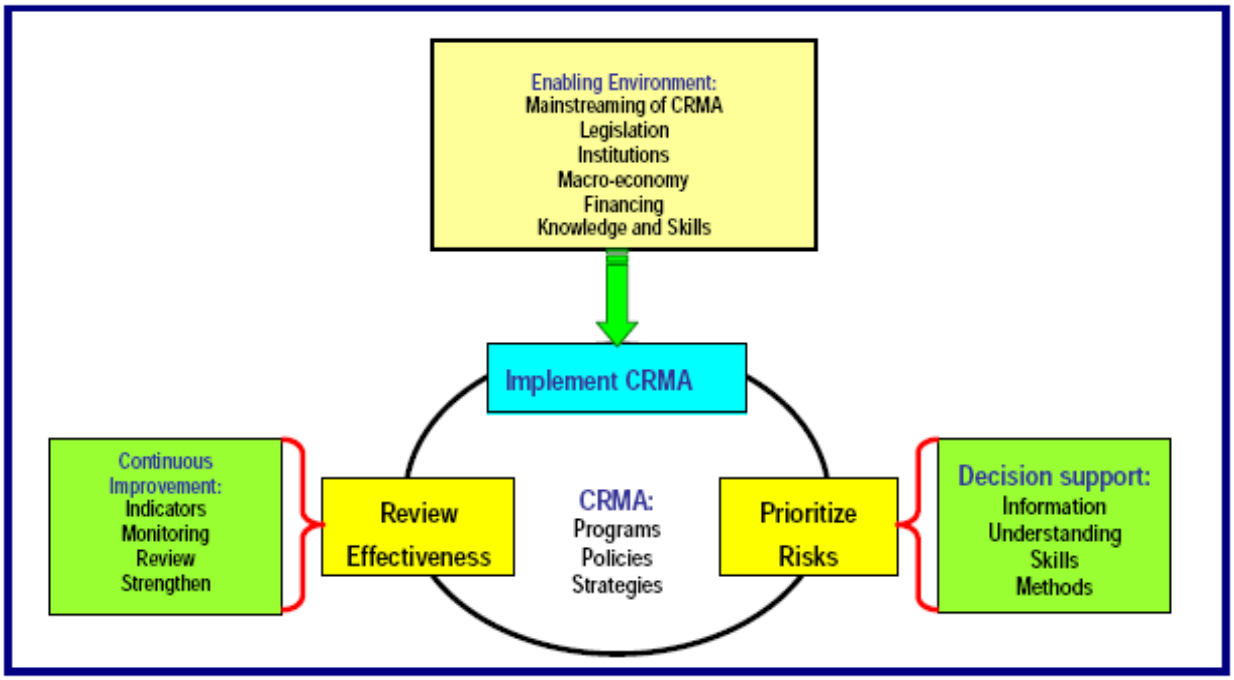
[7] See the information note on the checklist for Mainstreaming gender and climate change in Projects: http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-documents/Information%20Note%20on%20the%20Checklist%20for%20Mainstreaming%20Gender%20and%20Climate%20Change%20in%20Projects%20EN.pdf

[8] See AfDB group climate risk management and Adaptation strategy (CRMA) http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy- documents/Climate%20Risk%20Management%20and%20Adaptation%20Strategy%20_CRMA_%20%282%29.pdf

[9] See AfDB (2008). Clean Energy Investment Framework For Africa. Role of the African Development Bank Group: http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/10000025-en-proposals-for-a-clean-energy-investment-framework-for-africa.pdf

The specific objectives of the CRMA are to reduce vulnerability to climate change variability and promote climate resilience in past and future bank financed development investments, and to build capacity and knowledge to address the challenges of climate change and ensure

Figure 2: Framework and Methodology for Mainstreaming Climate Risk Management.



Source: ADB, 2005

sustainability through policy and regulatory reforms. The CRMA focuses on women's economic empowerment by addressing gender mainstreaming within the climate change framework. Some entry points were discussed for gender and climate change mainstreaming in the project cycle. The fundamental argument for focusing on gender and climate change was the fact that women have distinct vulnerability, exposure to risk, coping capacity, and ability to recover from climate change impacts, as opposed to men (Masika 2002)[10]. Also, rural households typically rely on biomass for cooking and heating, and as a result, any effective environmental management related to mitigation will have to focus on women. To support this strategy, the bank has created a new energy department to assist African countries to have access to climate strategic funds. The Clean Energy Investment Framework (CEIF), on the other hand, is the banks' response to the concerns about Africa's precarious domestic energy situation and its vulnerability to climate change impacts. Currently there is a pipeline of 26 clean energy projects for a total of USD 11 billion, with another committed of USD 30 million, to build the capacity of regional institutions working in the climate sector[11]. Building capacity for effective mainstreaming of programs and projects related to climate change continues to be the prioritized focus of the bank. The banks' most current initiative is the estimated US $37 million African climate institutions support project, which will run from 2010-2012. This initiative supports the ongoing Climate for Africa's Development Program (Clim-Dev Africa) with the primary role of enhancing capacities within

[10] See Masika, R., (ed), 2002, Gender and Climate Change, Focus on Gender, Oxfam, Oxford.
[11] See AfDB (2010). AfDB Implementing a Proactive Policy for Mitigating Climate Change. http://www.afdb.org/en/news-events/article/the-afdb-is-implementing-a-proactive-policy-for-mitigating-climate-change-says-vp-pittman-6854/

Africa to generate, disseminate and use appropriate climate information for development planning.

2.1.1 The Asian Development Bank (AsDB)

Safeguard Policy Statement (2010). For a detailed review of *AsDB Safeguard Policy Statement (2010)* please see http://www.adb.org/Documents/Manuals/Operations/OMF01-20Jan10.pdf

The Asian Development Bank (AsDB) has recently adopted a new Safety Policy Statement (SPS).[12] The basic goal of the 2010 policy statement is to promote the sustainability of project outcomes by protecting the environment and people from potential adverse impacts of projects, while the specific objectives are to

1. Avoid adverse impacts of projects on the environment and affected people, where possible;
2. Minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is impossible; and
3. Help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

The SPS testifies to the changing nature of ADB's business to which the bank needed to transform itself to meet its challenges, while remaining dedicated to its overarching goal. It sets the policy objectives, scope, triggers and principles for the key safeguards areas: environmental safeguards, involuntary resettlement safeguards, and indigenous people safeguards. The revised environmental safeguards strive to address climate change by requesting borrowers and clients to conduct an environmental assessment for each proposed project to identify potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues), and physical cultural resources in the context of the project's area of influence, while assessing the potential transboundary and global impacts, including climate change.

With regards to projects that are expected to, or currently, produce significant quantities of GHG, the SPS requires the borrower/client to "quantify direct emissions from the facilities within the physical project boundary and indirect emissions associated with the off-site production of power used by the project." The SPS also requires the borrower/client to "conduct quantification and monitoring of greenhouse gas emissions annually in accordance with internationally recognized methodologies." Footnote 11 of the SPS indicates that "Estimation methodologies are provided by the Intergovernmental Panel on Climate Change (IPCC), various international organizations, and relevant host country agencies." In addition, AsDB's overarching climate change strategy suggests the mainstreaming of climate change into banks' core operations. ADB's long-term strategic framework 2008–2020[13] (Strategy 2020) focuses its operations into five core specializations, which include the environment and climate change, particularly on trans-

[12] ADB (2010) Safety Policy Statement: http://www.adb.org/Documents/Manuals/Operations/OMF01-20Jan10.pdf
[13] ADB. 2008. Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank 2008–2020 Manila.

boundary global impacts. Under its long-term strategic framework, AsDB will respond to climate change as part of the broader agenda of promoting and strengthening climate adaptation and mitigation in Asia and the Pacific[14].

To further the mainstreaming of climate change into its core financing operations, each of ADB's five regional departments (covering Central and West Asia, the Pacific, South Asia, East Asia, and Southeast Asia) has recently prepared Climate Change Implementation Plans (CCIP) to better align climate related investments with its clients. To this, more than 40 new grant-financed programs were approved to leverage over $600 million in low-carbon, climate resilient investments[15]. Some of AsDB's climate initiatives include the climate change adaptation program for the Pacific (CLIMAP[16]), which recognizes the need to incorporate climate adaptation consideration in AsDB's EIA process, the Energy Efficiency Initiative to promote energy security, universal access, and the transition to a low-carbon economy, and the Sustainable Transport Initiative Partnership on Sustainable Low-Carbon Transport in Developing Countries (SLoCaT), which supports developing member countries in developing inclusive, clean, and energy-efficient transport projects and policies. Just recently, AsDB announced the Asia Solar Energy Initiative (ASEI)[17], which aims to identify and develop large capacity solar projects that will generate some 3,000 MW of solar power by 2012. Through ASEI, the bank plans to provide $2.25 billion in finance to the initiative, which is expected to leverage an additional $6.75 billion in solar power investments over the same period. In 2009, the bank provided nearly $1.3 billion for projects with clean energy components, and starting in 2013, this target is expected to increase to $2 billion a year. The bank has stepped up its commitment to address emerging climate change issues by funding projects identified in the recently developed regional climate change implementation plans, and by "climate-proofing" infrastructure such as transportation. The banks' leapfrog toward transport infrastructure investments are based on the expectation that the next 5-10 years will lock in transport-related CO_2 emission patterns for the coming 20–30 years in Asia, and they must emerge as leaders in providing a low carbon path for transport development[18]. ADB plans to undertake specific studies to generate climate change scenarios for vulnerable developing member countries in the region and also to promote the availability and use of clean energy.

2.1.2 The European Bank for Reconstruction and Development (EBRD)

Environmental and Social Policy (2008). For a detailed review of EBRD's *Environmental and Social Policy (2008)* please see http://www.ebrd.com/enviro/policy/index.htm.

The European Bank for Reconstruction and Development (EBRD) adopted its first Environmental Policy in 1991 and last updated it as the Environmental and Social Policy (ESP)

[14] See Climate change ADB programs (2009) :Strengthening adaptation and mitigation in Asia and the Pacific. http://iaia.org/IAIA-Climate-Symposium-DC/documents/ADB%20Climate%20Change%20Programs.pdf/ Also see ADB. 2008. *Strategy 2020: The Long-Term Strategic* Framework of the Asian Development Bank 2008–2020 Manila.

[15] See ADB 2009 Annual Report: http://www.adb.org/Documents/Reports/Annual_Report/2009/adb-ar2009-v1.pdf

[16] ADB (2002) Climate Change Adaptation Program for the Pacific (CLIMAP) http://www.adb.org/Documents/TARs/REG/tar_oth36069.pdf

[17] ADB, May 2010, "ADB Announces Asia Solar Energy Initiative": http://www.adb.org/media/Articles/2010/13232-asian-solar-energies-initiatives/

[18] See ADB 2009 Work Program and Budget Framework 2010–2012 See http://www.adb.org/Documents/Others/work-program-budget-framework-2010-2012.pdf

(2008)[19]. The basic goal of the policy is to promote environmentally sound and sustainable development in the full range of its investment and technical cooperation activities, while the specific goals are to

1. Mainstream environmental and social considerations into all its activities
2. Establish for clients the environmental and social performance requirements that they will be expected to meet in a time frame acceptable to the Bank
3. Define the respective roles and responsibilities of both the EBRD and its clients in achieving sustainable outcomes in line with the Policy and the performance requirements
4. Set a strategic goal to promote projects with high environmental and social benefits.

EBRD's EIA procedures are derived from the EU EIA Directive EU Council Directive (85/337/EEC)[20]. The Bank is among the few MFIs that have adjusted their environmental procedures formally to incorporate climate change issues. It recognizes the importance of climate change mitigation and adaptation as high priorities for the bank's activities[21]. On climate change mitigation, the EBRD has put in place clear guidance under its ESP (Performance Requirement 3: Pollution, Prevention and Abatement). However, detailed guidance on climate change adaptation has not yet been developed. The ESP has a strong focus on financing projects in alignment with relevant EU strategies, including climate change mitigation and adaptation. In its operations, the bank intends to develop approaches towards climate change, notably in regards to the reduction of greenhouse gases, adaptation, the promotion of renewables and the improvement of energy efficiency[22].

Some key climate change initiatives by the bank have included the Sustainable Energy Initiative[23] (SEI) in 2006, and the development of the Greenhouse Gas Assessment Methodology[24] in 2009. Through the SEI, EBRD has been able to introduce and integrate energy efficiency into their operations as a core strategic component of the bank. Since 2006, EBRD has invested about €4 billion under the SEI framework through 237 projects in 27 countries with a total project value of €19 billion[25]. The total reduction in carbon emissions achieved by these projects is estimated at 21 million tonnes per year with energy savings equivalent to over 8 million tonnes of oil per year[26]. Energy security, by embarking on a low-carbon path with a profit in terms of climate change mitigation and cost competitiveness, has emerged as a top policy priority for the bank[27]. A total of €15 billion has been triggered in energy efficiency and renewables in Eastern Europe between 2009 and 2012.

[19] Environmental and Social Policy (2008). http://www.ebrd.com/enviro/policy/index.htm
[20] See EU Council Directive (85/337/EEC) http://eur-ex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1985L0337:20090625:EN:PDF
[21] ERBD Environmental and Social Policy (2008), p3
[22] Ibid pg 3,28
[23] EBRD (2006) Sustainable Energy Initiative :http://www.ebrd.org/pages/sector/energyefficiency/sei.shtml
[24] EBRD (2009). Greenhouse Gas Assessment Methodology Version 3. Discusses the significance of a project's contribution to GHG emissions which may vary between industry and sectors. Guidance on the amounts of GHG emissions likely to be associated with projects in different sectors is given in the report. The significance threshold for the Performance Requirement is generally 100,000 tons of CO_2e equivalent per year for the aggregate emissions of direct sources and indirect sources associated with purchased electricity for own consumption. However, a lower emission threshold may be appropriate where a project aims to bring about large improvements in production efficiency.
[25] See EBRD Sustatinability report 2009
[26] See European Bank for Reconstruction and Development Sustainability Report 2009. http://www.ebrd.com/pubs/general/sr09e.pdf
[27] 2010 Annual Meeting Press Conference Transcript of Thomas Mirow's press conference at the EBRD Annual Meeting in Zagreb, Saturday 15th May 2010. http://www.ebrd.com/new/speeches/transcr/100515.htm

EBRD began to carry out Greenhouse Gas (GHG) Assessments around 2002, and its GHG Assessment Methodology was developed in 2007 and updated in 2009. Through these assessments, EBRD has sought to estimate changes in GHG emissions brought about by the bank's investments. Used by the bank's consultants working on EBRD-financed projects, data necessary for GHG assessment are produced for projects where emissions are expected to exceed 100 kt CO2e. As a result, new requirements have been put into place so that projects producing (or expected to produce) significant GHG emissions (generally 100,000 tons of CO2e per year or more) will have to submit a baseline and estimated post-implementation GHG assessment to the bank.

In line with its policy commitments, EBRD is currently in the process of developing more detailed guidance on how to address climate change risks to projects and associated adaptation measures where appropriate, in the context of its project due diligence. This guidance, which is still under development, is concentrating on several key steps in the project appraisal cycle, including project screening, feasibility studies and environmental and social impact assessments (ESIAs). EBRD intends to continue to pilot these approaches over the course of the next few years before reflecting them in the next revision of its Environmental and Social Policy. EBRD will be keen to learn from emerging best practice across IFIs on integrating climate into ESIAs, and is also paying close attention to the European Commission's revision of the EIA Directive.

2.1.3 The Inter-American Development Bank (IDB)

Environmental and Safeguard Compliance Policy (2006). For a detailed review of IDB's *Environmental and Safeguard Compliance Policy (2006)* please see ttp://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=665902

The Inter-American Development Bank, the leading source of long-term lending for Latin America and the Caribbean, is the first MDB to establish an Environmental Policy procedure for its investment in 1979, which was later updated in 2006. The goal of this policy is to advance the bank's mission in Latin America and the Caribbean toward achieving sustainable growth and poverty reduction goals consistent with long-term environmental sustainability. Its specific objectives are

1. To enhance long-term development benefits to its members' countries by integrating environmental sustainability outcomes in all bank operations
2. To ensure that all bank operations and activities are environmentally sustainable, and
3. To foster corporate environmental responsibility within the bank.

The safeguard encouraged the reduction and control of GHG emissions in accordance with the emission estimation methodologies of the Intergovernmental Panel on Climate Change (IPCC) in a manner appropriate to the nature and scale of operations. In 2009, the bank issued its Coal Fired Power Plants Guidelines with the purpose of setting forth an approach for the financing of Coal Fired Thermoelectric Generation Plants in a manner consistent with the IDB's vision to prioritize the development of renewable energy sources and the IDB's commitment to the protection of the environment, including reducing adverse impacts on the global climate. The guidelines require that coal plants that are eligible to receive IDB financing will have to comply with minimum performance criteria in terms of efficiency and GHG emission intensity and the

use of best appropriate available technology. Verification that the coal plant complies with the minimum performance criteria, designed to use the best appropriate available technology, is done during the due diligence process.

IDB's key efforts to address climate have included the November 2006 Sustainable Energy and Climate Change Initiative (SECCI)[28] which was in response to the growing interest of its member countries for alternative approaches to energy supply. The goals of SECCI centered on the provision of comprehensive sustainability options in areas related to the energy, transportation, water and environmental sectors, as well as building climate resilience in key priority areas vulnerable to the impacts of climate change. There are remarks indicating the banks promising focus on climate change in the coming years (see Box 1).

Box 1:

A Call to Action to Transform Energy Sector in Latin America and the Caribbean Opening Remarks by President Luis Alberto Moreno Energy & Climate Ministerial of the Americas Thursday, April 15, 2010.

"This historic expansion of our clean and sustainable energy portfolio will focus on four broad areas:

First, we plan to expand energy lending for the countries with greatest needs in the region—particularly those that are most dependent on imported fossil fuels.

Second, we will push for a new era of regional energy integration across Latin America and the Caribbean.

Third, we will expand on our pioneering programs to help governments create Climate Change Mitigation and Adaptation frameworks

Fourth, we will become the leading source of funding and expertise for energy efficiency in our region. Our research indicates that Latin America and the Caribbean as a whole could reduce electricity consumption by 10% over the next decade by investing in widely available technologies. This demand reduction would save as much as $36 billion in new energy capacity that the region will otherwise have to build".

Source: IDB New Release 2010

Currently, the IDB is developing a Climate Change Strategy to serve as a guiding instrument for scaling up IDB support for climate change actions, which will be submitted for approval by the IDB's Executive Board in 2010[29]. The bank has, however, come out with its analytical framework for climate change action[30], which describes existing and new financial mechanisms that will play an important role in mobilizing the additional resources required for climate action. It is hoped that the Climate Change Strategy would help mitigate and promote adaptations to climate change within Latin America and the Caribbean. Core to this strategy is the use of a range of public and private sector financial and nonfinancial instruments for strengthening the institutional, technical, and financial capacity to address climate change challenges. The strategy recognizes that climate vulnerabilities will force the region to invest in climate change adaptation activities as a top environmental, economic and social development priority. The IDB considers the consolidation and expansion of carbon markets as a priority area to help countries in Latin America and the Caribbean. Its first workshop on carbon financing is set for July 2010[31].

[28] IDB (2006):Sustainable Energy and Climate Change Initiative (SECCI) http://www.iadb.org/topics/climateChange/secci/index.cfm?

[29] See AfDB's Climate Change Strategy Profile. March 2010. http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=35141204.

[30] IDB (2010) Analytical Framework for Climate Change Action: http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=35149039

[31] See IDB July 2101 Workshop: Carbon Financial Instruments – Challenges and Opportunities for Commercial Banks, Brokers, Asset Management firms, and Regional Stock Exchanges: http://events.iadb.org/calendar/eventDetail.aspx?lang=En&id=2213

2.1.4 The World Bank Group (IFC & IBRD):

IBRD: For a detailed review of *IBRDs Environmental Assessment Operational Directive 4.01 (1998)* please see http://web.worldbank.org/wbsite/external/projects/extpolicies/extopmanual/0,,contentmdk:20064724~menupk:64701637~pagepk:64709096~pipk:64709108~thesitepk:502184,00.html
IFC: *Policy on Social and Environmental Sustainability (2006).* http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=665902

The key environmental safeguard to the World Banks (IBRD) is the Operational Directive 4.01[32], while that of the International Financial Corporation (IFC) is its Environmental Health and Safety Safeguards (PSES) (2006[33]). Primarily, the basic goal of OP 4.01 is to help ensure the environmental and social soundness and sustainability of investment projects, and as well as support the integration of environmental and social aspects of projects into the decision making process. IFC's PSES, on the other hand, strive to base partnerships with clients on the understanding that the pursuit of social and environmental opportunities is an integral part of good business. Both safeguards consider mitigation impacts, particularly GHG emissions. In OP 4.01, climate change was however mentioned as a footnote in reference to trans-boundary global environmental issues[34]. IFC's PSES, on the other hand, identifies environmental health and safety project hazards associated with GHG risks, and discusses climate change issues in a rather general manner. Nonetheless, studies have shown that nearly 50 percent of the groups' energy lending in 2007 paid no attention to climate change[35]. In 2006, the IFC introduced the Equator Principles[36], which has become the de facto standard for banks and investors on how to assess major development projects around the world. It has made real progress, but according to critics, it still suffers from a lack of clarity and definition, particularly regarding climate change.

Presently, for the Bank Group, there is no strict "formal" adherence to climate change. Nevertheless, both financial institutions have managed to assert themselves as major players in the climate change arena. Developing a "performance standards criteria[37] (IFC) and an "overarching climate change strategic guidance" (WBG), both banks have been able to manage the environmental risks and impacts of it portfolios, while summarizing the progress that has been made in GHG emissions mitigation. The IFC, for instance, has been measuring its own investment portfolio's greenhouse gas footprint since February 2009, while all new IFC real

[32] World Bank Operational Manual 4.01 http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTOPMANUAL/0,,contentMDK:20064724~menuPK:64701637~pagePK:64709096~piPK:64709108~theSitePK:502184,00.html
[33] IFC (2006) Policy on Social and Environmental Sustainability (2006).http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/pol_SocEnvSustainability2006/$FILE/SustainabilityPolicy.pdf
[34] See the World Bank operations manual - Operational Policies. OP 4.01 January, 1999 pg. 1 Footnote 4.
[35] Correcting the World's Greatest Market Failure: Climate Change and the Multilateral Development Banks, Smita Nakhooda, World Resources Institute, June 2008, http://pdf.wri.org/correcting_the_worlds_greatest_market_failure.pdf
[36] IFC (2006). The "Equator Principles" A financial industry benchmark for determining, assessing and managing social & environmental risk in project financing. The Equator Principles (EPs) are voluntary set of standards for determining, assessing and managing social and environmental risk in project financing. Developed by private sector banks and were launched in June 2003. The banks chose to model the Equator Principles on the environmental standards of the World Bank and the social policies of the International Finance Corporation (IFC). 67 financial institutions (October 2009) have adopted the Equator Principles, which have become the de facto standard for banks and investors on how to assess major development projects around the world. http://www.equator-principles.com/documents/Equator_Principles.pdf.
[37] IFC's Performance Standards define clients' roles and responsibilities for managing their projects and the requirements for receiving and retaining IFC support. The standards include requirements to disclose information. A guidance note is provided as companion documents to IFC's Performance Standards and provides additional guidance to clients (and IFC staff) in fulfilling their roles and responsibilities under the standards.

sector projects are now required to report greenhouse gas emissions prior to approval (See Box 2) reduction.

Box 2
IFC's Greenhouse Gas Footprint

"IFC has been measuring its own investment portfolio's greenhouse gas footprint since February 2009. All new IFC real sector projects are also now required to report greenhouse gas emissions prior." to approval" Source: IFC, 2010.

Throughout 2008, the World Bank has advanced three major initiatives with a purported goal of helping developing countries reduce greenhouse gas emissions and adapt to climate change impacts. These are the Clean Technology Fund (CTF)[38] and the Strategic Climate Fund, which together form the Climate Investment Funds (CIFs)[39](See Box 3). Although the funds are supported by other MDBs, the CTF provides provide new, large-scale financial resources to invest in projects and programs in developing countries, which contribute to the demonstration, deployment, and transfer of low-carbon technologies. The Strategic Climate Fund, on the other hand, is an "overarching fund" that will focus on different programs, such as the Pilot Program for Climate Resilience, the Forest Investment Program, and Renewable Energy Access and Pre-Commercial Technologies, including carbon capture and storage.

The second initiative is the establishment of the Carbon Finance Unit[40], which manages and mobilizes finance for carbon and GHG trading. Currently, the Forest Carbon Partnership Facility (FCPF[41]), part of the Carbon Finance Unit, is piloting international forest carbon offsets, starting with 14 tropical and sub-tropical developing countries selected in July 2008. Third, is the development of a Strategic Framework on Development and Climate Change[42] for the World Bank Group. This framework attempts to provide an overarching framework for all of the World Bank Group's climate related work, which includes the CIF and the CFU, with the intentions to informing existing operational strategies excluding new mandates. The strategic framework was prepared at the request of the Development Committee during the Annual Meetings 2007 reviewing the World Bank Group's comparative advantages and boundaries in addressing the development challenges of global climate change[43].

[38] World Bank (2008) Clean technology Fund: http://www.climateinvestmentfunds.org/cif/node/2
[39] World Bank (2008) Climate Investments Fund http://www.climateinvestmentfunds.org/cif/
[40] World Bank Carbon Finance Unit : http://wbcarbonfinance.org/
[41] World Bank Forest Carbon Partnership Facility: http://www.forestcarbonpartnership.org/fcp/
[42] World Bank Group Strategic Framework on Development and Climate Change http://siteresources.worldbank.org/EXTCC/Resources/407863-1219339233881/DCCSFTechnicalReport.pdf
[43] "Carbon Finance" at the World Bank," at http://carbonfinance.org

The Bank Group Strategy (of which IFC, MIGA, IDA are included) indicates an increase in financing for energy efficiency and new renewable energy by an average 30 percent a year, from a baseline of US $600 million in average annual commitments during FY05-07, and expanded lending to hydropower, with the share of low-carbon projects rising from 40 percent in fiscal years 2006–08 to 50 percent in fiscal year 2011.[44] As of February 2009, any real sector IFC project requires GHG estimation before approval[45]. Reporting requirements under its Performance Standards 3 (PS3) on GHG emissions are targeted in excess of 100,000 tons per annum CO_2e[46]. The World Bank Group has disclosed that there are now 13 CIF Clean Technology Fund (CTF) plans in place around the world and some US $4.3 billion of CTF co-financing allocated to projects ranging from solar power development to the greening of public transportation systems.

They also estimate that an additional US $36 billion will be leveraged in the coming years from other sources, including the private sector, bringing the total to be mobilized to US $40 billion.

Box 3: New Partnerships and Mechanisms for Financing Climate Change

Forest Investment Program (FIP), a proposed program under the Climate Investment Funds, aims to finance transformational investments that address the drivers of deforestation and degradation with an emphasis on sustainable forest management (SFM). The interventions could include developing incentives for sustainable forest management to local communities and indigenous groups for certification, improving institutional capacity, strengthening forest governance and information, and complementary investments in non-forest sector programs (agriculture, infrastructure, etc.) to include provisions for forest protection. The FIP has had three multi-stakeholder design meetings, and the design process is close to completion, at which point it will be ready to receive funding pledges.

The Forest Carbon Partnership Facility (FCPF) was announced at CoP13 in Bali in December 2007 and became operational in June 2008. The FCPF builds the capacity of developing countries in tropical and subtropical regions to reduce emissions from deforestation and forest degradation and to tap into any future system of positive incentives for REDD. In some of these countries, the FCPF will also help reduce the rate of deforestation and forest degradation by providing an incentive per ton of carbon dioxide of emissions reduced through specific Emission Reductions Programs targeting the drivers of deforestation and forest degradation. 25 countries —10 in Africa, 10 in Latin America and 5 in Asia and the South Pacific — were initially selected to be a part of the FCPF, but due to high demand, another 12 countries were selected at the March 2009 meeting held in Panama. The partnership now consists of 37 developing countries, with13 financial contributors having firmly committed $158 million. Six observers are from forest-dependent people, NGOs and international organizations, while the Bank Group is acting as overall convener and trustee, providing secretariat services and chairing the Participants Committee.

Source: World Bank, 2009.

Not only has the strategy been able to organize the necessary funding for these projects, but it also forms an important step in actively involving senior management and showing leadership in investments in climate adaptation and risk management. Although it is a proactive strategy, it was not clear whether the Bank will continue lending for fossil fuels, such as coal, oil and gas.

[44] World Bank (2009). Development and Climate Change. The World Bank Group at work..
http://siteresources.worldbank.org/EXTCC/Resources/WBGatWork.pdf
[45] IFC (2010) Climate change, Filling the gaps. Pg35
http://www.ifc.org/ifcext/media.nsf/AttachmentsByTitle/TOS_ClimateChange/$FILE/TOS_ClimateChange.pdf
[46] IFC (2009) IFC's Policy and Performance Standards on Social and Environmental Sustainability and Policy on Disclosure of Information:
http://www.ifc.org/ifcext/disclosure.nsf/attachmentsbytitle/ifc_third_year_report/$file/ifc_third_year_report_ps_dp_.pdf

Some discussion on how such investments are going to impact the bank lending in the future is needed. A practical climate tool designed by the bank is the project screening and design tool referred to as ADAPT (Assessment and Design for Adaptation to Climate Change: A prototype Tool[47]). The tool is designed to assist project developers and assessors in (1) identifying the level of climate risk in a project using a simple description of the project and its location, and (2) finding sources of information on how to minimize this risk. Additional tools, such the climate change portal[48], have been developed by the bank to provide quick and readily accessible climate and climate-related data to policy makers and development practitioners. The data portal consists of a Google map interface, in which a user can query any location on the globe and receive climate change projections. This portal also serves as a launching point and common platform for other adaptation tools, including the banks Screening Tool *ADAPT,* and other tools developed by other institutions, such as the Adaptation Learning Mechanisms (ALM) by UNDP, Climate Change Explorer (SEI), and SERVIR (USAID-CATHALAC). Generally, the portal is intended to collect, integrate, and display different levels of climate change relevant information at the global scale.

3.0 International Financial Institutions and Climate Change

The need to mainstream climate change into development planning is increasingly being recognized by several IFIs. Over the years, several development agencies have begun screening their project portfolios to ascertain the extent to which development projects consider climate risks or address climate vulnerability. The following show how IFIs are incorporating climate change into their environmental due diligence.

3.1.0 The European Union

The directive on the assessment of the effects of projects on the environment (Directive 85/337/EC as amended by 97/11/EC and 2003/35/EC, hereafter "EIA Directive") is the European Union's EIA legislation for project developers[49]. The Directive requires a systematic assessment of the likely environmental impacts of projects in a wide range of sectors. The EIA process mandated by the Directive seeks to help ensure that project development and planning decisions take environmental impacts into account by incorporating adequate measures to avoid or reduce, and if possible, offset potential impacts. The EIA Directive is complemented by the Strategic Environmental Assessment (SEA) Directive 2001/42/EC, which focuses on public plans, or programmes, known as the SEA Directive. Adopted 25 years ago, the Environmental Impact Assessment Directive is recently designated for review, which will reflect the ongoing changes in EU legislation and environmental policy. Consequently, on the 6th of July 2010, the European Commission launched a public consultation in relation to the review of the Environmental Impact Assessment (EIA) Directive. The consultation covers, among other

[47] World Bank Screening Tool ADAPT – The Screening Tool ADAPT **(**Assessment & Design for Adaptation to Climate Change: A Prototype Tool**)** is a software based tool for assessing development projects for potential sensitivities to climate change. The tool brings together climate databases and expert assessments of the threats and opportunities arising from climate variability and change. http://beta.worldbank.org/climatechange/content/additional-tools-adaptation

[48] See the Climate Change Data Portal at http://beta.worldbank.org/climatechange/content/additional-tools-adaptation

[49] Council Directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1985L0337:20030625:EN:PDF

things, the development of synergies with other EU policies, such as climate change and biodiversity[50].

The EU has taken many climate-related initiatives since 1991, when it issued the first Community Strategy[51]and the first phase of the European Climate change program (2000) to limit carbon dioxide emissions and to improve energy efficiency. In 2005, the second phase of the European Climate Change Programme (ECCP II) began with the general objective of defining EU's role in climate adaptation policies so as to integrate adaptation fully into relevant European policy areas, to identify good, cost-effective practices in the development of adaptation policy and to foster learning. Most importantly, climate change at the EU level has been generally influenced by the 2009 white paper (Adapting to climate change: Towards a European framework for action) that sets out a framework to reduce the EU's vulnerability to the impact of climate change (See Box 4)[52]. The white paper builds on the wide-ranging consultation launched in 2007 by the Green Paper on Adapting to Climate Change in Europe[53], and further research efforts that identified action to be taken in the short-term. As part of its obligations, Member States were urged to support wider international efforts on climate change adaptations, particularly for developing countries. The Commission's proposals in this context are set out in the communication entitled "Towards a comprehensive climate change agreement in Copenhagen" with the main aim of facilitating the conclusion of a fair and effective United Nations climate change agreement that sets the world on a pathway to preventing global warming from reaching dangerous levels[54].The key points in the communiqué included the following:

Box 4: EU Climate Change Action for Member State

- Develop guidelines by 2011 to ensure that climate impacts are taken into account in the EIA and SEA Directives
- Take the necessary steps to establish a Clearing House Mechanism for Climate Change by 2011
- Explore the possibility of making climate impact assessment a condition for public and private investment
- Develop methods, models, data sets and prediction tools by 2011
- Assess the cost and benefit of adaptation options by 2011
- Assess the impacts of climate change and adaptation policies on employment and on the well-being of vulnerable social groups.
- Ensure that measures for adaptation and water management are embedded in rural areas
- Develop national strategies and programmes for 2007-2013
- Draft guidelines by 2010 on dealing with the impact of climate change on the management of Natura's 2000 sites
- Develop European guidelines on adaptation in coastal and marine areas

Source: EU White Paper Adapting to Climate Change

[50] See EU Press Release: Environment: Commission asks for views on revamping environmental impact assessments http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/901&format=HTML&aged=0&language=EN&guiLanguage=en
[51] EC (1992) Commission of the European Communities Proposal for Monitoring GHG emissions: http://aei.pitt.edu/9197/01/31735055280113_1.pdf
[52] EU (2009) White Paper: Adapting to climate change: Towards a European framework for action: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0147:FIN:EN:PDF
[53] COM(2007) 354. Also see http://ec.europa.eu/environment/climat/adaptation/index_en.htm.
[54] EU COM(2009) 39, 28.1.2009.

- Developed countries should continue to take the lead in international efforts to fight climate change
- Developing countries as a group should limit growth in their GHG emissions to 15-30% below business as usual levels by 2020
- A major boost to research, development and demonstration (RD&D) of low-carbon and adaptation technologies is needed in all sectors
- To reduce global emissions it is estimated that net additional investments worldwide will need to rise to around €175 billion per year by 2020, more than half of this in developing countries
- The EU should seek to build, by 2015, a robust OECD-wide carbon market through the linking of the EU emissions trading system with comparable domestic cap-and-trade systems in the US, Australia and other developed countries

According to the European Environmental Agency (EEA), almost all EU member countries are at different stages of preparing, developing and implementing their national climate change adaptation strategies[55]. Furthermore, all countries have submitted some information on their climate change adaptation plans in their fourth National Communication to the United Nations Framework Convention on Climate Change in 2005. Alongside these adaptation strategies, other policies have been set, which deal with climate change indirectly. Some of these legislations are the adopted Directive 2007/60/EC on the assessment and management of flood risks and the Flood Directive and the Directive 2000/60/EC establishing a framework for the Community action in the field of water policy.

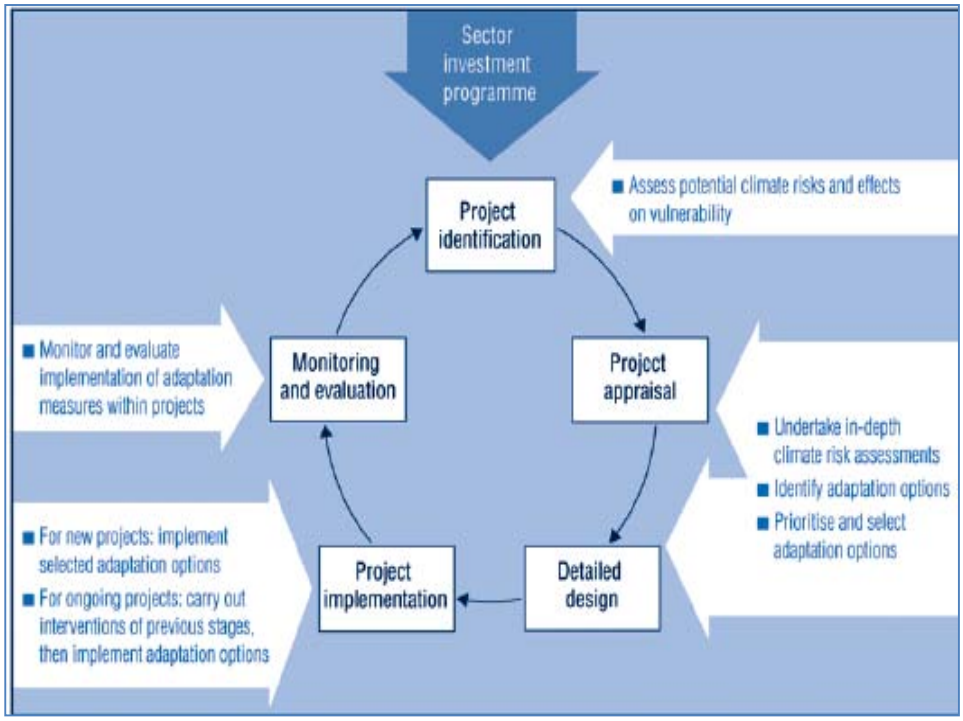
3.1.1 The Organization for Economic Co-operation and Development (OECD)

For a detailed review of *OECD Guidelines on EIA (1991)* please go to: http://www.oecd.org/dataoecd/37/25/1887592.pdf

Environmental assessment is conducted within the Organization for Economic Co-operation and Development (OECD) based on the Guidelines No.1: Good Practices for Environmental Impact Assessment (EIA) of Development Projects (1991),[56] which urges aid agencies to assess the environment impact of development assistance projects as early as possible in the project planning process. Although climate change was not addressed as a crosscutting issue for EIA as a procedure, a more recent policy on guidance was published in 2009, Policy Guidance on Integrating Climate Change Adaptation into Development Co-operation. This policy guidance provides policy makers and practitioners in development co-operation agencies with information and advice on how to mainstream climate change into development[57]. It identifies appropriate approaches for integrating climate adaptation into development policies at national, sectoral and project levels and in urban and rural contexts; it also identifies practical ways for donors to support developing country partners in their efforts to reduce their vulnerability to climate variability and climate change. Although the policy guidance is non-binding to its members, it forms an important resource for climate change makeovers at the national, sector or project level.

[55] See EEC (2010) National adaptation strategies: http://www.eea.europa.eu/themes/climate/national-adaptation-strategies
[56] See OECD (1991) Guidelines No.1: Good Practices for Environmental Impact Assessment (EIA) of Development Projects: http://www.oecd.org/dataoecd/37/25/1887592.pdf
[57] See OECD (2009) Integrating Climate Change Adaptation Into Development Co-Operation: http://www.oecd.org/dataoecd/26/34/42747370.pdf

Figure 3: OECD's Project Cycle with Key Interventions for Adaptation

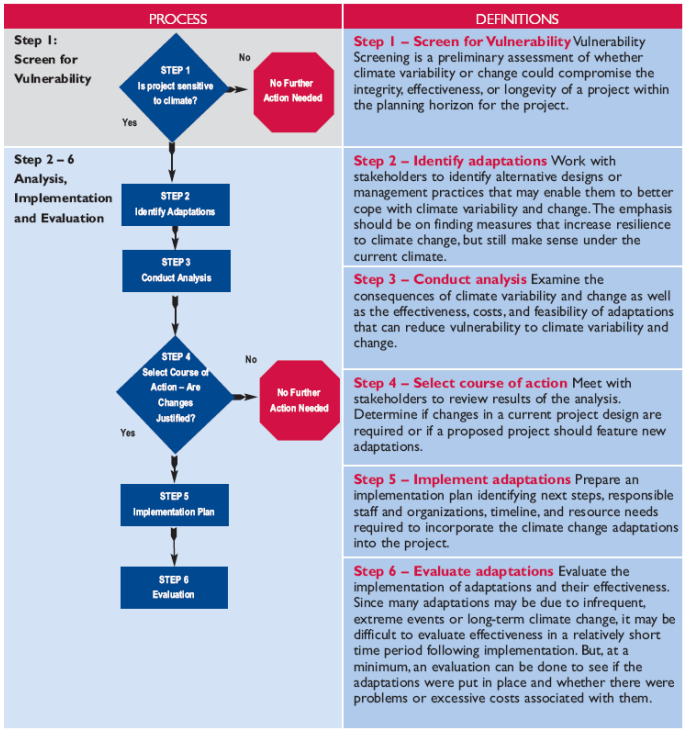


Source: OECD, 2009.

3.1.2 The United States Agency for International Development (USAID):

For a detailed review of *USAID ADS Chapter (2009)* please go to http://www.usaid.gov/policy/ads/200/204.pdf

Figure 4: USAID's guidance on incorporating climate change into project development



Source: USAID, 2007.

USAID derives its environmental due diligence from ADS Chapter 204,[58] which is the operational procedure on environmental sustainability. ADS Chapter 204 defines what USAID and its operating units must do to integrate environmental issues into its programs, both to meet U.S. Government legal environmental obligations and to optimize economic and social development results. Environmental assessments are mandatory and core to operations. However, the procedure does not make any reference to climate change risk and adaptations as necessary issues for design and the implementation of projects.

To address climate change, USAID has developed a climate Adaptation Guidance Manual[59] (See figure 4) to assist its missions and other partners to understand how climate change may affect their project outcomes and identify adaptation options to integrate into the design for more resilient projects. Prepared by the USAID/EGAT Global Climate Change Team and issued in 2007, the manual provides guidance on how to assess vulnerability to climate variability and change, as well as on how to design or adapt projects so that they are more resilient to a range of climatic conditions. Further strengthening has recently been received from the U.S. Climate Action Report (2010)[60], which sets out the major actions the U.S. government is taking at the federal level, state and local actions, and outlines U.S. efforts to assist other countries' efforts to address climate change. USAID places particular emphasis on partnerships with the private sector and on working with local and national authorities, communities, and nongovernmental organizations to create alliances that address climate-related concerns as a part of their development goals. The USAID has invested about $123 million in climate change adaptation in 2010 and continues to recognize climate change as a potentially significant constraining factor that needs to be considered in project design, long term sustainability, and impact assessment.

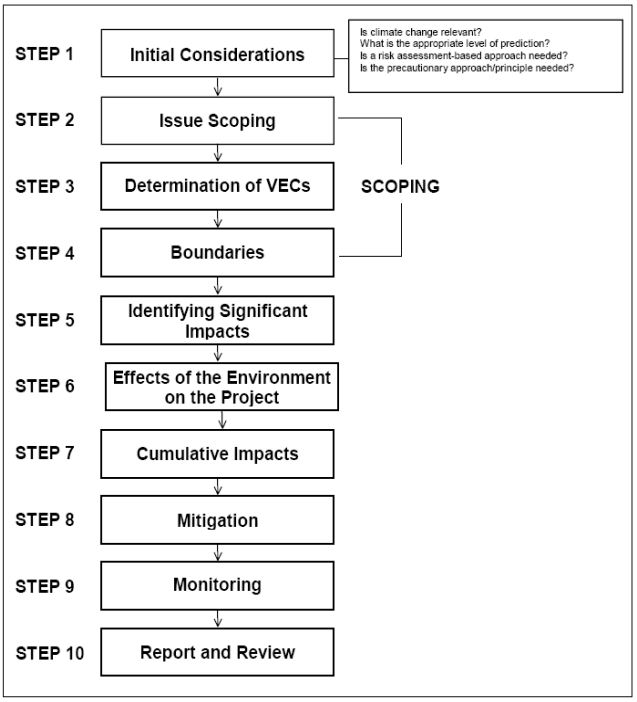
[58] See USAID ADS Chapter 204 Environmental Procedures: http://www.usaid.gov/policy/ads/200/204.pdf
[59] See USAID Adaptation Manual (2007) http://www.usaid.gov/our_work/environment/climate/docs/reports/cc_vamanual.pdf
[60] See U.S. Climate Action Report 2010 (2010 CAR). The report sets out the major actions the U.S. government is taking at the federal level, highlights examples of state and local actions, and outlines U.S. efforts to assist other countries' efforts to address climate change. http://www.state.gov/documents/organization/140636.pdf

3.1.3 The Canadian International Development Agency's (CIDA):

For a detailed review of *CIDA's Policy for Environmental Sustainability (1992)* please go to: http://www.acdi-cida.gc.ca/INET/IMAGES.NSF/vLUImages/Policy2/$file/ENV-nophotos-E.pdf

The Canadian International Development Agency's Policy for Environmental Sustainability (PES)[61](1992) aims to provide guidance and inform its partners in Canada and developing countries of its objectives for environmental sustainability[62]. While a formal integration of climate change issues into the PES has not yet happened, CIDA is required by the Canadian Environmental Assessment Act to ensure its projects do not cause significant adverse environmental effects. The Act defines environmental effects as any change that the project may cause in the environment and any change to the project that may be caused by the environment (e.g., climate change). Thus, CIDA needs to ensure that its projects integrate environmental considerations, including climate change, into its decision-making and activities.[63] . There is no overarching climate change policy for CIDA at the moment.

Figure 5: ClimAdapt's Steps to Integrate Climate Change into the EIA Process



Source: CEAA, 2003.

As noted in the following section, Canada has made significant progress by introducing a practitioner's guide on climate change, and EIA referred to it as the Climate Change Adaptation Initiative (ClimAdapt)[64]. ClimAdapt is one of the few practical approaches that include the prediction of climate change as an environmental consideration, either as a factor in assessing the impact of the project on the environment, or vice versa. CIDA's climate support has come mainly in building response to climate change and climate change capacity development. Some of its initiatives are the Europe and Asia Climate Change Fund, Canada-Nigeria Climate Change Capacity Development Project, and CIDA/Egypt climate change/Environmental Fund (EEIF). These projects mainly favored capacity building, adaptations and some mitigation in ways that benefit the most vulnerable.

[61] CIDA (1992) Policy for Environmental Sustainability: http://www.acdi-cida.gc.ca/inet/images.nsf/vLUImages/Policy2/$file/ENV-nophotos-E.pdf
[62] CIDA (1992) CIDA's Policy for Environmental Sustainability. http://www.acdi-cida.gc.ca/INET/IMAGES.NSF/vLUImages/Policy2/$file/ENV-nophotos-E.pdf
[63] Canadian Environmental Assessment Act – Consolidation (Current to June 30, 2010). http://laws.justice.gc.ca/PDF/Statute/C/C-15.2.pdf
[64] CIDA Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners http://www.ceaa.gc.ca/default.asp?lang=En&n=A41F45C5-1&offset=1&toc=show

3.1.4 The Department for International Development (DFID)

For a detail review of *DFID's EC Directive 97/11/EC (1997)* please go to: http://www.oecd.org/dataoecd/37/25/1887592.pdf

In the United Kingdom (UK), development assistance is the responsibility of the Department for International Development (DFID) formerly the Overseas Development Administration (ODA). The 1992 Manual of Environmental Appraisal (MEA)[65], revised in 1996 and 1998, provides operational direction to DFID officials for addressing environmental issues in the project cycle. The fundamental aim of the MEA has been to ensure that environmental issues are taken into account from the very start of project and program design. Earlier versions of the MEA were largely directed towards avoiding and mitigating adverse environmental impacts, rather than to exploiting environmental opportunities. MEA has never been intended as to carry out an environmental analysis or manage environmental impacts, but rather its intent has been to help DFID project managers identify when, and what, environmental advisory and consultancy support are necessary during the project cycle[66]. There is no requirement under MEA for the direct consideration of climate change in the EA project cycle. Although the UK adheres to the EC Directive No. 85/337 (1985) (amended in 1997 council directive 97/11/EC and 2009)[67] on Environmental Impact Assessment, it does not specifically apply that to the UK's development assistance programs. The 2009 amendment of the EIA Directive provides a legal framework for the environmentally safe geological storage of CO_2 to contribute to the fight against climate change[68]. At present, the EIA Directive does not directly address any other climate change issues. The EC, in its 5-year review of the Directive[69] in 2009, has announced plans to develop guidance to ensure climate change considerations are taken into account in the EIA Directive. The guidance is due for publication in 2011.

Box 5
UK Climate Change Act of 2008

The UK Climate Change Act of 2008 recommends reducing carbon emissions by at least 80% by 2050 and 34% by 2022 .
Source: UK CC Act, 2008.

The most instrumental policy that requires the consideration of climate change in DFID's operations is UK's overarching Climate Change Act 2008[70] (See Box 5). The act focuses on climate change, particularly on the reduction of targeted GHG emissions. How the Act affects DFID's environmental due diligence is yet to be comprehended. Using the ORCHID[71] process as a flexible template, DFID is undertaking further pilot climate risk screenings in India, China and Kenya.

[65] Manual of Environmental Appraisal. Overseas Development Administration, revised July 1996.
[66] See DFID (2000) Evaluation Report EV626. Environmental Evaluation Synthesis Study Environment: Mainstreamed or Sidelined Main Report Volume I By Michael Flint, Paul Balogun, Ann Gordon, Richard Hoare, Doug Smith, Ben Voysey, Anthony Z iegler http://www.dfid.gov.uk/Documents/publications1/evaluation/ev626.pdf
[67] Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment http://ec.europa.eu/environment/eia/full-legal-text/9711.htm
[68] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0114:0135:EN:PDF
[69] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0378:FIN:EN:PDF
[70] See UK Climate Change Act 2008 http://www.opsi.gov.uk/acts/acts2008/ukpga_20080027_en_1
[71] Adaptation screening tools for development cooperation: Piloting ORCHID and other approaches http://www.ids.ac.uk/go/idsproject/adaptation-screening-tools-for-development-cooperation-piloting-orchid-and-other-approaches

3.1.5 The Japanese International Cooperation Agency (JICA)

For a detailed review of *JICA's guidelines for Environmental and Social Considerations (2010)* please go to:
http://www.jica.go.jp/english/operations/social_environmental/guideline/pdf/guideline100326.pdf

JICA's international development assistance operations mandate Environmental Assessments. The guidelines for Environmental and Social Considerations (ESC) (2010)[72]encourage the consideration of environmental and social impacts, including climate change. When encouraging the appropriate consideration of environmental and social aspects, it is JICA's policy to provide active support to projects that promote environmental conservation and to projects that contribute to the protection of the global environment, such as attempts to reduce greenhouse gas emissions.

Japan has been scaling up its assistance to help developing countries tackle sustainable development and climate change. Japan has announced its Fast-Start Finance (FSF) to assist developing countries, especially those making efforts to reduce GHG emissions and/or that are particularly vulnerable to climate change (15 billion dollars up to 2012, which represents around a half of global commitments under the Copenhagen Accord).

FSF has been channeled through Official Development Assistance (ODA) (around 7.2 billion dollars) and Other Official Flows (OOF) (around 7.8 billion dollars) for both mitigation and adaptation. Japan's FSF is already flowing. Japan immediately began delivering resources through ODA and OOF to support both adaptation and mitigation actions in developing countries (5.32 bilion dollars as of April 30, 2010, of which 2.91 billion dollars is ODA.).

As an executing agency of Japan's ODA, JICA is providing financial and technical assistance to help developing countries achieve a low carbon and climate resilient society.

3.1.6 The Danish International Development Agency's (DANIDA)

For a detailed review of DANIDA's Environmental Safeguards (2009) please go to: *http://www.danidadevforum.um.dk/NR/rdonlyres/3409F0D0-D7BA-4815-BF49-C7420D8DC9CF/0/DanidaGuidetoEnvironmentalAssessmentefternyAMG.pdf*

The Danish International Development Agency's (DANIDA) Environmental Safeguard[73] (2009) recognizes environmental assessment as a core mandate to its development operations. The safeguard emphasizes the assessment of country and sector frameworks, as a basis for the specific assessment of risks and opportunities of the programme support in question. The Guide suggests that an EA shall be applied on DANIDA financed bilateral support receiving more than 33 million DKK. The environmental guidelines recognize climate change as a contributor to environmental hazards, while enhancing the vulnerability of poor people. Linked to the general

[72] See JICA (2010) Guidelines For Environmental And Social Considerations http://www.jica.go.jp/english/operations/social_environmental/guideline/pdf/guideline100326.pdf
[73] See DANIDA (2009). DANIDA Environment Guide http://www.danidadevforum.um.dk/NR/rdonlyres/3409F0D0-D7BA-4815-BF49-C7420D8DC9CF/0/DanidaGuidetoEnvironmentalAssessmentefternyAMG.pdf

environmental policies are the Danish Climate and Development Action Program[74] and the Environmental Strategy[75]. While the action program has been developed as a response to the need to address climate proofing of projects and adaptation to climate change in the context of development, the environmental strategy outlines main priorities and operational targets for Denmark's environmental assistance to developing countries. No overarching climate change policy exists specifically for the organization, except DANIDA's Energy Policy, which discusses the reduction of Denmark's dependency on fossil fuels (oil, coal and gas), and contains a range of initiatives aimed at ensuring that Denmark meets its obligations and pledges in relation to the integrated climate and energy proposal put forward by the European Commission[76] (Refer to Section B for country climate change initiatives).

3.1.7 The Swedish International Development Cooperation Agency's (SIDA)

For a detailed review of SIDA's Sustainable Development Guidelines (2002) please go to: *http://mkb.slu.se/helpdesk/forsida/guidelines.asp*

SIDA's regulation for environmental impact assessment in development co-operation is primarily to improve SIDA's capacity to contribute to sustainable development and to point out, in a systematic manner, the positive and negative environmental impacts of a proposed project[77]. SIDA considers that prior assessment of the environmental impacts of development essential. Accordingly, practical environmental assessment guidelines were developed in 1991 to help administrators recognize environmental risks at an early stage in project planning[78]. In 2002, SIDA produced guidelines for reviewing Environmental Assessments with the primary aim of assisting programme officers at SIDA to review already performed Environmental Impact Assessments (EIA) and Strategic Environmental Assessments (SEA). Although the guidelines did not directly discuss climate change, they described SIDA's policy on green procurement.[79] Climate change was not directly addressed in the guideline. However, SIDA's new guideline is expected for 2010. Nevertheless, SIDA, in 2008, launched its Special Climate Change Initiative at the cost of SEK 1.15 billion over 4 years (2009–2012) in support of climate change adaptation.[80]

The organization has also developed a project appraisal and evaluation tool for mainstreaming disaster risk reduction into development work in hazard-prone countries.[81] The initiative focuses on long-term cooperation countries such as Bangladesh, Bolivia, Burkina Faso, Cambodia, and Mali, and on regional cooperation in Africa and Asia.

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[74] See Danida (2005). Danish Climate and Development Action Program: http://amg.um.dk/NR/rdonlyres/C559F2DF-6D43-4646-80ED-C47024062FBD/0/ClimateAndDevelopmentActionProgramme.pdf.

[75] See DANIDA (2004). Environmental Strategy. Strategy for Denmark's environmental assistance to developing countries 2004-2008. http://www.um.dk/Publikationer/Danida/English/DanishDevelopmentCooperation/EnvironmentalStrategy/environmental_strategy.pdf

[76] Denmark's Energy Policy 2008-2011: http://www.denmark.dk/en/menu/Climate-Energy/Denmarks-Energy-Policy-2008-2011/Denmarks-Energy-Policy.htm

[77] SIDA (2002) Sustainable development Guidelines for the Review of Environmental Impact Assessments: http://mkb.slu.se/helpdesk/forsida/guidelines.asp

[78] See *Guidelines for Environmental Impact Assessment*, 1991. Sida) – revision under development.

[79] SIDA (2002) Sida's Policy for Green Procurement – for cooperating partners http://www.sida.se/Global/Partners/Procurements/SidaPolGreenProc.pdf

[80] SIDA (2009) Sida's Portfolio within Environment and Climate Change. http://www.sida.se/Global/About%20Sida/S%C3%A5%20arbetar%20vi/Sida's%20Portfolio%20Environ%20Climate%20Change.pdf

[81] SIDA tools for mainstreaming disaster risk reduction into development work in hazard-prone countries Http://www.proventionconsortium.org/themes/default/pdfs/tools_for_mainstreaming_GN7.pdf

3.1.8 The German Technical Cooperation's (GTZ)

The German Technical Cooperation's (GTZ) Environmental Sustainability Assessment guideline (2005) recognizes the environment assessment as mandatory and core to its operations. However, a formal procedural adherence to climate change emanating from the guideline is minimal. The organization largely supports the International Climate Initiative (ICI), which is an innovative financing mechanism for climate protection developed by the German government in 2008 to help partner countries develop the specific skills and abilities required to make progress on climate protection.[82] To date, there are no overarching climate policies for the GTZ organization. However, the German government in 2008 adopted the German Strategy for Adaptation to Climate Change of which GTZ is committed to[83]. The strategy creates a framework for adapting to the impacts of climate change in Germany. Many of GTZ projects are in the transport sector where climate change and the reduction of GHG are directly considered. GTZ sustainable transport investments are based on sustainable transport sourcebook 5e[84], which provides a comprehensive overview of the sector's policy instruments available to reduce carbon emissions. Also, GTZ is currently developing a climate tool referred to as the "Climate Check," which tackles climate change issues from the angles of climate proofing development projects and emission saving in development cooperation programmes.[85]

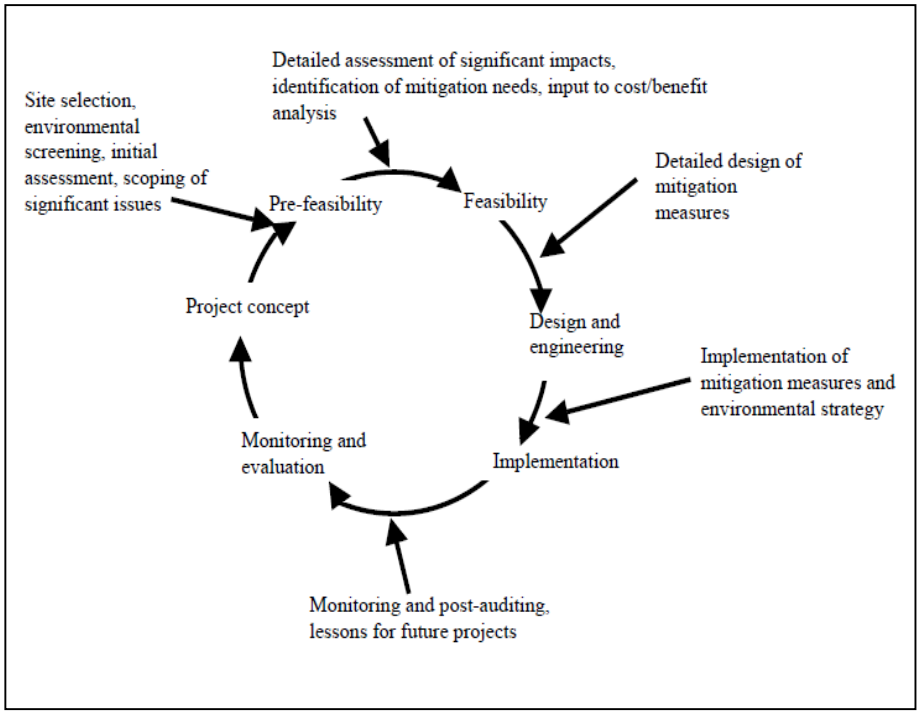
3.2.0 Environmental Safeguards versus Climate Change Policy Guidance

All the organizations considered for this review have safeguard compliance procedures on environmental assessments and recognize them as prerequisites for ensuring environmental sustainability within the project cycle (See Figure 6). They all recognize that climate change is a major challenge to sustainable development. What seems to be lacking in most cases is the connection between the EIA due diligence and the effective integration of climate change into operational due diligence. With the exception of EBRD, all the MDBs and IFIs emphasize climate change in their overarching climate change policies and not in the established and more binding EIA due diligence. For example, the World Bank Group Strategy Framework for Development and Climate Change (SFDCC 2008) serves to guide and support the WBG to new development challenges posed by global climate change. However, OP/BP 4.01 on environmental assessment made reference to climate change only as a footnote in reference to trans-boundary and global environmental issues.

[82] See International Climate Initiative (ICI) http://www.bmu-klimaschutzinitiative.de/en/results
[83] German Cabinet (2008) German Strategy for Adaptation to Climate Change : http://www.bmu.de/files/english/pdf/application/pdf/das_gesamt_en_bf.pdf
[84] GTZ (2007) Transport and Climate Change. Module 5e. Sustainable Transport: A Sourcebook for Policy-makers in Developing Cities Sector projecthttp://www.gtz.de/de/dokumente/en-transport-and-climate-change-2007.pdf
[85] GTZ Climate Check: http://www.gtz.de/en/themen/23930.htm

Source: UNEP, 1998.

Figure 6: Integration of EIA into the project cycle



IDB, on the other hand, does not have an overarching climate change policy yet. This was the same for the other IFIs, with the exception of Danida, CIDA and SIDA, who presently lack overarching climate change policies. In most cases, the climate change strategies only served as a guide with no mandatory basis for decision-making. It should be noted, however, that the use of guidelines varies from organization to organization, amongst institutions at different stages of development in impact assessment practice. The million-dollar question is, "Can safeguards effect a positive change in impact assessment practice without an enabling environment?" There appears to be a growing realization that safeguards are merely technical procedures that neglect real proactive management of the impact assessment process. OECD/DAC (1994) has pointed out that:

> .... *"As now practiced, the challenge of managing the environmental assessment process is equally daunting as the technical complexity. Unfortunately, guidelines for those responsible for managing the assessment process lag far behind the technical directions available to those who are responsible for undertaking the assessment."*[86]

A Canadian aid official made an honest submission that:

> *"All efforts are being made to develop a satisfactory overarching climate strategy for Canada. However with regards to safeguards, the main problem is not merely the provisions in the document but the management of the provisions. While there are guides*

[86] OECD/DAC (1994). Towards Coherence in Environmental Assessment. Submitted by Canada to the OECD/DAC Working Party on Development Assistance and Environment, Paris, April 1994.

to ensure sound environmental management, the right management attitude is not forthcoming."

This presupposes that "management" is key to any climate mainstreaming, rather than the safeguards per se. A US Multilateral Bank official commented on the management issue in connection with climate change by frankly pointing out that:

"As of today, there is no way climate change can be legally integrated into safeguards/guidelines as expected. It is a political issue and only the Banks stakeholders can determine that. As at now there is no conclusion if the stakeholders want that to happen. In this case management's best approach is to come up with a non-binding climate strategy that allows time and more research to determine the way forward."

A development aid official stressed that it is too early for the international community to review their environmental due diligence. She commented that:

"It does not make sense to me why we (donors community) should as a matter of urgency change our environmental assessment due diligence. In my view climate is real but it is going to take some time before we all have some grip on the tools and even understand what vulnerabilities and uncertainties it brings. We have to wait and do what we do well. Maybe doing what we do well may buy us time to really understand what we are dealing with……by well I mean keeping strictly to the present rules…in many ways we are not even adhering to the existing processes."

Another intriguing issue on safeguards is the discussion of whether they (safeguards) should always represent the organization's "best practice." In this regard, mainstreaming climate change into environmental assessment procedures today would be considered a best practice development. For various reasons, representatives felt reluctant to share their views on this issue, even to do so anonymously.

3.2.1 Determination of Green House Gas Emission Targets

To avoid the precarious effects of climate change, EIA procedures to check projects that emit greenhouse gases over certain limits or baselines are being developed. For example, the EBRD and IFC have set a reporting requirement on GHG emissions at 100,000 tons per annum CO2e, above which a project will not be approved. However, calculating baselines for projects is neither hardly a straightforward task, nor one likely to yield strictly accurate estimates. Deshun and Rogers (2000)[87] have identified several difficulties in accounting, which include financial and environmental additionality and indirect leakages. From the review, little was indicated by the MDBs and IFIs on how these special technical capacities for GHG emissions accounting could be performed effectively and efficiently. Should GHG emissions be accounted for with sector wide approaches such as SEA's or project by project approach using EIA's? Should calculations be based on gross or net accounting? At what phase in the life of the project should accounting begin-preconstruction, construction, operational, or decommission? Must we set emission caps? The implications are many, but it does show why more research in that area is needed. Organizations may want to take advantage of existing voluntary climate change-related institutions, such as the Carbon Disclosure Project[88], Ceres[89], Institutional Investors Group on Climate Change[90], the Climate Principles[91], and ClimateWise[92], and the Equator Principle[93] (See Annex 3 for list of initiatives).

[87] Deshun and Rogers (2000) Implementation Of The Kyoto Protocol: Opportunities And Pitfalls For Developing Countries: http://www.adb.org/documents/books/kyoto_protocol/deshun5.pdf
[88] https://www.cdproject.net/en-US/Pages/HomePage.aspx
[89] http://www.ceres.org/page.aspx?pid=705
[90] http://www.iigcc.org/?lang=_e
[91] http://www.theclimategroup.org/programs/the-climate-principles
[92] http://www.climatewise.org.uk/
[93] http://www.equator-principles.com/

4.0 COUNTRIES' ENVIRONMENTAL SAFEGUARDS PROCEDURES AND CLIMATE CHANGE

This section presents the results of a stocktaking of how countries are incorporating climate change considerations into their respective EIA systems and procedures. Guiding questions included whether the selected countries have safeguard frameworks on EIAs and where they exist, as well as if they include the consideration of climate change risks and impacts. The countries selected for this review are the United States, with particular reference to Australia, California, Canada, China, Mexico, New Zealand, Poland, South Africa, and The Netherlands.

4.1.0 Climate Change and EIA in the United States of America

Incorporating climate change into the National Environmental Policy Act

Referred to as the Magna Carta of EIA, the 1969 US National Environmental Policy Act (NEPA) recognizes EIAs as a systematic and integrative process for considering possible impacts prior to a decision being made on whether or not a proposal should be given approval to proceed. Since the passage into law, the concept of EIA has spread throughout many countries. In the USA, EIA is mandatory for proposals with significant effects on the quality of the human environment. Application of EIA varies among jurisdictions, but applies to major government actions, such as the funding of an infrastructure project, adoption of an administrative rule or policy, or discretionary approval of a private development project[94]. To date, there has been no significant national level regulation specifically designed to influence NEPA in addressing climate change. In 1997, the President's Council on Environmental Quality (CEQ) issued draft guidance regarding the incorporation of climate change into NEPA documents[95]. It highlighted two aspects that NEPA documents should include: (1) the potential for federal actions to influence global climate change (e.g. increased emissions or sinks of greenhouse gasses) and (2) the potential for global climate change to affect federal actions (e.g. feasibility of coastal projects in light of projected sea level rise). Even though the guidance was largely silent regarding recommendations for specific analytical processes for climate change inclusion, it provided a philosophical foundation for an EIA process to include climate change considerations. Mandates for federal agencies were vague and arbitrary in determining the extent to which climate change is assessed in NEPA documents. Although the Supreme Court has asked the US EPA to list GHG's[96] as pollutants under the federal Clean Air Act, no regulations have come out. Several proposals are currently under discussion at US Congress but none have been adopted as of yet. Some recent developments need to be mentioned. On February 18, 2010, a draft guidance memorandum was sent from Nancy H. Sutley, Chair of the Council on Environmental Quality, to all the heads of federal departments and agencies emphasizing the need for public consideration and comment on the ways in which federal agencies can improve their consideration on climate

[94] See generally UNEP Environmental Impact Assessment Training Resource Manual (2002) available at http://www.unep.ch/etu/publications/EIAMan_2edition_toc.htm

[95] Council on Environmental Quality, (CEQ)(1997) Draft Guidance Regarding Consideration Of Global Climate Change In Environmental Documents Prepared Pursuant To The National Environmental Policy Act. http://www.mms.gov/eppd/compliance/reports/ceqmemo.pdf

[96] Massachusetts v. Environmental Protection Agency, 549 U.S. 497 (2007), is a U.S. Supreme Court case decided 5-4 in which twelve states and several cities of the United States brought suit against the United States Environmental Protection Agency (EPA) to force that federal agency to regulate carbon dioxide and other greenhouse gases as pollutants

under NEPA[97]. At this moment, climate change incorporation into NEPA is still under public review, pending the consideration of public comments. In early 2010, the US released the 2010 Climate Action Report (CAR)[98] publication, which was submitted as a formal national communication on climate change, in accordance with Articles 4 and 12 of the UNFCCC, documenting the actions the United States is taking to address climate change. The report highlights actions being taken by the government with examples from state and local actions, and outlines U.S. efforts to assist other countries' in addressing climate change.

The EIA systems implemented by states in the US vary in great deal in their legal and administrative requirements. This has led to a substantial increase in climate change related litigations[99]. For example in 2006, some states and cities successfully sued the federal Environmental Protection Agency, claiming that the agency is required to designate CO2 as a criteria pollutant under the Clean Air Act. Referred to as the *Massachusetts v. EPA* case[100], the Supreme Court voted 5 to 4 in favor of the states with a submission that CO2 could constitute a "criteria pollutant" for the purposes of the Clean Air Act. While encouraging regulation of GHGs under the Clean Air Act, the Massachusetts Court provided validation of climate change impacts as a legitimate public threat, even as some of its scientific complexities are not yet fully understood. As a result, detailed discussions on the US climate change and EIA processes will focus on the state of California because of its remarkable advances in energy efficiency programs over the last decade. It was the first of the American states to introduce an effective 'little NEPA[101]' in 1970. In 2008, the pollution savings from efficiency programs (which have accumulated since the state first began programs in earnest in the mid-1970s) totaled nearly 1,000 tons of smog-forming nitrogen-oxides and provided global warming pollution savings equivalent to the emissions from approximately 3 million cars[102]. This achievement was supported by the California Environmental Quality Act (CEQA)[103]. Any analysis of environmental impacts under CEQA included an assessment of the nature and extent of each impact expected to result from the project, avoiding those significant environmental effects, and mitigating those significant environmental effects where feasible.

[97] Nancy H. Sutley (2010) Draft NEPA Guidance On Consideration Of The Effects Of Climate Change And Greenhouse Gas Emissions: Memorandum For Heads Of Federal Departments And Agencies.
http://www.whitehouse.gov/sites/default/files/microsites/ceq/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf
[98] United States Department of State. U.S. Climate Action Report 2010. Washington: Global Publishing Services, June 2010.
http://www.state.gov/documents/organization/139999.pdf
[99] Blake R. Bertagna, *Comment: "Standing" Up for the Environment: The Ability of Plaintiffs To Establish Legal Standing To Redress Injuries Caused by Global Warming*. 2006 B.Y.U.L. Rev. 415, 466 (2006), claiming that NEPA "is the principal statute under which global warming plaintiffs will probably bring their procedural injury claims."
[100] *Massachusetts v. EPA* (2007), SCOTUS Case No. 05-1120, heard Nov 29, 2006.
Docket available at http://www.supremecourtus.gov/docket/05-1120.htm
[101] Little NEPA's are State's Environmental Acts largely modeled after the NEPA (1969). Although modeled after NEPA, there remain numerous exceptions that exist on state by state basis. NEPA as a procedural statute requires federal agencies to take procedural steps such as the preparation of an EIS, but does not require the agency to select the environmentally preferable alternative after the review of environmental impacts identified in EIS. Some little NEPA's in due contrast do affect the substantive determinations of state agencies. Example of Little NEPA states were California, Virginia, Washington, Massachusetts, Hawaii, Minnesota, Wisconsin Maryland, South Dakota, Indiana, New York Michigan, Georgia, Montana, Puerto Rico. Connecticut, District of Columbia, North Carolina (See Planning and Urban Design Standards by the American Planning Association 2006).
[102] *See* Climate Action Team, *Updated Macroeconomic Analysis of Climate Strategies Presented in March 2006 Climate Action Team Report*, Final Report, p.14 (October 2007); National Energy Technology Laboratory, *Cost and Performance Baseline for Fossil Energy Plants*, Vol. 1, DOE/NETL-2007/1281 (May 2007);
[103] California Environmental Quality Act (CEQA): http://ceres.ca.gov/ceqa/

Incorporating climate change into the California Environmental Quality Act (CEQA)

The 1970 California Environmental Quality Act (CEQA) is the basis for environmental assessment in California. Under CEQA, all state and local public agencies are responsible for producing an environmental impact report (EIR) on any discretionary action with potentially significant environmental effects. Where an EIR is required, CEQA provides that an EIR, inter alia, must identify whether each particular environmental effect from a proposed project is "significant," and must then identify all "feasible mitigation" for all environmental effects found to be "significant." If the EIR is unable to identify feasible mitigation to reduce all adverse environmental effects to "less than significant" levels, CEQA then requires that a state or local agency adopt a "Statement of Overriding Considerations" before approving the underlying action/project[104]. As a state, California is determined to be a leader in climate change innovations. However, it faces challenges in the application of CEQA in managing the potential increase in GHG emissions that contribute to climate change. The difficulty was due to the absence of CEQAs statutory provisions and guidelines directly addressing the issue of what constitutes "legally adequate GHG emission analysis" and the "determination of significance."[105] Even though the requirements for a legally sufficient treatment of GHG emissions and climate change issues in CEQA documents are in the initial stages of development, CEQA has undergone some amendments to address this limitation. In 2009, the California Natural Resources Agency proposed the CEQA Guidelines Amendments relating to GHG, which were adopted in January 2010[106]. Notably, the previous EIA process failed to put forth a formula or set of fixed objective standards for determining the environmental significance of an action, particularly on GHG. Accordingly, the guidelines have been revised to include the following:

- *Regulatory Setting:* Under Assembly Bill 32 (establishing cap on statewide GHG emissions under CEQA) and Senate Bill 97 (acknowledging that climate change is an important environmental issue that requires analysis under CEQA)
- *Emission Quantification:* Some lead agencies quantified the project's GHG emissions using existing air emission models, calculators and criteria (both quantitative and qualitative) for pollutants
- *GHG Mitigation Measures:* Lead agencies identified GHG mitigation measures to reduce the amount of emissions caused by a project. Measures included direct actions to offset the emissions and the implementation of a Climate Action Plan
- *EIA Checklist Review:* Additions of GHG and Forestry factors into EIA checklist

Assembly Bill 32 referred to as the Global Warming Solutions Act of 2006 (AB 32) as the landmark bill that mandates significant reductions in greenhouse gases (GHG) and highlights the need to consider the impacts of GHG emissions from projects that fall under the jurisdiction of

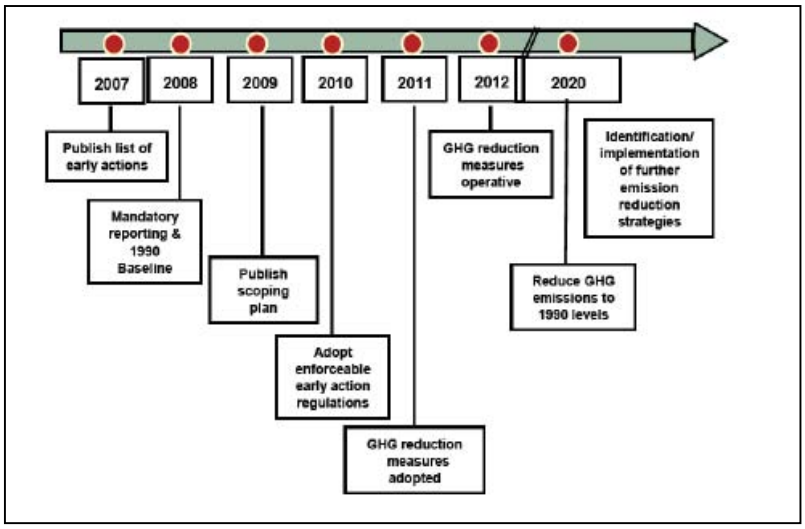
[104] ibdb
[105] California Code of Regulations/Guidelines for Implementation of CEQA 14 Cal. Code Regs §§ 15000-15387.
[106] The Natural Resources Agency CEQA Guidelines Amendments July 3, 2009. The California Natural Resources Agency ("CNRA") has adopted amendments ("Amendments") to the California Environmental Quality Act ("CEQA") Guidelines, which will become effective on March 18, 2010. The Amendments implement a directive by the California Legislature to certify and adopt guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." See Public Resources Code section 21083.05. The Amendments add three sections to the "Guidelines for Implementation of the California Environmental Quality Act" ("Guidelines") and amend eleven sections and two appendices to the Guidelines. Sections amended under the CEQA guidelines were 15064, 15064.7, 15065, 15086, 15093, 15125, 15126.2, 15126.4, 15130, 15150, 15183 and Appendix F, Appendix G. New sessions added include sections 15064.4, 15183.5, 15364.5 : http://ceres.ca.gov/ceqa/docs/FINAL_Text_of_Proposed_Amendemts.pdf
http://www.martindale.com/natural-resources-law/article_Kronick-Moskovitz-Tiedemann-Girard-A_929240.htm

the California Environmental Quality Act (CEQA). AB 32 is an attempt to establish California as a global leader on climate change abatement. The bill declares that:

> *"Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems"* (AB 32 §38501, p 9)[107].

AB 32 establishes a cap on statewide greenhouse gas emissions and sets forth the regulatory framework to achieve the corresponding reduction in statewide emissions levels. The regulatory steps laid out in AB 32 require the California Air Resources Board (CARB) to adopt early action measures to reduce GHGs and to establish a statewide greenhouse gas emissions cap for 2020 based on 1990 emissions[108]. The regulatory timeline laid out in AB 32 required that by 2007, CARB (the state agency charged with regulating statewide air quality with implementation of the Act) adopt a list of discrete early action measures, or regulations, to be adopted and implemented by 2010. These actions will form part of the State's comprehensive plan for achieving greenhouse gas emission reductions. In December 2008, the California Air Resources Board approved what many have termed a landmark state climate action plan - the AB 32 Scoping Plan, which lays out clearly with numbers and with a fair amount to detail, a mixed plan for achieving a real reduction in greenhouse gas emissions - about 30 percent by the year 2020 [109]. In addition, Senate Bill (SB) 97 in 2009 directed the Office of Planning and Regulation (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions, or the

Figure 7: AB 32 Implementation Timeline



Source: CEQA, 2007.

[107] Assembly Bill No. 32. Passed the Assembly August 31, 2006: http://www.arb.ca.gov/cc/docs/ab32text.pdf
[108] The California Air Pollution Control Officers Association (CAPCOA) (2008). http://www.climatechange.ca.gov/publications/others/CAPCOA-1000-2008-010.PDF
[109] Nichols: CARB's AB 32 Long Term Scoping Plan Approved—Carbon Markets Await Signals. VerdeXchange News 2009. Vol. 2: No. 1: http://www.verdexchange.org/node/194

effects of GHG emissions[110]. In March 2010, the amendment guidelines were adopted for implementation[111]. Given the California context as established by AB 32, future planning efforts that would not encourage new development to achieve its fair share of reductions in GHG emissions would conflict with the spirit of the policy decisions contained in AB 32, thus impeding California's ability to comply with its EIA mandate.

It is also worth noting that other organizations are in the process of developing guidance to help local agencies. These include

- California Air Pollution Control Officers Association (CAPCOA) – Thresholds of Significance for GHGs[112]
- League of California Cities – California Climate Action Network (CCAN) is coordinating information and recognizing climate change "best practices"[113]
- California State Association of Counties (CSAC)[114] – Climate Change Working Group is developing policy statements addressing climate change

Although these legal and procedural amendments, to some extent, represent an inclusion of climate change into environmental assessment processes, they do so with some challenges. Some of which are

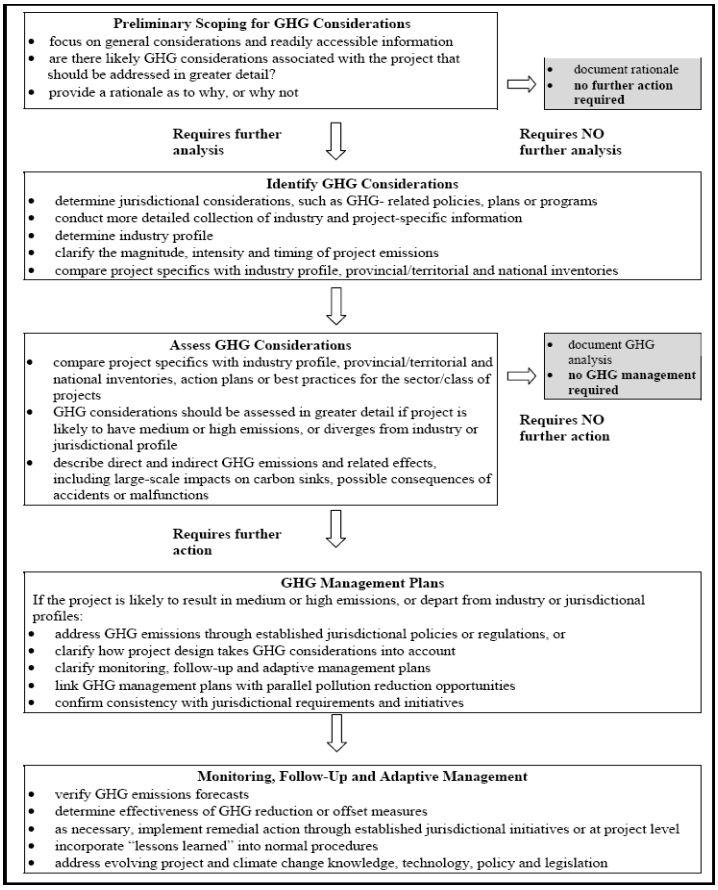
- Most of these efforts address adverse impacts of projects to the environment caused by GHG but not impacts of climate change to projects.
- The guideline focused more on GHG mitigation measures with less emphasis on climate change adaptation, risks and vulnerability. A Climate Adaptation Strategy (CAS)[115] report was later developed to summarize the best known science on climate change impacts in California to assess vulnerability and to outline possible solutions that can be implemented within and across state agencies to promote resiliency.
- Establishing GHG threshold levels has been difficult and complex. CEQA does not have one standard thresholds of significance, but rather encourages arbitrary determination of thresholds. This might result in a continuation of inconsistent significance determination and fair mitigation throughout the state.

[110] Senate Bill No. 97 Chapter 185**:** The bill required the OPR to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption.
http://www.climatechange.ca.gov/publications/legislation/SB_97_bill_20070824_chaptered.pdf
[111] Adopted Text of the CEQA Guidelines Amendments (Adopted December 30, 2009, Effective March 18, 2010).
http://ceres.ca.gov/ceqa/docs/Adopted_and_Transmitted_Text_of_SB97_CEQA_Guidelines_Amendments.pdf
[112] http://www.capcoa.org/
[113] http://www.ca-ilg.org/ClimateChange
[114] http://www.csac.counties.org/
[115] To ensure a coordinated effort in adapting to the unavoidable impacts of climate change, the *2009 California Climate Adaptation Strategy* was developed using a set of guiding principles (1) Use the best available science in identifying climate change risks and adaptation strategies (2) Understand that data continues to be collected and that knowledge about climate change is still evolving. As such, an effective adaptation strategy is "living" and will itself be adapted to account for new science (3) Involve all relevant stakeholders in identifying, reviewing, and refining the state's adaptation strategy (4)Establish and retain strong partnerships with federal, state, and local governments, tribes, private business and landowners, and non-governmental organizations to develop and implement adaptation strategy recommendations over time (5)Give priority to adaptation strategies that initiate, foster, and enhance existing efforts that improve economic and social well-being, public safety and security, public health, environmental justice, species and habitat protection, and ecological function. (6)When possible, give priority to adaptation strategies that modify and enhance existing policies rather than solutions that require new funding and new staffing (7)Understand the need for adaptation policies that are effective and flexible enough for circumstances that may not yet be fully predictable (8) Ensure that climate change adaptation strategies are coordinated with the California Air Resources Board's AB 32 Scoping Plan process when appropriate, as well as with other local, state, national and international efforts to reduce GHG emissions.

4.1.1 Climate Change and EIA in Canada

In Canada, the Canadian Environmental Assessment Act (CEAA) and its regulations are the legislative basis for the federal practice of environmental assessment. It was proposed in 1992 under conservative government as bill C 78 and came into full force in 1995. It replaces the Environmental Assessment Review Process (EARP), an older version of the same regulation that lacked legislative basis and was found to be inadequate to address cumulative effects and resource sustainability. Canada's approach to incorporate climate change into CEAA has been more of systematic provisions summarized as the current state of the international science with respect to climate modeling, impact assessments and climate change scenarios. Although GHG emissions were not specifically mentioned in the Act, it provides for the inclusion of the greenhouse gas emissions associated with a specific or proposed project subject to an EA. The efforts to mainstream climate change into environmental assessments have resulted in the production of two main guidance documents for EIA practitioners. Although both guides were launched in 2003, they portray detailed step by step processes with which climate change has been incorporated into the CEAA. First, a general guidance (Incorporating Climate Change Considerations in Environmental Assessment, 2003[116]) was provided to assist environmental assessment (EA) practitioners when incorporating climate change considerations in project EA. The second was an initiative referred to as ClimAdapt (2003[117]), which is a step by step guide for practitioners to incorporate climate change into the EIA. ClimAdapt is the result of federal, provincial and territorial collaboration on a guideline applicable across Canadian jurisdictions, which followed as a response to the 2000 National Implementation Strategy on Climate Change. It was initially launched in 2001 as the Nova Scotia Climate

Figure 8: ClimAdapt Procedure



Source: CEAA, 2003.

[116] CIDA (2003) Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners: It was prepared by the Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment: http://www.ceaa.gc.ca/default.asp?lang=En&n=A41F45C5-1&offset=1&toc=show

[117] ClimAdapt (2003) Nova Scotia's Climate Change Adaptation Initiative. Practitioner's Guide to Incorporating Climate Change into the Environmental Impact Assessment Process: It was prepared by Alan Bell, Norval Collins and Robert Young and issued in June 2003.http://iaia.org/IAIA-Climate-Symposium-DC/documents/Canada_ClimateChangeGuide.pdf

Change Adaptation Initiative, specifically designed to assist EA practitioners. The procedures recommended for addressing GHG are as follows (see figure 7):

1. Preliminary scoping for GHG considerations
2. Identify GHG considerations: jurisdictional considerations, industry profile and project specifics
3. Assess GHG considerations: direct and indirect GHG emissions, and effects on carbon sinks
4. GHG management plans: jurisdictional considerations and project specifics
5. Monitoring, follow-up and adaptive management: jurisdictional considerations and project specifics

In 2003, ClimAdapt was evaluated by applying it on six major EIA projects and the following were some of the results[118]:

- Replication can be successful to future EIAs.
- Guide is generic and can be applied with minor modifications.
- Guide directs the user to seek out the most appropriate climate change data available.
- The risk-management approach offered through the guide is an effective tool in assisting the practitioner in evaluating the implications of climate change in the EIA.

Another guide was released in 2005 to help land use planners to incorporate adaptation to climate change within municipal land use planning strategies. The guide was designed to bridge the gap between the engineering science disciplines and land use planning. Multiple scenarios in impact assessments were emphasized in fulfillment of IPCC recommendations than single 'best-guess' scenarios[119]. An important aspect of Canada's climate change efforts are well situated in the application of adaptive management policies ensuring a continual monitoring and planning response to changes in science and policy. This seems to be a promising means of tackling the fast emerging climate issues for which general scientific knowledge is certain, but this could possibly change as future research develops new understanding and strategies.

4.1.2 Climate Change and EIA in New Zealand

In New Zealand, the 1991 Resource Management Act (RAC) is the main environmental policy instrument to ensure environmental considerations are incorporated into the design and implementation of projects[120]. The RAC requires that an EIA is prepared every time an application for a resource use is made, while government agencies ensure that proponent's plans are consistent with resource management planning and decision making at both central government and district council levels. The RAC places emphasis on central and local government standard work programmes. In this case, the local government is responsible for a range of functions that may be affected by climate change. To better integrate climate change

[118] Evaluation of the ClimAdapt Guide to Incorporating Climate Change into the Environmental Impact Assessment Process. It was prepared by Alan Bell, Norval Collins, Cameron Ells, George de Romily, Alison Rossiter and Robert Young for The Canadian Environmental Assessment Agency; and issued in March 2003.The projects evaluated included: Sutherlands River Bridge, Nova Scotia: Deep Panuke Offshore Gas Project, Nova Scotia: Confederation Bridge, New Brunswick and Prince Edward Island: Beaufort Sea Gas Development, Yukon: Maritime & Northeast Gas Pipeline, Nova Scotia and New Brunswick: Voisey's Bay Mine, Labrador:http://www.cefconsultants.ns.ca/csr.pdf

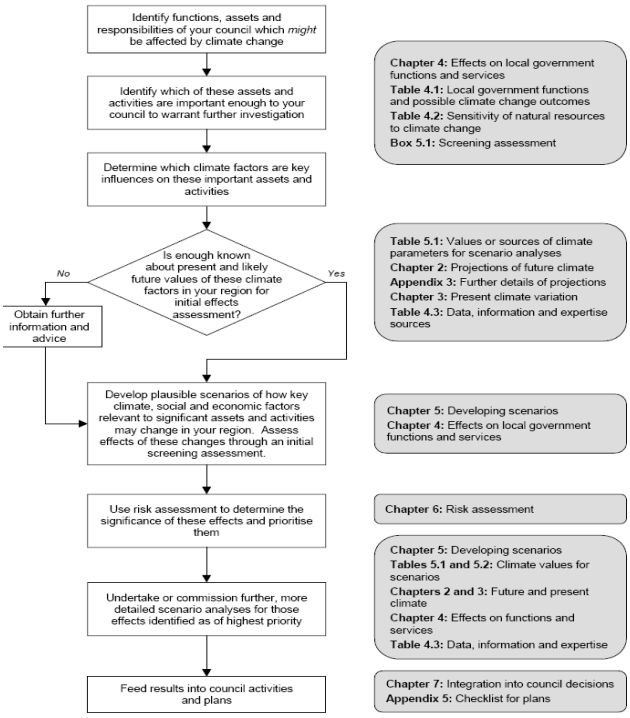
[119] A Guide for Incorporating Adaptation to Climate Change into Land Use Planning. It was prepared by CEF Consultant s Ltd and CBCL Limited, and issued in November 2005 http://adaptation.nrcan.gc.ca/projdb/pdf/178b_e.pdf

[120] Resource Management Act (1991) http://www.mfe.govt.nz/rma/index.html/

into EA's, a guidance manual was developed in 2008 to guide the local government in its environment due diligence on climate change[121]. The guidance is the first of its kind that aims at helping local governments identify and quantify opportunities and hazards posed by climate change to their functions, responsibilities and infrastructure. More so, the guide proposes a climate risk assessment framework that recognizes the potential contribution of climate change in creating new risks, changes the frequency and intensity of existing risks and hazards, and introduces some long-term shifts in climate regimes across the country. Among other things, the guidance manual

- Provides projections of future climate change around New Zealand;
- Compares these projections with present climate extremes and variations;
- Identifies potential effects on local government functions and services;
- Outlines methods for assessing the likely magnitude of such effects;
- Explains how this information can be applied to assess the risk associated with various climate change impacts; and
- Provides guidance on incorporating climate risk assessment into local government regulatory, assessment and planning processes.

Figure 9: New Zealand's Roadmap for identifying climate change risks for local council



Source: MOE, 2008.

Scenario analyses and risk assessment are discussed as important tools necessary for integrating climate change risk assessment into the decision-making process. The guidance describes the relevance of climate change to local government management and planning responsibilities, and discusses existing use legalities and rights, resource consent decisions and building consents. A checklist is provided for addressing climate change in plans developed under the Local Government Act 2002, the Resource Management Act 1991, the Civil Defense and Emergency Management Act 2002 and other legislation (Refer to Annex 4 for checklist). Alongside, a non-governmental complementary document has been developed identifying the potential environmental impacts of emissions trading scheme over the period of 2008 to

[121] See Ministry for the Environment (2008). *Climate Change Effects and Impacts Assessment: A Guidance Manual for Local Government in New Zealand.* 2nd Edition. Mullan B; Wratt D; Dean S; Hollis M; Allan S; Williams T, Kenny G and MfE. Ministry for the Environment, Wellington. xviii + 149 p. This Guidance Manual is designed to help local governments identify and quantify opportunities and hazards that climate change poses for their functions, responsibilities and infrastructure.

2020. It is expected that the scheme will result in changes to land and natural resource use, patterns of economic activity and operational practices, in order to find the least cost ways of reducing emissions and meeting New Zealand's international obligations[122].

4.1.3 Climate Change and EIA in Australia

In Australia the environmental assessment process is administered under the 1999 Environment Protection and Biodiversity Conservation Act (EPBC Act)[123]. This EPBC Act is the Australian Government's key piece of environmental legislation. Until the 1970s, the Australian Commonwealth had no 'comprehensive regime for the protection of the environment[124]', and regulation of most environmental matters was left to the States and Territories. The 1974 Environment Protection (Impact of Proposals) Act became a key Act, which applied to decisions and works involving the Commonwealth or a Commonwealth authority[125]. The current EPBC Act requires an environmental impact assessment (EIA) and ministerial approval for projects that have, or are likely to have, a significant impact on specified "matters of national environmental significance." In 2009, there was an independent review on the EPBC Act, which took a holistic approach to managing climate change and climate change adaptation. The report of the review recommended the inclusion of "climate change" as a matter of national environmental significance for which a project may need to be referred, assessed or approved. Also, it recommended important changes to the EIA processes, particularly on the publication of criteria for EIA processes, and the subsequent accreditation of EIA state and territory processes to meet those criteria. The review also recommended the introduction of an interim greenhouse trigger, with a threshold of at least 500,000 tonnes of CO2-e emissions, by way of regulations that would sunset upon commencement of the Carbon Pollution Reduction Scheme (CPRS). The difficulty with this recommendation, as suggested by some EIA experts, is that it does not clarify what the minister is obligated to have regard for, or protect, if a project exceeds the greenhouse trigger. In addition, the review does propose that the minister be obliged to consider cost-effective climate change mitigation opportunities as part of strategic assessments and bio-regional planning processes. In many ways, it constitutes a benchmark against which new legislation may be formed in the coming years for Australia[126]. Incorporating climate change adaptation and mitigation into the objects of the EPBC Act and how it is implemented after its adoption will form significant learning steps for other countries with similar intentions of integrating climate change into EA due diligence.

Climate change science has been, and will continue to be, essential in supporting Australia's climate change efforts. In 2009, the environment department developed a national framework for

[122]Scoping Report For An Environmental Assessment of the New Zealand Emissions Trading Scheme and Closely Related Measures
This report was prepared by project consultants and does not represent government policy. The conclusions presented in the report were based on information collected from stakeholders and officials at a workshop on 25 January 2008.
http://www.cawthron.org.nz/news/downloads/Scoping%20Report%20for%20an%20Environmental%20Assessment%20of%20the%20NZ%20ETS%20and%20Closely%20Related%20Meaures.pdf
[123]The Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act) http://www.environment.gov.au/epbc/
[124] DE Fisher, Australian Environmental Law (2003), p.289.
[125] See e.g. the discussion in Douglas Fisher, Australian Environmental Law (2003), p.98.
[126] Tim Power, Gas Today – May 2010 Change on the cards for Australia's environmental approval process. http://www.gas-today.com/news/change_on_the_cards_for_australias_environmental_approval_process/040883/

Australia on climate change[127]. The framework is essential in supporting the three pillars of the Australian Government's climate change policy action to reduce greenhouse gas emissions, and adapt to climate change.

4.1.4 Climate Change and EIA in the United Kingdom

In the UK, measures to incorporate climate change into environmental assessments have been demonstrated through the provision of the 1990 Climate Change Act[128] and guidance documents on Strategic Environmental Assessment (SEA). Based on the European Directive 2001/42/EC, certain plans and programs with effect on the environment require planners and proponents to identify and evaluate their plans' impacts on a number of environmental issues, including climatic factors, and, where appropriate, to put measures in place to minimize and respond to significant impacts identified. The SEA Directive is implemented in England through the Environmental Assessment of Plans and Programmes Regulations 2004, and in Wales through the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004. The Directive defines within England and Wales and Scotland, the fundamental structure and authority for waste management and control of emissions into the environment[129]. In 2007, guidance on SEA was developed suggesting how climate change issues can be integrated into SEA in England and Wales. It replaced the 2004 version, reflecting the government climate change information and describes how adaptation and mitigation measures can be developed through SEA[130]. To confer powers for the reduction of targeted greenhouse gas emissions and support local authorities to achieve the government's climate change objectives, a Climate Change Act (2008) has been enacted by the British Parliament[131]. The Climate Change Act 2008 makes the UK the first country in the world to have a legally binding long-term framework to cut carbon emissions. It also creates a framework for building the UK's ability to adapt to climate change. According to the UK's Department for Environment and Food and Rural Affairs (DEFRA), the Act enhances UK's ability to adapt to the impact of climate change and establishes the following:

- A UK wide climate change risk assessment that must take place every five years;
- A national adaptation program, which must be put in place and reviewed every five years to address the most pressing climate change risks to England;
- The government has the power to require 'bodies with functions of a public nature' and 'statutory undertakers' (companies like water and energy utilities) to report on how they have assessed the risks of climate change to their work, and what they are doing to address these risks;
- The government is required to publish a strategy outlining how this new power will be used, and identify the priority organizations that will be covered by it;

[127] DCCEE (2009) Australia's Natiaonal Framework for Climate Science: http://www.climatechange.gov.au/~/media/publications/science/national-framework-cc-science.ashx
[128] UK Climate Change Act (2008): 2008 CHAPTER 27: https://opsi.gov.uk/acts/acts2008/ukpga_20080027_en_1
[129] Lee J and Wood C (1991). UK environmental impact statements 1988-1990; an analysis, Department of planning and landscape, University of Manchester, Manchester Britain.
[130] Kirwan, F. (2005) A critical review, investigating awareness, use and users' opinions, of the 'Strategic Environmental Assessment and Climate Change: Guidance for Practitioners Guidance Note', University of East Anglia, Norwich, www.uea.ac.uk/env/all/teaching/eiaams/pdf_dissertations/2005/Kirwan_Frances.pdf
[131] See Summary Paper UK Climate Change Act/ Planning Policy Statement: Planning and Climate Change - The PPS sets out how planning, in providing for the new homes, jobs and infrastructure needed by communities, should help shape places with lower carbon emissions and resilient to the climate change now accepted as inevitable: http://www.communities.gov.uk/publications/planningandbuilding/climate-report

- The government will provide Statutory Guidance on how to undertake a climate risk assessment and draw up an adaptation action plan; and
- The creation of an Adaptation Sub-Committee of the independent Committee on Climate Change in order to oversee progress on the Adapting to Climate Change Programme and advise on the risk assessment.

Nevertheless, the UK Climate Change Act of 2008 has been critiqued as being too ambitious and lacking mechanisms and technical guidance to help achieve set targets[132]. An initiative worth mentioning is UK's Climate Impact Program (UKCIP),[133] which is a strong advocate of practical approaches intended to bridge the gap between climate science and society. UKCIP, collaboration between UK government and the School of Geography at Oxford University, has developed an adaptation wizard tool to help assess vulnerability to current climate and future climate change. DEFRA, the UK Department for Environment and Food and Rural Affairs, developed a Climate Change Strategy[134] in 2008 and on March 2010 came out with a Climate Change Plan[135], which includes targets on protecting the environment, reducing biodiversity loss, and reducing greenhouse gas emissions while addressing the risks and opportunities that climate change brings.

4.1.5 Climate Change and EIA in South Africa

In South Africa, the 1998 National Environmental Management Act 107[136] (NEMA) is the overarching legislative basis for EIAs. NEMA provides for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment. Although the Act was amended in 2010,[137] it still lacks direct references to climate change. Earlier draft amendments to the Act provided for assessment processes to address climate change issues. However, such provision was dropped from the final version of the MENA amendment. The amendment also enables integration with the National Environmental Management Air Quality Act, which took full effect in April 2010[138]. The Act contains provisions on greenhouse gas emissions. Climate change is referred to explicitly in a White Paper on Integrated Pollution and Waste Management of 2000[139], and is also referenced in the White Paper on a National Water Policy for South Africa, 1997[140].

South Africa recognizes the need for a national climate change policy. In 1994, a non-statutory stakeholder body was set to advise the minister on climate change issues. Chaired by the Department of Environmental Affairs and Tourism (DEAT), a long term mitigation scenarios and strategic climate change options for South Africa was developed, referred to as the South African National Climate Change Response Strategy[141]. South Africa's strategy focuses mainly

[132] Belle Dumé Jun 18, 2009 British Climate Change Act doomed to failure. Environmental research web. http://environmentalresearchweb.org/cws/article/news/39529
[133] UK Climate Impact Program: http://www.ukcip.org.uk/
[134] DEFRA (2008)UK Climate Change Startegy: http://www.woking.gov.uk/environment/climatechangestrategy/climatechange.pdf
[135] DEFRA (2010). Defra Climate Change Plan: http://www.defra.gov.uk/environment/climate/documents/climate-change-plan-2010.pdf
[136] National Environmental Management Act, No 107 of 1998 (NEMA) Environmental Impact Assessment Regulations (EIA), http://www.environment.gov.za/polleg/legislation/natenvmgmtact/natenvmgmtact.htm
[137] NEMA Notice 162 0f 2010: http://us-cdn.creamermedia.co.za/assets/articles/attachments/26226_n162.pdf
[138] National Environmental Management: Air Quality Act, 2004 http://cer.org.za/?p=347
[139] White Paper on Integrated Pollution and Waste Management of 2000: http://www.environment.gov.za/PolLeg/WhitePapers/20978.pdf
[140] White Paper on South Africa Water Policy (1997). http://www.polity.org.za/polity/govdocs/white_papers/water.html
[141] South African National Climate Change Response Strategy http://www.basic-project.net/data/country%20information/sem_sup3_south_africa.pdf

on adaptation with the understanding that "adaptation" is the best option for developing countries to prepare for changes in the environment. In this way, developing countries can achieve climate resilience without solely depending on external assistance. Furthermore, in May 2010, a Draft National Strategy on Sustainable Development and Action Plan 2010-2014 was published reflecting on actions to effectively respond to climate change. Both strategy and plan provide guidance for how South Africa will respond to, and address, climate change and other sustainable development challenges in the future.

4.1.6 Climate Change and EIA in China

The Environmental Protection Law (1979), now EIA Law (2002), provides the basis for Environmental Impact Assessment in China. Although it contains broad elements as requirements for EIA, a 1986 update into the Ordinance of Environmental Protection of Construction Projection (1986), defined the rules for organizations conducting EIAs, with respect to format and content of the EIA form and report. The economic boom since the 1980's places China in an environmental crossroad with wealth creation on one hand and environmental deterioration on the other. Endo (2004) reported that there has been a sharp and steady rise of EIAs to about 90% in 2000[142]. China has responded to this influx of projects by tightening environmental protection through legislation, institutions, and investment[143]. A series of regulations have been issued as a result, which includes safeguards like the Environmental Protection Procedures for Construction Project (SEPA, 1990), Regulation of Environmental Protection of Construction Projects (State Council No. 253, 1998), Environmental Management Catalogue for Construction Projects (SEPA, 1999) and the EIA Law (2002), which incorporates the concept of SEA for development plans and programs. This new Environmental Impact Assessment Law (2002) clarified and strengthened environmental protection requirements applying to the establishment, expansion or changes of business operations, and extends similar requirements to the drafting of government plans that might affect China's environment. Not only has the new environmental law been critiqued as constructed with less concrete requirements for participation, but also it shows no evidence of the government's willingness to ensure environmental policy debate at the strategic level.

BOX 6

Green Energy and China

"Although green energy is drawing more and more attention in China, the development of the industry is still faced with many difficulties, for instance, uncompleted policy system, excessive reliance of the enterprise(s) on the government for development and relatively unsophisticated technologies and equipment. To be specific, the difficulties are manifested in the following aspects: 1) there are few professional research institutions under the government and its ability to promote extensive use of green energy in the society is yet to be improved; 2) there are few self-developed technologies, especially high-end technologies and most technologies remain in the simulation stage; 3) the industry is in severe lack of technical professionals and there is urgent need for conservation and training of technical talents; 4) some industry facilities cannot meet the needs of the industry, for instance, poor quality and severe lack of equipment co-exist. All of these have jointly restricted the development of the green energy industry."

Source: Zero21PO Research Center, 2008.

[142] Endo I. (2004) International Experience on SEA and its Application in China: Note for SEA practitioners in China – A review of the literature. EASES, World Bank.

[143] The World Bank, (1997) Clear water, Blue Sky; China's Environment in the New Century, The World Bank, Washington D.C.

With respect to climate change, China has made some significant progress to integrate climate change considerations into national socio-economic development programs. It is counted as one of the first and proactive developing countries to develop a climate change strategy, referred to as the National Climate Change Program[144]. The plan outlines activities on achieving GHG emissions reduction, enhances the capability of continuous adaptation to climate change and further strengthens institutions and mechanisms on climate change. Within the Program, perhaps the most challenging is China's goal to lower energy intensity by 20% by 2010. However, the lack of official and reliable data makes any ranking of country emissions difficult to verify for now. The involvement of China's premier Wen Jiabao as head of the National Leading Group on Climate Change, with 17 ministers as members, raised some expectations.

China is an active participant in the Clean Development Mechanism (CDM) established under the UNFCCC Protocol. It has, as well, gathered investment interest in "green energy," which is presently attracting millions of dollars into the private sector. Some observers have commented on the challenges China might face (See Box 6)[145]. Many other policies have been laid in lieu of China's progress on climate change. These include the Renewable Energy Law of 2005,; the Energy Conservation Law of 2008,; the Medium- and Long-Term Development Plan for Renewable Energy issued by the National Development and Reform Commission (NDRC),; and by the Several Opinions Regarding Acceleration of Shutting Down Small Thermal Power Generating Units jointly issued by the NDRC and the State Energy Office, the 11th Five-Year Program (2006-2010). The Renewable Energy Law (2005) under China's Sustainable Energy Program[146] mandates that 16% of all energy is to be realized from wind, biomass, solar, and hydro-power energy by 2020. In 2007, the Global Wind Energy Council predicted that China will become the world's largest wind turbine market by 2010[147]. According to *The New York Times,* China has presently vaulted past competitors in Denmark, Germany, Spain and the United States to become the world's largest maker of wind turbines[148]. Also, China has taken the lead in solar water heaters, energy efficient home appliances, and rechargeable batteries[149]. The Climate Change Group reports that, "it is precisely [China's] ability to manufacture technology in large volumes and at competitive prices that will enable it to dominate the world's renewable technology market."[150] While China is taking some great strides in addressing climate change adaptation, its plans lack specific targets and action-steps for realizing these goals. Nevertheless, given the act of harmonizing economic growth with environmental protection with the declared need for action on climate change, China, apparently, is maintaining some appreciable level of progress as a developing country.

4.1.7 Climate Change and EIA in Poland

The Polish approach to EIA may well be described as a combination of the US and EC approaches, though its origins did not have much in common with NEPA or with EC-Directive

[144] National Climate Change Program (June 2007) http://www.ccchina.gov.cn/WebSite/CCChina/UpFile/File188.pdf
[145] Liu, Sally (2008) . Green Energy Emerges as PE Investors' New Favorite http://www.zero2ipo.com.cn/en/n/2008-8-12/2008812211720.shtml
[146] The China Sustainable Energy Program, op. cit., [http://www.efchina.org].
[147] Global Wind Energy Council, Global Wind 2007 Report, April 2008, p. 12. Other reports have stated that China may become the world's largest turbine manufacturer by 2009.
[148] Keith Brasher (Jan 2010) in New York Times China Leading Global Race to Make Clean Energy: http://www.nytimes.com/2010/01/31/business/energy-environment/31renew.html
[149] Howard, Steve, and Changhua Wu. 2008. China's Clean Revolution. The Climate Group.
[150] The Climate Change Group (2008) China unleashes Clean Revolution http://www.theclimategroup.org/our-news/news/2008/7/31/china-unleashes-clean-revolution/

337/85[151]. The Environmental Protection Act (1989) provides the basis of EIAs in Poland. The Act authorized environmental authorities to require from developers and managers of existing facilities an "opinion" on the environmental impact of their projects or facilities. Similar to UK, EIAs have been used to develop control and management of the environment through the planning system. EIA has been increasingly built into the Town and Country Planning Act (location procedure - granting planning permission), which has contributed the most to the development of EIA law. Although the Act does not discuss climate change directly, it refers in part to project GHG emissions. With respect to climate change, Poland has already developed a climate change policy. In 2003, the Council of Ministers approved Poland's Climate Strategy – the strategies for greenhouse gas emission reductions in Poland until 2020, with the strategic goal for "Poland to join the efforts of the international community for the protection of the global climate through the implementation of the principles of sustainable development."[152] The climate strategy refers to the development of a 2005 National Framework Programme comprising of about 80 research projects on climate change with themes that entitle the Polish economy as a climate change factor. Ways to reduce and capture GHG emissions were discussed for the policy.

4.1.8 Climate Change and EIA in The Netherlands.

In the Netherlands, the basis for EIA is founded on the 1987 Environmental Protection Act.[153] Under the Danish Environmental Protection Act, operating an enterprise that pollutes is not permitted unless an environmental approval has been obtained. The central goal of environmental assessment is to ensure that environmental information is incorporated in a sound and transparent decision making process. In order to take significant steps toward the integration of existing environmental laws, the Environmental Management Act (EMA, 1993)[154] was passed. The EMA replaced numerous pieces of legislation, including the Waste Substances Act, the Environmental Protection Act, and certain provisions of the Air Pollution Act. The purpose of the EMA was to establish uniform standards for environmental plans, address enforcement issues, and set environmental quality goals. An important aspect of the EMA process is its ability to establish an integrated focus on government and industry cooperation. Harmonizing for uniformity and streamlining are evident themes in the regulatory process. The success of its landmark EIA processes has been the result of the considerable effort made by the Dutch government to involve interested stakeholders in the regulatory and legislative process. It is also worth noting that as a member of the European Union (EU), the Netherlands has transposed the EU environmental laws into its

Box 7
Costs of climate change adaptation for the Netherlands

The Netherlands is a densely populated country with approximately 16.5 million inhabitants. Approximately 9 million inhabitants live below sea level. The total costs for climate adaptation vary between 9 billion and over 80 billion euro. Source: Aerts et al., 2008.

[151] Jendroska, J. (1993). Environmental Impact Assessment in Poland in the Light of EC-Directive 337/85 and NEPA. Jahrbuch des Umwelt- und Technikrechts.

[152] Poland's National Climate Strategy (2003): http://www.elaw.org/system/files/Poland_ClimateChange_Strategy.pdf
[153] Environmental Management Act 1987 (merged into the EMA 2004)
http://docs1.eia.nl/cms/Environmental%20Management%20Act%20[May%202004].pdf
[154] The Netherlands Environmental Management Act 2004
http://docs1.eia.nl/cms/Environmental%20Management%20Act%20[May%202004].pdf

domestic laws. By this transposition, the Netherlands implements both the EU Directive on EIA and SEA and observes them as obligatory for statutory or compulsory administrative plans. A recent European Commission Study on EIA reported that a majority of EU members' states recognize the importance of assessing climate change issues within the framework of EIA procedures. According to the report, this recognition is mainly limited to consideration of green-house gas emissions, compliance with air quality standards and sometimes energy efficiency, where impacts on climate change are rarely subject to specific climate change requirements[155]. In 2009, the Netherland Commission for Environmental Assessment (NCEA) requested that environmental assessments pay attention to mitigation, if the proposed activities contribute significantly to the greenhouse gas emissions in the Netherlands. According to NCEA[156], in principle, an EA should contain a separate section on mitigation and adaptation because climate change

- operates on a different scale in space and time compared to the more traditional environmental themes in EIA (water; safety; biodiversity; traffic and transport; the environment, for humans and wildlife; health; energy; etc.), and
- demands that managerial considerations transcend and integrate themes explicitly dealt within SEA reports.

On the climate change, the Dutch stand front and center and have gained the reputation of being a leader in environmental policies, particularly those regarding climate change. With about 9 million inhabitants living below sea level, it is perhaps the underlying motivator to address climate concerns (See Box 6)[157]. In response to conditions set out in the FCCC, in 1994 the Dutch government developed strategies to communicate on climate change, which was referred to as the Netherlands' National Communication on Climate Change Policies[158]. The climate change communication policy outlined particular characteristics of environmental problems in the Netherlands and provided in-depth inventory of emissions and the domestic strategies necessary for reducing emissions[159]. Two significant policy documents were published in 1999 and 2000 to redefine the Netherlands' goals and efforts on climate change. While Part I of the Netherlands' Climate Policy Implementation Plan[160](1999) was devoted to climate change connection to domestic measures, Part II (2000) focused on emissions trading as an instrument for climate policy. Until the mid–1990s, the Netherlands focused on understanding climate system dynamics, on detecting climate change, on the attribution of climate change to natural and anthropogenic causes on the sources of greenhouse gas emissions and on modeling of the future climate. Prominent among the research initiatives is the National Research Programme[161] on Global Air Pollution and Climate Change (NOP I). The National Research Programme encourages and finances climate research projects conducted by a variety of universities and institutes.

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[155] EU (2009) Study concerning the report on the application and effectiveness of the EIA Directive: http://ec.europa.eu/environment/eia/pdf/eia_study_june_09.pdf

[156] NCEA (2009) The NCEA's recommendations on Climate Change in Environmental Assessment by Geert Draaijers and Aad van der Velden.: http://docs1.eia.nl/mer/diversen/views_experiences_2009.pdf

[157] Adaptation cost in the Netherlands: Climate Change and flood risk management http://www.climateresearchnetherlands.nl/nl/25222946-Research_Highlights.html

[158] VROM (1994) Netherlands' National Communication on Climate Change Policies. The Hague, The Netherlands

[159] Subsequent publications include The Second Netherlands' Memorandum on Climate Change in 1996 and the "Update" to this document in 1998.

[160] See comments on the part I and II of Climate Policy Implementation Plan: http://www.ser.nl/~/media/Files/Internet/Talen/Engels/2000/2000_06.ashx

[161] The Netherland National Climate change Research Programme (1985-1995) http://www.climateresearchnetherlands.nl/templates/dispatcher.asp?page_id=25222734

Currently, more than 30 Dutch research institutes are working on problems that, directly or indirectly, have to do with climate change and global change. Four major programs, alongside others, are currently being implemented on climate change in the Netherlands. These include the Delta Program, the National Programme for Spatial Adaptation to Climate Change (NPSACC), the Knowledge for Climate Program (KCP) and the Rotterdam Climate Initiative (RCI). The Delta Program[162] focus on climate proofing the Netherlands over the very long term: safe against flooding, remaining an attractive place to live, to reside and work, for recreation and investment. The National Programme for Spatial Adaptation to Climate change (ARK) created in 2007 is an integrated but harmonized national strategy based on the shared inter-sectoral belief making spatial adaptation to the effects of climate change an essential and top administrative priority for the Netherlands[163]. The Knowledge for Climate Program[164] is the scientific research programme that supports the National Programme for Spatial Adaptation to Climate Change (ARK), aims to develop applied knowledge, through cooperation between the Dutch government, the business community and scientific research institutes, in order to ensure that long term decision making takes into account the impacts of climate change. The Rotterdam Climate Initiative, on the other hand, is a collaboration between the city administration, the regional Environmental Protection Agency (DCMR), the Port of Rotterdam, and the businesses in the port. The initiative aims at a 50% CO_2 reduction by 2025 (compared to 1990), where without action, CO_2 emissions will have been doubled. The initiative aims to realize the reduction of over 30 megaton CO_2 by energy savings, sustainable forms of energy and for two thirds by Carbon Capture and Storage (CCS)[165]. A current climate tool developed by the Netherlands is the "Quick Scan Climate Change Adaptation tool,"[166] which focuses on coastal defense policies in five North Sea countries. It is a knowledge based tool providing a climate change knowledge platform for coastal authorities in Belgium, Denmark, Germany, The Netherlands and the United Kingdom. To a large extent, the Netherlands are steady in their efforts on climate change and responding to climate influences using policies and various initiatives. It is no surprise that the Netherlands has one of the best climate adaptation records in the world.

4.1.8 Climate Change and EIA in Mexico

In Mexico, the Environmental Protection Law (1982) sets the basis for the adoption of EIAs. As a federal law, it defined the natural resources that comprise the environment, and integrates the concepts of environmental protection, conservation, and remediation. The Ministry of Ecology and Urban Development (SEDUE) was established as a result with the responsibilities of implementing the EIA policy, regulations and procedures. There was no direct mention of EIA in the Act. In 2007, the Mexican government came up with National Strategy on Climate Change,[167] which focused essentially on climate change mitigation and adaptation. In the

[162] Delta Program (2008) http://www.deltacommissie.com/doc/deltareport_full.pdf
[163] National Programme for Spatial Adaptation to Climate Change (2006) https://www.maakruimtevoorklimaat.nl/fileadmin/user_upload/Documenten/PDF/Engelstalige_documenten/inter-admin_policy_paper_ENG.pdf
[164] Knowledge for Climate Research Programme http://knowledgeforclimate.climateresearchnetherlands.nl/nl/25222734-Home.html
[165] Rotterdam Climate Initiative –The Netherlands http://www.mop.gov.si/fileadmin/mop.gov.si/pageuploads/predsedovanje/territorial_cohesion/rotterdam_climate_initiative.pdf
[166] Quick Scan Climate Change Adaptation tool (2007) http://www.safecoast.org/editor/databank/File/DHV%20QS%20Climate%20Adaptation.pdf
[167] Mexico National Strategy on Climate Change (2007): http://www.semarnat.gob.mx/queessemarnat/politica_ambiental/cambioclimatico/Documents/enac/sintesis/sintesisejecutiva/Executive%20Summary.pdf

Strategy, sectoral opportunities and specific mitigation targets were identified in two major areas, which are: i) Energy Generation and Use, and ii) Vegetation and Land Use. In 2009, an Inter-Secretarial Commission was set to evaluate and review guidelines contained in the previously released National Strategy on Climate Change to demonstrate whether the strategy can be implemented without compromising development. Referred to as the "Special Program on Climate Change,"[168] it rested on four fundamental components for the development of an integral policy to confront climate change: Long Term Vision, Mitigation, Adaptation and Elements of Transverse Policy. By these, Mexico assumes the indicative objective of reducing its GHG emissions by 50% by 2050, build and strengthen the capacities of the sectors to align public policy regarding adaptation. The plans for Mexico successfully provide an indication of national climate adaptation needs and priorities. However, they lack concrete provisions for guidelines and tangible procedures and strategies for meeting adaptation needs.

5.0 Summary of Findings

The summary of findings drawn from the study suggests the following:

For MDBs and IFIs incorporating climate change risks and impacts in their corporate strategies and their due diligence procedure:

First, while most MDBs and IFIs have incorporated climate change in their corporate strategies, these strategies are non-binding and do not address climate change risks and impacts. The expanding climate change portfolios among the MDBs and IFIs are mostly derived from recently created climate change guidance policies rather than the existing procedures and safeguards. Most of the overarching climate change guidance and policies are non-binding in nature. Although they may carry significant moral or political weight, they create no obligations that would ensure a strict adherence to climate change as posited in their respective climate change guidance and strategies. In this way, EIAs may still be made to address climate change but may lack the strong legal background to do so.

Second, generally, safeguards reviewed have not directly included climate change issues. It is very clear that EIA has been overwhelmingly accepted as a formal environmental assessment procedure by most MDBs and IFIs. All the development banks and agencies reviewed have already established EIA processes as an essential part of project approval. Although tailored to individual bank/agency polices and operations, safeguards reviewed over time have not directly included climate change issues. Being mindful of the quite recent and rapidly evolving nature of climate change, it would be safe to say that most banks and development agencies have not been able to mainstream their EIA procedures with climate change in a formal way.

Third, GHG emissions baselines are beginning to be set amidst little capacity. There is a potential tendency for development banks to begin setting baselines for GHG emissions. The pace has been set by IFC and EBRD and others may follow. However, the lack of technical capacities and coherent methodological approaches may have grave implications on EIAs.

[168] Mexico Special Climate Change Program (2009) : http://saladeprensa.semarnat.gob.mx/blog2/index.php?option=com_content&view=category&layout=blog&id=51&Itemid=169

Fourth, in general, development banks have focused on the conduction of solid analytical pieces of climate-change related work to underpin future investment lending in sectors like energy, transport, water and forestry. These efforts have generally focused on mitigation of GHG emissions and sometimes on adaptations.

Fifth, there seem to be no systematic and coordinated approaches in addressing climate change. It was not clear whether the development banks and agencies have followed any systematic plan to either focus at the sector level, at the project level, or at both when it comes to climate change investments and portfolios. EIAs are applied where investments are made at the project level, and SEAs are applied where projects are approved for the sector level. Furthermore, it is not clear whether the development banks and agencies are coordinating among themselves with respect to programs and project prioritization (sector or project) and the collective redress of climate change impacts and adaptations, particularly for developing country clients.

For countries adjusting their due diligence procedures to integrate climate change risks and impacts:

First, generally, climate change has not been integrated into most country's EIA systems**.** The consideration of climate change into countries' EIA systems is at the infancy stage for most countries. Although the EIA has a tremendous potential to assess the climate resilience of projects or to assess their contribution to the reduction of GHG emissions, climate change has not yet been identified in the EIA legislation of most countries, with the exception of Canada and New Zealand.

Second, countries are increasingly seeking guidance on how to incorporate climate change considerations into EIA**.** Countries have begun calling for guidance procedures to support their EIA systems. While some guidance exists for both SEA (New Zealand) and EIA (Canada) to account for climate change, there is limited information on the step by step procedures to consider climate change mitigation and adaptation into impact assessments. No consensus has emerged so far regarding the most appropriate and effective guidance, methods or combinations of methods. In the absence of guidance and legislation considering GHG emissions and climate change, risks in EIAs have looked more arbitrary than planned.

Third, the limited capacity of environmental regulation entities is a major constraint for more aggressive domestic EIA legislation to support climate change efforts. For example**,** although South Africa recognizes the need for a national climate change policy, it has been hindered by capacity gaps to respond to and plan aggressively for the emerging climate change threats.

6.0 Conclusion

Quite clearly, the adjustment of EIA's to include climate change is in the offing for most countries and institutions. While the lack of certainty about future climate conditions is commonly, but often inappropriately, used as a rational for inaction, it is important that understanding is improved on all kinds of uncertainties. This means that financial institutions, bilateral international development organizations, nations and practitioners may need to considerably understand the character of climate change and thereby construct concrete approaches to tackle both ideological and methodological gaps in support of EIAs. This might

start with knowing what is being done at the moment by these institutions and countries for which this paper has attempted to do. As stated in the introduction, the information presented here is based on currently (publicly) available information. The author was unable to explore a detailed research in the field or to conduct "extensive" interviews with bank staff involved in the EIA and climate change process. As such, the document should be viewed primarily as a description of the present "state-of-the-art" in summarizing how climate change is being addressed in the context of EIAs. However, even if more detailed and targeted research results were available, it would probably be difficult to draw any firm, overall conclusions for the simple reason that processes for climate change and climate investments are fast evolving and might take some time before clear generalizations can be made. Each of the banks and Bilateral and International Development Organizations examined here is unique in terms of its mandate, sphere of operations and geographical area of concentration. Nonetheless, some conclusions were drawn about the manner with which "climate change is being addressed," even if it is of a general nature and based as much on the author's personal experience as an analysis and review of the literature.

7.0 Key Questions for Way Forward

Quite clearly, the adjustment of EIA's to include climate change is in the offing. This means that practitioners may need to considerably understand the character of climate change and thereby construct concrete approaches to tackle both ideological and methodological gaps. But before they do so, practitioners and policy makers are urged to critically consider the following key questions.

First, it is important that climate change, as an environmental issue, is clearly understood by both countries and financial institutions. What does "incorporating of climate change into environmental assessment" mean? At the moment, there seems to be no sufficient understanding of the character and extent to which climate change can be addressed when preparing environmental assessments. What elements are necessary for achieving a climate change environmental impact assessment? How would risks (value laden) be perceived and who determines them? How do we communicate these risks in the EIAs? What should it look like and what methodological approaches must be utilized as standard assurance of an adequate climate change environmental assessment? How is impact significance going to be determined? What would constitute feasible and fair share mitigation? A practical understanding of the likely processes through which EIA reports could identify, disclose, and analyze climate change issues may be critical in ensuring the validity of such a proposed incorporation. This presupposes that a step by step guidance will be necessary. Nevertheless, the "processes" of developing guidance may have to be accorded with the same significance as the "guidance or final product." Perhaps aggressively tackling the currently not-so-clear parameters for climate change inclusion may trigger new understandings where new strategies and guidance will emerge to support best practices.

Second, there is a high degree of uncertainty about future climate impacts at a scale necessary for most decision making. Climate experts confirm that the level of scientific confidence in understanding and projecting climate change increases with spatial scale, while the relevance and value of the projections for local societies decreases. While climate projections of smaller spatial

and temporal scales would be more important for EIAs, it is uncertain how long this need will remain as a scientific challenge. Moreover, at what level of planning is climate change analysis critical for environmental assessments? National, sectoral or project level? Are climate risk assessments necessary for all projects, plans, policies and programs? To a large extent, nearly every project has the potential to emit GHGs, so does every project require a climate addressed EIA? Being mindful of the temporal, spatial and long term nature of climate change, it may seem that communicating climate change for environmental assessments could be more of a strategic long-term exercise (SEA) than a tactical short term (EIA) one. In any case, further research is needed to improve our understanding of how to effectively develop cross regional and cross-sectoral climate plans that have relevance for the local context.

Third, to what extent will the proposed incorporation of climate change be demonstrated as practical and technically feasible in order to be accepted by government agencies or development investors? Most likely, the consideration of multiple alternatives and other climate change infused variables may often be associated with significant incremental costs. Combining cost, additional legislation, capacity building and the creation of innovative solutions will be the true genius behind climate incorporation into EIA. In the end, financial institutions may be faced with the consideration of a "climate conditionality" to their transactions, which might have serious implications for developing country clients.

Fourth, how can we understand the motivations of practitioners and investors alike with respect to climate consideration into EIA? Perhaps clearly identifying the relevance of climate change issues in investors' operations and strategies could justify why their attention is necessary. A close evaluation of the demerits and merits of climate incorporation into environmental assessment at this stage may be necessary. This might clarify the perceived and real need for climate incorporation and promote the real need to overcome barriers and create potential solutions.

Fifth, climate change is considerably being considered as a key economic and business issue today. This proposes the need for a strong acceptance at the strategic level. How well can we convince institutional stakeholders to elevate climate change as a governance priority for board members and CEOs of banks and organizations? If this is successful, perhaps climate change issues will be addressed directly by organizations through the formal safeguards rather than through safeguard circum-navigation. It may, therefore, be important that addressing climate change within investment portfolios is recognized more as a "process" where all facets of management are involved than an end "product" based on profits.

8.0 Best Practice Review

In reviewing best practices in climate change incorporation into EIA and SEA, a useful starting point is the main areas of concern addressed by the Canadian EIA ClimAdapt[169] and for SEAs, the OECD policy guidance on integrating climate change into development co-operation[170].

[169] CEAA 2003
[170] OECD 2009

Some useful elements from the World Banks framework for policy based SEA[171] were also adapted.

Leading questions for EIAs included:

- Have climate change related risks / impacts been considered in EIA, and what was the basis for that consideration?
- At what stage of the EIA process (screening, scoping etc) was climate change factored into the assessment?
- Were there any specific engagements with stakeholders on the issue of factoring in climate change in the EIA?
- Was any specific guidance provided by the authorizing agency?
- What readily available information sources were used for identification of climate change related issues? For example, were IPCC reports, modeling, local experience, etc. used?
- How were the issues of uncertainty in climate change projections dealt with? Was a range of projections used to assess risks / impacts under different scenarios?
- What specific management measures were proposed with respect to identified impacts (give examples for mitigation measures to reduce the impacts on climate change or make the project more resistant to the impacts of climate change)?
- Did climate considerations used affect project/component design?
- Were there any climate change related monitoring and follow-up mechanisms?

For SEAs, questions included:

- Were climate change related risks and impacts addressed in the short and long term by the SEA?
- Were climate change priorities recognized as important elements of the policy agenda?
- To what extent were climate change priorities shared among participating key stakeholder constituents?
- What readily available information sources were used for identification of climate change related risks / impacts? For example, were IPCC reports, modeling, local experience, etc. used?
- How were the issues of uncertainty in climate change projections dealt with, particularly anticipated gradual and episodial climate events? Cost and benefit, cost of doing nothing at all, range of projections and scenarios, etc.?
- What policy tools were applied to ensure policy ownership? For example, stakeholder analysis, political economy analysis, situation analysis, vulnerability analysis, institutional assessment, market and legislation tools, etc. to stimulate adaptation, resilience and reduce vulnerability?
- Was the SEA effective in raising attention on climate change for the sector or government?

[171] World Bank (2010). Policy SEA: Conceptual Model And Operational Guidance For Applying Strategic Environmental Assessment In Sector Reform

The selection of case studies to provide examples of international best practices on incorporating climate change into EIA and SEA is not as straightforward as it may apparently seem. The original intention was to select as many projects that followed best practice methodologies to address climate change considerations in project design and implementation. However, it was recognized after the search that few projects have emphasized on climate change and where elements of climate change were addressed, it has been done amidst the lack of clearly defined guidelines. For this reason, not all the designed questions applied. Nevertheless, for the purposes of this review, emphasis was placed on how the selected SEA and EIA projects generally incorporated climate change. For EIA, we would want to know the climate change assumptions that were made to address GHG emissions mitigation and adaptations, and for SEA, generally we would want to know how climate change awareness was generated among key stakeholders, what policy tools were applied and what recommended policies were set as outcomes of the SEA exercise.

8.1.0 Case 1: The Padma Multipurpose Bridge EIA Project:

Best Practice EIA integrated with simple and clear procedures for addressing climate change:

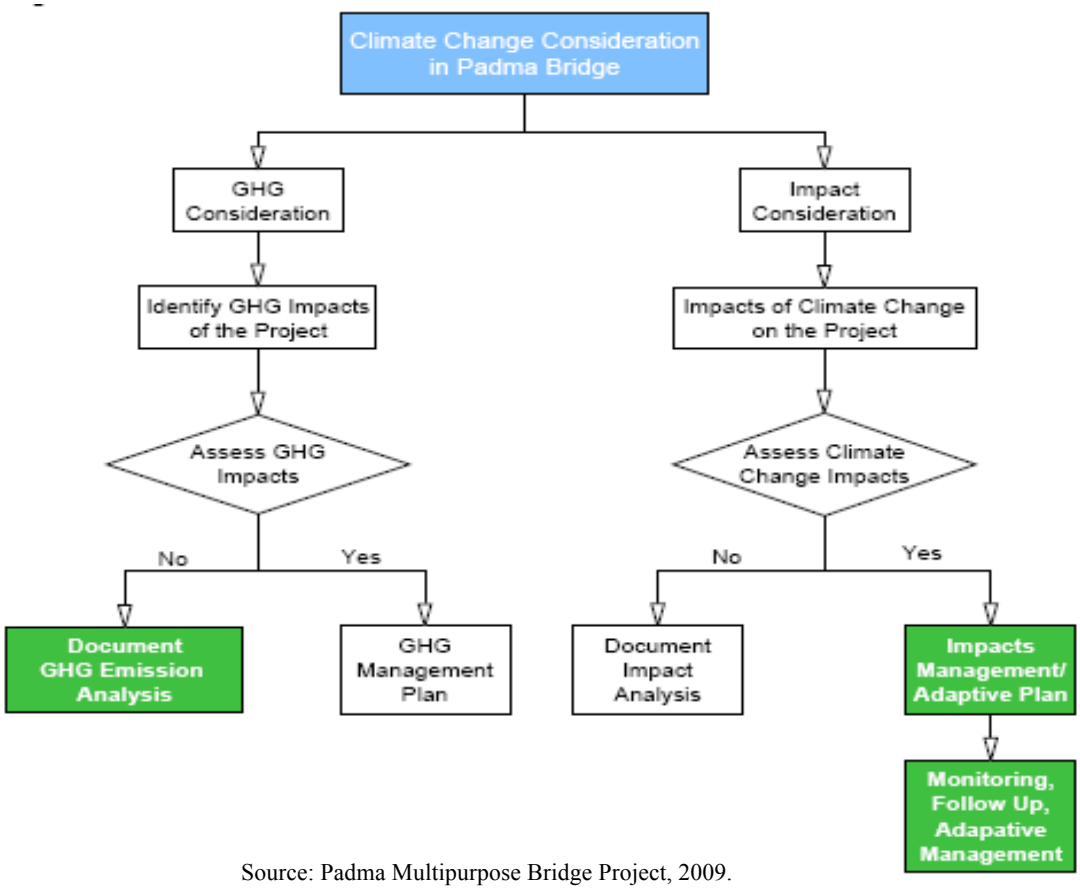
The EIA of the Padma Multipurpose Bridge Project was prepared for the Bangladesh Bridge Authority with the aim to incorporate climate change impacts into the design of the Padma Multipurpose Bridge, so as to reduce its vulnerability. The project involved the construction of about a 6.15 km long main bridge, construction yards, toll plazas, resettlement sites, two railway stations at both ends with the provision of rail track, and gas and power transmission lines on the bridge. The construction and operation of the project components involved massive activities, which have both negative and positive impacts on the environment. According to the ADB Safeguard Policy Statement (2009) and Operational Manual F1 (2010), the project falls under a category "A" classification and therefore an EIA was required for the project. The primary questions sorted by the exercise included whether climate change consideration is essential to be incorporated into the design, what climate scenario should be considered and what could be the potential changes in the following parameters such as air, temperature, precipitation, sea level, flood flows, salinity, wind speed (with particular reference to cyclone activity) and sediment transport.

Climate change was considered directly in the EA with the following objectives:

- help manage or reduce the potential risk posed by the impacts of climate change to the project and contribute to climate change action;
- provide environmental managers of the co-financiers with information that will assist their broader climate change action;
- help decision makers address climate change implications in a risk management context; and
- provide assurance to the public that climate change implications are being appropriately considered in the design of the proposed project.

The approach, followed by the project, included an outline that mainly focused on Greenhouse Gas (GHG) Considerations (where the proposed project may contribute to GHG emissions) and impacts considerations (where climate change may affect the proposed project) (See figure 10).

Figure 10: Outline of the climate change considerations followed in the Padma



Source: Padma Multipurpose Bridge Project, 2009.

The EIA addressed explicitly the hydro-meteorological and climatic parameters that will influence the design of the structure itself and the surrounding environment. The EIA recognizes the vulnerability of the bridge due to climate change and the additional perturbation on the natural system. Climate change considerations were undertaken for anticipated environmental conditions over a 100-year time frame at 50 year interval (year 2050 and 2100) and emission scenarios. This was based on the proposed IPCC Fourth Assessment Report consideration of a "worse case" scenario for impact assessment. Consequently, historical climatic and hydrological

databases from the hydro-meteorological stations were reviewed, while both short-term and long-term climatic projections in terms of the flooding at the proposed bridge locations were recognized. Project mitigation and adaptation were based on the nationally adopted National Adaptation Program of Action and the recently developed Climate Change Strategy and Action Plan for building a climate resilient development (See Box 8). The bridge's impact on the river hydrology was assessed using a range of variability approaches, which included assessing the mean monthly flow, high and low flows, and peak flows. Invariably, the EIA is

BOX 8: The Padma Multipurpose Bridge EIA Project Methodology:

Primary Questions Raised:

- Whether climate change consideration is essential to be incorporated in the design of Padma Bridge
- Which climate scenario should we considered
- What could be the potential changes in the following parameters: Air temperature, Precipitation, Sea level, Flood flows, Flow and water level duration (as it relates to the Standard High Water Level), Low flows, Salinity, Wind speed (with particular reference to cyclone activity) and sediment transport and morphologic response.

Scoping:

- Greenhouse Gas (GHG) Considerations (Energy, Industrial Processes, Agriculture, Land Use ,change and Forestry, Waste
- Impacts considerations (hydro-meteorological parameters)

Vulnerability Areas Identified:

- Vulnerability on the structure itself
- Additional perturbation on the natural system due to climate change by the proposed bridge

Adaptation Plan Applied:

- The Bangladesh Climate Change Strategy and Action Plan for building a climate resilient development framework through adaptation and mitigation.

Downscaling Coarse Resolution Climate Data:

- Projection for temperature and precipitation due to climate change were extracted from a regional climate modeling systems called PRECIS (Providing Regional Climates for Impacts Studies; BRTC/BUET, 2008) to generate projections for rainfall and temperature for long term (up to year 2100), using SRES A2 emission scenarios as the model input. Evidence of sea level rise has been justified from historical timeseries data of the tidal water level stations of BWDB at Cox's Bazar, Sandwip, Moheshkhai, Hiron Point and Teknaf.
- Observed hydrometric data at proposed Padma Bridge location has been collected from BWDB discharge station at Mawa an existing study (CLASIC) conducted by IWFM and CEGIS in 2008 on "Impact of Climate Change on Surface Water Flow in Bangladesh".

Impact on the River Hydrology:

Range of Variability Approach (RVA) adopted for the interpretation of impact on river hydrology. The analysis done in three steps:

- Mean monthly flow has been computed to assess the average situation as derived from different models
- High flow analysis has been conducted on daily, weekly, monthly and seasonal (3-month) basis.
- Mean values of low flows during each calendar month has been computed and mean values of extreme low flow event has been assessed in terms of: Duration (days) , Peak flow (minimum flow during event) , Timing (Julian date of peak flow) .

Source: Padma Multipurpose Bridge Project (2009)

logical and reflects the multiple climate change aspects that can affect bridge design.

The Padma Bridge EIA case is a concrete example of a good practice. The project directly considered climate change as part of its scoping exercise, focusing on how the project would contribute to GHG emissions and how climate change will impact the project. Estimations were made for temperature, precipitation and flood flows, salinity intrusions, GHG emissions, wind and future sea level increases. Based on the observed and projected trend in climatic parameters, appropriate tools were adopted for analysis, and an impact management adaptive and a monitoring plan was proposed.

8.1.1 Case 2: The Port Kembla Outer Harbour Development Environmental Impact Assessment

Best Practice EIA with good methodological and systematic procedures for addressing climate change:

The Outer Harbor is located in the southeastern extent of the Port of Port Kembla,

Box 9: Port Kembla Outer Harbor Development Environmental Impact Assessment

Purpose of EIA:
Mitigate the adverse wave conditions while increasing the land area available for port facilities.

Methodology

- Assessment of climate change scenarios based on IPCC guide and Commonwealth Scientific and Industrial Research Organization (CSIRO)
- Climate Change Projections on Storm Surge, Sea Level Rise, Temperature, Wind Speed, Precipitation, Evaporation,
- Risk Scenarios on Port, Roads and Rail
- Environmental Risk Assessment
- Ecological Assessment
- Hydrological Assessment
- Heritage Assessment
- Preliminary Hazard Analysis

Mitigation Measures

- Application of PKPC risk management and emergency regimes
- Reduced operational expenditure on energy.
- Reclamation and Dredge Management Plan
- Soils and Water Management Plan
- Acid Sulfate Soils Management Plan
- Traffic Management Plan
- Promotion of renewable energy generation.
- Design of marine habitat friendly structures.
- Use of Water Sensitive Urban Design initiatives.
- Building Marine Habitat Friendly Structures
- Water Sensitive Urban Design

Source: Port Kembla Outer Harbour Development, 2009.

which is located within the Wollongong Local Government Area of Australia. Constraints to development of the Outer Harbor were identified during a master planning process, which requested that these constraints were relieved by designing a reclamation footprint that mitigates

the adverse wave conditions, while increasing the land area available for port facilities. Key considerations during the master planning process included: climate change issues surrounding land uses, contamination, hydrology and water quality, aquatic and terrestrial ecology and heritage. While the development of the Outer Harbor was based on a design life of 100 years, its coastal location and operational nature of the development means that the port is vulnerable to climate change impacts that affect coastal environments.

Methodologies for addressing climate change have included the assessment considerations based on IPCC guidelines and scenarios. The EIA incorporated an environmental risk analysis to identify potential environmental impacts associated with the project construction and operation. In addition, a range of mitigation options were outlined, which include the promotion of renewable energy generation, the design of marine habitat friendly structures, the use of water sensitive urban design initiatives and the reduction of operational expenditure on energy (See Box 9). The community and stakeholder consultations have included climate change issues and the provision of information, and offered opportunities for community and stakeholders to engage with project team members.

8.1.2 Case 3: The Nile Basin Initiative: Nile Equatorial Lakes Subsidiary SEA Action Program

Best Practice SEA with good approaches for developing policy options and the comparison of these options in terms of the climate change and the environment, socio-economic and risk considerations:

A Sectoral Environmental Assessment was conducted for the formulation of an indicative power development strategy for Nile Equatorial Lakes (NEL) Region. Participant countries were Tanzania, Rwanda, Burundi, Eastern Democratic Republic of Congo, and Kenya. The basis for the SEA was the implicated difficulties in the absence of electricity in both rural and urban areas, which poses a constraint for the economic development for the region (See Box 10). The purpose of the SEA was to provide an overall analysis of the social and environmental issues surrounding possible regional power development options in the NEL Region of Africa. The SEA analyses identified power options based on a combination of cost, social, environmental and risk considerations.

Climate change was considered directly in the SEA process by undertaking a climate change risk assessment, which revealed that while there is a high probability of increases in runoff for the northern and central-west regions, for the southern region, there is a high likelihood of changes in seasonality of runoff, resulting in lower effectiveness for flow regulation of smaller reservoirs. The identification of plausible predictions of potential climate change in the region was based on analysis of results from existing climate change models. Predictions for temperature, precipitation, and consequent runoff changes were made for the years 2050 (beyond the economic life of existing and planned projects) using multi scenarios. Significant cumulative impacts in terms of their magnitude, geographical scope, duration and frequency were forecasted using several models and scenarios. Runoff simulations, as well as modeling and sensitivity analyses, provided insight into what global, regional and local climate variables may be in the

future under various economic scenarios. Tools for climate analysis included general circulation models, evaporation and runoff analysis, and risk and sensitivity analysis.

Public consultation was an integral part of the SEA. A stakeholder analysis was conducted in a two-stage process, which included ministries, local administrators, power utilities, civil society, local and religious communities, and academia. Stakeholders raised suggestions that proposed that strategies should focus on realistic projects by emphasizing locally available power, such as the combination of thermal and hydropower. Also, stakeholders contributed to the assessment of power needs, the screening of projects, the selection of power options, and the identification of mitigation actions.

BOX 10: Nile Basin SEA Initiative

Basis for SEA:

Tanzania, Rwanda, Burundi, Uganda, Eastern DRC, and Kenya agreed that the development of low-cost power generation and regional electricity trade are means to improving productivity and to promoting economic growth in the region. For this reason and SEA was conducted to address actions that are urgently required in order to eliminate the current shortages of power and to ensure that sufficient power is available in the future to meet the load with a reasonable and realistic reserve margin.

Approach and Analytic Process:

The SEA was conducted over a three-year period in two stages within the framework of the NBI/NELSAP. Key elements included:

- A period of analysis of about 15 years, up to 2020
- Assessment of (calculated/forecasted) climatic changes and runoff due to climate change
- The solicitation of stakeholder viewpoints in each step of the SEA
- The use of existing data, as well as information provided by the East African Community Power Master Plan and national power master plans
- Consideration of the legal and regulatory framework of each of the countries, as well as relevant international agreements and conventions
- Consideration of power development options limited to those that could have a regional impact
- Ranking of power development options according to cost, environmental, social and risk factors
- Preparation of example portfolios of investments to satisfy alternate development strategies and load growth scenarios
- Preparation of a NELSAP Indicative Power Development Strategy to guide future investment planning.

Tools Applied for Policy Assessment:

Policy, legal and administrative review, Stakeholder Analysis. Regional power needs assessment
Cumulative impact assessment of portfolios, Communication Strategy
Inventory of power development options, Screening of options
Comparative analysis of options Ranking of options
Power development strategy/Plan

Tools for Climate Analysis

- General Circulation Model (NCAR6 model MAGICC/SCENGEN)
- Evaporation and Runoff Analysis (WATBALL Modeling)
- Risk and Sensitivity Analysis
- Mitigation Measures

Policy Outcomes: Recommended Policies to Countries:

- The six countries will need to put in place appropriate compensation and involuntary resettlement policies similar to the ones contained in the World Bank's Operational Policy OP 4.12.
- Power trade will need to be favored through facilitating legislation or regulation.
- Imports need not be regulated or, if they are, as little as possible. All that would need to be checked is that they are not more costly than national generation when such is available.
- As for exports, the law on energy should contain a clause authorizing the government or the minister responsible for energy to set conditions by decree or to limit exports for the purpose of operational security of the network and quality of supply.

Source: Nile Basin Initiative, Final Report, 2007.

The overall recommended policy outcomes from the SEA were the following:

- First, the six countries will need to put in place appropriate compensation and involuntary resettlement policies, or at least, as Kenya does, commit to abide by rules similar to the ones contained in the World Bank's Operational Policy OP 4.12.
- Second, power trade will need to be favored through facilitating legislation or regulation. Presently, only Burundi appears to offer the required flexibility in its legal framework.
- Third, power imports need not be regulated or, if they are, as little as possible. All that would need to be checked is that they are not more costly than national generation when such generation is available. What is of primary importance is for the Government to give itself the utmost flexibility in order to be able to react rapidly to fast evolving conditions.
- Fourth, as for exports, the law on energy should contain a clause authorizing the government or the minister responsible for energy to set conditions by decree or to limit exports for the purpose of operational security of the network and quality of supply, as is the case in Burundi. In addition, acting through decree rather than legislative amendment would allow the government to adjust faster to changing conditions.

8.1.3 Case 4: The Murrumbidgee to Googong Water Transfer Project, Australia.

Best Practice EIA with risk assessment methodologies and procedures for addressing climate change:

An Environmental Impact Assessment was conducted for the Murrumbidgee to Googong Water Transfer Project as a recommended option for delivering improved security to the water supply for the Australian Capital Territory (ACT) region. The transfer of water supplements naturally inflows to the reservoir, which had decreased by about 85% between 2001 and 2008. The purpose of the project was to build the Googong Reservoir to supply treated drinking water to Queanbeyan and the ACT in accordance with the requirements of Part 3A of the NSW Environmental Planning and Assessment Act 1979 and section 216(2) of the ACT Planning and Development Act 2007. The strategic context and need for the project was based on projections and predictions of climate change and variability. The assessment included the consideration of climate change risks and impacts of the project and its relationship with the broader global and regional cumulative impacts of climate change. In this regard, a hydrology assessment and the fluvial geomorphic assessment was undertaken to examine the physical climate change impacts on the project and associated impacts for the project infrastructure (refer to Box 11). Other methodologies included model scenarios based on historical and stochastic data on worst case projections and confirmed climate change studies conducted by CSIRO, suggesting a decline to water inflows in the medium and long term outlook (i.e. beyond 2030) for water supply. The EIA applied significant climate planning tools identify options for securing the supply of water for existing and future ACT and Queanbeyan residents.

Box 11: The Murrumbidgee to Googong Water Transfer EIA Project, Australia.

Purpose of EIA:
Mitigate the environmental impacts of the Googong Reservoir to supply treated drinking water to Queanbeyan and the ACT

Methodology

- Environmental Risk Assessment
- Assessment of climate change scenarios based on the Commonwealth Scientific and Industrial Research Organization (CSIRO)
- Hydrological modeling focusing on water transfer volume, historical flow data, flooding, frequency and impact on depth and velocity. [HEC-RAS and REALM models.
- Environmental Flow Rules
- Future Climate Risk Scenarios on Reservoir Ecological Assessment
- Hydrological Assessment
- Heritage Assessment

Source: Murrumbidgee to Googong Water Transfer Draft EIA Project, 2009.

8.1.4 Case 5: Environmental Assessment of the Koondrook-Perricoota Forest Flood Enhancement Works, Australia.

Best Practice EIA with risk assessment framework and procedures for addressing climate risks:

The EIA of the Koondrook-Perricoota Forest Flood Enhancement Works in Australia addresses anticipated environmental impacts from the proposed project that aims to reinstate critical flooding processes to the Koondrook-Perricoota Forest to improve and protect forest health. The project involves the installation of engineering structures and channels to divert and control flows (from the Murray River) through the forest in order to mimic a natural flooding event. The EIA particularly addresses key environmental risk analysis that identifies climate change as a key environmental issue and as well establishes a risk framework that defined boundaries for risk likelihoods and consequences (Illustrated in Figure 11 below).

Box 12: Environmental Impact Assessment of the Koondrook-Perricoota Forest Flood Enhancement Works, Australia.

Purpose of EIA:
Mitigate the environmental impacts of proposed project that aims to reinstate natural flooding processes through the Koondrook-Perricoota Forest.

Environmental Risk Analysis Framework

- Identify type of risks
- Analyze identified risks
- Evaluate the risks through Ranking
- Outline Management measures to mitigate risks
- Determine residual level of risk after application of management measures

Stages of Management of Risk Measures

- Identification of risks consequence levels
- Establish the level of risk likelihood
- Define risk rating categories (low, medium and high)

Other Methods

- Hydrological/scenario modeling focusing using historical flow data, flooding frequency and extents,
- Water Accounting [Commonwealth Water Accounts/NSW Environmental Water Accounts.
- Ecological Assessment
- Hydrological Assessment
- Heritage Assessment
- Water Quality Assessment

Source: Murrumbidgee to Googong Water Transfer Draft EIA Project, 2009.

9.0 Lessons:

The focus of this review is to provide some best cases on how EIA/SEA approaches have helped mainstream climate change into strategic planning, in order to reduce the hazards, risks and vulnerabilities posed by climate change to systems and populations. Most of the projects reviewed were EIAs for which some lessons and conclusion can be drawn.

These cases illustrate *the essential determination whether climate change is an actual or potential factor at the preliminary stages of project and capacity development consideration.* The EIAs reviewed identified climate change as a key environmental issue that must be addressed at all project phases. It is, however, expected that the realization of the climate change elements would influence and as well be integrated into the project engineering design and the operation of project components. The initial review raised important questions about existing climate information and capacities' gaps of existing national environmental planning personnel and planning mechanisms on climate change. By formalizing a requirement to consider the effects on climate for projects, it may be expected that there will be sufficient forecast and climate data available to evaluate issues. Where lacked, data from the IPPC and the Commonwealth Scientific and Industrial Research Organization (CSIRO) climate change scenarios and assessment guide were applied. Also, it is expected that regulatory personnel would be knowledgeable and can adequately assist and be consulted by proponents before deciding how to incorporate climate change considerations. Addressing the climate change capacity gaps of environmental regulators through the provision of technical training and

awareness-raising workshops on EIA/SEA approaches and emphasizing how risk assessment tools can help facilitate climate change mitigation and adaptation would be a necessary step.

All the EIAs reviewed *displayed the application of environmental risk assessment procedures and appropriate tools during the scoping phase*. Typically, key hazards associated with the project and development of the overall study design were determined. Setting the context and compiling background information included reviewing the project and identifying risk pathways based on conceptual models, establishing a risk framework including definitions of likelihood and consequence, assigning risk ratings using expert input often in a risk workshop setting, reviewing and refining risk ratings, and identifying mitigation measures to address key risks. However, the processes had limitations, which probably are due to the different interpretations of terms and concepts by participants, diverse conceptual models as a basis for risk assessment, which in some cases are oversimplified system interactions, generally considered linear risk pathways that ignore cumulative and synergistic impacts subject to individual expert analysis.

Although not many climate change addressed SEAs were available for this review, a much more general lesson is the reviewed case ability *to draw stakeholders support in identifying the need to assess climate change considerations in the context of SEA*. For example, the SEA for the Nile Basin Initiative categorically considered the need for climate change considerations in the context of energy development options for its SEA, included it as an objective in the SEA and sufficiently identified the necessary stakeholders for decision making. The SEA provided an overall analysis of the social and environmental issues surrounding possible regional power development options in the NEL Region of Africa and identified power options based on a combination of cost, social, environmental and risk considerations. A stakeholder analysis, policy, legal and administrative reviews were best practice approaches conducted to understand sectoral political economy of issues. Understanding the political economy displayed at the sectoral and strategic level during the preparation of a policy based SEA will most often determine the success of the SEA exercise[172]. The reason being that sector reform brings about significant policy change involving adjustments in laws, policies, regulations and institutions enshrouded in the complex, but intrinsic, political process often driven by strong idiosyncratic interests.

From the above findings, it can generally be concluded that the initial screening and the scoping phases form crucial stages for climate change adherence. Some key questions that practitioners may have to take into consideration for EIA best practice are

Initial/Screening Phase:

- *Is climate change an issue or factor for proposed EIA and where can information and technical support be attained?*
- *What specific climate changes are anticipated to occur over the life of the project?*

Scoping Phase:

[172] World Bank (2010) Policy SEA: conceptual model and operational guidance for applying strategic environmental assessment in sector reform. http://docs1.eia.nl/cms/Policy%20SEA-Final%20Report-2010.pdf

- *Are there likely GHG mitigation and adaptation considerations associated with the project that should be addressed in greater detail, and what are the impact considerations?*
- *What tools and methods can be applied to assess the environmental risks and determine the appropriate climatic parameters?*
- *What steps should be taken to emphasize the inherent uncertainty with respect to the existing climate change data? Are there appropriate guidelines that can help define impact significance?*

Generally, projects' resistance to withstand extreme circumstances, resilience to recover quickly once extreme circumstances return to normal and their adaptability of projects with respect to uncertain changes in climate cannot be underestimated.

For SEAs, major entry points for climate influenced SEA best practice will include the identification of climate change as an important influencing factor for sector reform, adhering to processes that will ensure that climate change gets on the policy agenda and applying approaches that ensure that relevant stakeholders are identified and involved in the process. Some relevant questions include

- *Should climate change considerations be necessarily assessed and established in the context of the proposed sectoral SEA?*
- *What tools are needed to ensure that climate change and environmental priorities are placed on the policy agenda and linked to growth, poverty reduction or other key development issues?*
- *Who are the relevant key stakeholders and to what extent can their priorities be identified and shared in support of the sectoral reform SEA?*
- *What mechanisms are available to clearly disseminate information for environmental policy and decision-makers on climate change challenges, and how does that affect their constituents' developmental growth?*

Table 1: EIA/SEA Generic Areas of Interest

Generic Areas of Interest	
EIA	**SEA**
Focus on climate risks, impact mitigation, and adaptation on the environment	**Focus on process, outcomes and local ownership in support of climate change**
• Establish the need for climate change consideration at the initial stages of proposed project • Locate avenues for climate information and technical support • Identify specific stakeholders to help factor in climate change in the EIA • Identify appropriate climate tools and methods, such as risk assessments, scenario models, etc. • Develop climate mitigation, resilience, adaptation and monitoring measures • Identifying appropriate risk insurance products for private assets and public goods	• Establish the need for climate change consideration during the initial stages of sectoral reform discussions • Locate avenues for climate information and technical support • Identify relevant stakeholders for policy reform, such as stakeholder analysis, political economy assessments, situation assessments, vulnerability analysis, etc. • Ensure national and local ownership processes • Identify appropriate climate and policy assessment tools and methods • Identify and adopt appropriate and effective communication of outcomes to policy makers

10.0 Suggestions for future work

For any future work, it is necessary that additional best practice cases are reviewed to widen knowledge on this innovative, but emerging relationships existing between climate change and EIA/SEA effectiveness. For EIA, more cases could be drawn to illustrate how actual and potential climate change impacts in the environment of the project can be assessed and comparatively analyzed. Whereas for SEAs, the political economy challenges and entry points to the policy process are identified for mainstreaming climate change into the policy making process. Being able to identify the entry points for climate change maneuvers within EIA and SEA may trigger new understandings where new strategies and guidance will emerge to support best practices.

Also, the MDB's and IFI's reviewed have project cycles that generally share the same steps: identification, preparation, appraisal, negotiations and board approval implementation and supervision, and post-project evaluation. Each of these project phases has significance for the institution's environmental impact assessment requirements, either in matters of decision-making or review and monitoring. It will be worthwhile to review key points in the project cycle from the perspective of climate change and environmental impact assessment procedures to better understand variations and similarities.

Furthermore, continually and comparatively assessing the respective overarching climate change frameworks for MDBs, IFIs and countries may reveal details of commonalities, challenges, and knowledge gaps, thereby providing both policy makers and research managers with enhanced insights into the variety of approaches taken by financial institutions and countries, and to thus

facilitate the exchange of information on how to tackle climate change and develop relevant research agendas.

ANNEX 1

Chart Showing Multilateral Banks' Environmental Due Diligence and Climate Change

Bank	EIA Safeguard	Climate Policy	Strategic Goal for Climate Policy	Priority Areas with ongoing Climate Interventions	Reference to related Climate Change issues in Safeguards
World Bank (IBRD)	OP/BP 4.01 Environmental Assessment Last updated in March 2007	Development and Climate Change, 2008.	Guide and support the operational response of the World Bank Group (WBG) to new development challenges posed by global climate change. Framework will inform and support and not override the operational strategies of WBG entities.	• Energy and energy efficiency • Transport • Water • Urban	• Screening of relevant projects for climate risks starting with hydropower projects: Began in 2009 • Tracking climate-related portfolio with focus on projects addressing climate risks and vulnerability in IDA countries: Began in 2010 • CC mentioned only ones in footnote reference to transboundary and global environmental aspects (p. 78) •
IDB	Environment and Safeguards Compliance Policy. Last updated in 2006	Strategic framework for supporting climate change action in Latin America and the Caribbean, March 2010	Guiding instrument for scaling up IDB support for actions to mitigate and adapt to climate change within Latin America and the Caribbean (LAC).	• Energy and energy efficiency	• Yet to develop guidelines and criteria for mainstreaming climate change mitigation in its operations • CC mentioned only once referring to IPCC(p.12)
AsDB	Safeguard Policy Statement Last updated in 2010	Climate Change Programs/Strategy, 2009	Establish a Low Carbon Technology (LCT) Market Place, which would bring together enterprises that can effectively exploit the full potential of LCTs in the immensely large and rapidly expanding energy markets in Asia and the Pacific.	• Energy and energy efficiency • Transport	• Climate-proofing the transport sector. Pilot projects will be used to develop guidelines which can be applied to other transport projects and plans • Mentioned CC as one of the core specializations of its operations (p. 4).. • CC included as a transboundary global impact p 16. • CC mentioned in reference to IPCC(p.43)
AfDB	Environmental Policy Procedures Last updated in 2004	Climate Risk Management and Adaptation Strategy	To ensure that progress is maintained by African countries towards the eradication of absolute poverty and there is steady improvement of people's living conditions in spite of Climate change.	• Climate Proofing Investments • Policy, Legal and • Regulatory Reforms: • Knowledge Generation and Capacity Building	• Yet to revise procedures for conducting operations due-diligence to incorporate climate risks. • Bank's Environment and Social • impact Assessment (ESIA) guidelines will be replaced by a new, more comprehensive Environment, Climate and Social Impact Assessment guide. • CC mentioned in reference to UN conventions (p. 11) and threat to global public goods (p.16). • Addressed finance initiatives to combat climate change with focus on the private sector (p. 23). • Collaborate with other MDB's on climate change (p. 33). • Highlighted CC as NEPAD's priority area (p. 53).
EBRD	Environment and Social Policy Last updated in May 2008	Sustainable Energy Initiative	To ensure that through the SEI, energy efficiency and climate change have been integrated within the overall strategy of the EBRD and mainstreamed across the organization by each operational department.	• Energy and energy efficiency • Carbon market development	• Systematic screening of EBRD projects underway • Has incorporated CC into policy
IFC	Environmental, Health, and Safety General Guidelines Last updated in 2007	Performance Indicators 3	Standing between the public and private sectors, to bring market-based solutions to the challenge of creating low-carbon economic growth that meets the needs of the poor.	• Energy and energy efficiency • Mobilizing finance for sustainability	• Yet to revise procedure to incorporate CC to due diligence CC used to refer to UNFCC (pp 9&10). • Emphasis on GHG reduction and mitigation issues 10. • No mention made on climate risk, vulnerability and adaptations. CC used to refer to UNFCC (pp. 9&10). • adaptations.

ANNEX 2

Chart Showing International Financial Institutions' Environmental Due Diligence and Climate Change

Bilateral Development Agencies	EIA Safeguard	Overarching Climate Policy Guidance	Climate Initiatives	Safeguard Reference to Climate Change
USAID	Environmental Procedures. ADS Chapter 204. Reviewed 2009	U.S. Climate Action Report—2010 (2010 CAR) sets out the major actions the U.S. government is taking at the federal level, state and local actions, and outlines U.S. efforts to assist other countries' efforts to address climate change.	The USAID Climate Change Initiative (CCI) I billion 5 yr initiative in over 40 countries to support developing country participation in UNFCCC	Climate change not mentioned
DFID	Manual of Environmental Appraisal, 1996	Climate Change Act 2008, which focuses on long-term framework to cut carbon emissions		Climate change mentioned as core technical knowledge necessary for environmental change p1
JICA	Guidelines for environmental and social considerations, effective July 2010	Climate policy based on the Cool Earth 50 (2007) and the "Cool Earth Partnership," a climate change financial mechanism (2008).	Climate policy based on the Cool Earth 50 (2007) initiative which focuses on the long term reduction of GHG, global warming and campaigning to achieve the Kyoto protocol targets. Followed by the "Cool Earth Partnership," a climate change financial mechanism (2008).	Climate change mentioned as an impact that needs to be assessed (pp. 13 & 29).
DANIDA	Danida Environment Guide, 2009	No specific climate change policy. DANIDA Energy policy, however, discusses the reduction of GHG.	Climate and Development Action Program and the Environmental Strategy	Climate change referred to as causes of vulnerability to the poor p15. Adaptations to Climate change linked to the 'Climate and Development Action Programme', integrating Sustainability to Danish development cooperation (p. 18)
CIDA	CIDAs policy for environmental sustainability, 1992	No specific policy yet. Federal CC guidance under discussion	Several projects focusing on capacity building, adaptation and mitigation.	Climate change not mentioned
OECD	EIA guideline No.1, 1992	Policy Statement (2010): Integrating Climate Change Adaptation into Development Co-operation: Policy Guidance. Detail guideline for incorporating national, sector and project level portfolios. Adaption and Mitigation addressed.	Policy Guidance- Integrating climate change Adaptation into development co-operation. Rio marker for adaptation	Climate change not mentioned
SIDA	Guidelines for the Review of Environmental Impact Assessments, 2002	No climate policy yet. Anticipated in 2010.	The SIDA Special Climate Change Initiative. SEK 1.15 billion over 4 years (2009–2012) in support of climate change adaptation	Climate change mentioned in footnotes in reference to UNFCC (pp. 40, 63,67, 71, 79, 83, 102), and climate conventions objective to stabilize GHG (p. 59).
GTZ	Environmental Sustainability, 2005	No overarching climate policy. However, projects such as transport consider CC and the reduction of GHG based on GTZ sourcebook 5e.	German Water Initiative	Climate change not mentioned

Annex3:

Chart Showing Climate Change Reporting, Certification and Emission Reduction Frameworks

Climate Change Reporting, Certification and Emission Reduction Frameworks		
Initiative	**REGISTRIES**	Websites
World Economic Forum Global GHG Registry	Global initiative to stimulate voluntary disclosure and management by companies of their worldwide climate emissions. The methodological basis for preparing the inventory is the GHG Protocol.	www.pewclimate.org/we_forum.cfm
The California Climate Action Registry (CCAR)	Voluntary GHG registry established in 2000 to promulgate standards and tools to measure, report, verify and reduce GHG in California and in the US. To date, 300 corporations, cities, public agencies from California measure, monitor and publically report on GHG emissions, using the CCAR protocols.	www.climateregistry.org
	BENCHMARKING EXERCISES	
Carbon Disclosure Project (CDP	CDP provides global corporate information on climate change, based on voluntary responses to CDP surveys by companies from the Global 500, FTSE 350 and S&P 500 indices. The information is reported annually in CDP reports (already 6 editions). In addition, CDP produces a Carbon Disclosure Leadership Index ranking the 60 best performing companies.	www.cdproject.net
Ceres and Risk Metric Group Climate Change Governance Framework	Checklist addressing corporate response to climate change (including board oversight, management execution, public disclosure, emissions accounting and management), against which 100 US companies were benchmarked in 200625 and 63 consumer and technology companies were assessed in 2008.	www.ceres.org
	BROADER REPORTING FRAMEWORKS	
Global Reporting Initiative	Guidance for any organization to disclose their sustainability performance. The GRI addresses a much wider set of issues that emissions reporting. It provides a framework to disclose information on economic, social and environmental performance.	GRI: www.globalreporting.org
Global Framework for Climate Risk Disclosure	Framework to encourage standardized climate risk disclosure to investors and its insertion in existing reporting mechanisms (business risks and opportunities resulting from climate change and companies efforts to address them).	Investor Network on Climate Risk: www.incr.com
	COUNTRY SPECIFIC INITIATIVES	
New Zealand Business Council for Sustainable Development	Guide and on-line calculator to help organizations to measure and manage GHG emissions for voluntary purposes. The guide builds on the GHG Protocol to measure the carbon footprint, use that information to reduce footprint, and explore options to offset those emissions that cannot be reduced.	Business Council for Sustainable Development (New Zealand): www.nzbcsd.org.nz/emissions
Bilan Carbone	Methodology for corporate GHG accounting and website detailing the methodology and making available a list of certified organizations able to carry out the assessment. The methodology is compatible with ISO 14064, the GHG Protocol and the EC Monitoring and Reporting Guidelines for the EU ETS.	ADEME (France): www.ademe.fr/bilan-carbone
	SECTOR SPECIFIC INITIATIVES	
GRI Electric Utility Sector Supplement	Sector-specific disclosure and performance indicators. Expected for 2009	www.globalreporting.org/ReportingFramework/SectorSupplements/ElectricUtilities
Global Climate Disclosure Framework for Electric Utilities	Guidelines to electricity utilities and power generators for presenting information on emissions and on climate change strategy. It complements the GRI Electric Utility Sector Supplement by requiring more detailed information on carbon emissions and corporate strategy to address climate change.	IIGCC, CERES & IGCC: www.iigcc.org/docs/PDF/Public/Globalelectricutilitiesdisclosureframework.pdf
Petroleum Industry Guidelines for Reporting GHG Emissions	Guidelines addressed to the petroleum industry to promote consistent and reliable GHG accounting and reporting practices from oil and gas operations. The guidelines build on the GHG Protocol.	IPIECA, API & OGP: www.ipieca.org/activities/climate_change/downloads/publications/ghg_guidelines.pdf
	CERTIFICATION SCHEMES	
Objectives	**Requirements**	**Methodology**
	Carbon Trust Standard: www.carbontruststandard.com	
Launched in June 2008 By Carbon Trust in the UK to	Organizations must (i) measure their carbon footprint including their electricity and gas consumption, any onsite fuel consumption (e.g. heating oil, diesel, etc.) and fuel consumption of owned vehicles; (ii) meet an absolute reduction in	The standard builds on the Greenhouse Gas Protocol Corporate Standard and ISO14064-1:2006.

encourage good practice in carbon measurement, management and reduction by businesses and public sector organisations.	emissions or a 2.5% per annum reduction in a carbon efficiency benchmark; and (iii) provide evidence that the organisation is managing carbon in an appropriate manner through effective governance procedures, accurate carbon accounting and carbon management programmes.	To date, 60 (mostly UK-based) organizations have been certified.
Climate Cool Certification: http://climateneutralnetwork.org		
Developed by the Climate Neutral Network for climate neutral products, services, and enterprises, i.e. with net-zero impact on global warming	The first step in obtaining the Climate Cool™ certification is by undertaking an inventory of GHG emissions, using a climate neutral "metrics system" paper. Once the enterprise footprint is established, the company can develop an application for climate neutral certification by creating and implementing a portfolio of projects including both internal, on-site reductions and external offset investment projects to mitigate the remaining climate impacts of their operations.	The Network˝s protocol was developed to be consistent with the GHG Protocol. To date, 8 companies have been certified
Carbon Neutral: www.carbonneutral.com		
Developed by the Carbon Neutral Company for product, service or activity	Requirements: an assessment of CO2 emissions was done by an independent third party, the emissions have been reduced to net zero through internal reductions (change of a manufacturing process for example) and best practice external reductions (carbon offsetting), there is a commitment to reduce emissions internally on an on-going basis, to document progress, and to communicate what has been done clearly.	No reference to specific methodology in the CarbonNeutral protocol, although both ISO standards and the GHG Protocol are mentioned in annex.
NoCO2 and LowCO2 Certification: www.noco2.com.au/web/page/certify		
NOCO2: Company is carbon neutral and has completely removed its climate change impacts	This is metered through an engineering audit that quantifies the greenhouse gas emissions impact from all inputs (products, services and labor) consumed. Upon contractually declaring that it will maintain a zero carbon footprint, the company can display the NoCO2 logo.	The carbon emission assessments, life cycle analyses and reports are conducted in compliance with the ISO 14000 series and the GHG Protocol.
LowCO2: For companies who wish to communicate a percentage reduction in their carbon footprint (displayed on the LowCO2 logo).	This is metered through an engineering audit and emissions monitoring plan. A comprehensive initial emissions audit is fundamental to any claim of carbon reduction. The audit quantifies the greenhouse gas emissions from scope 1 and scope 2 emissions sources, as well as emissions from waste and work related employee travel.	
SELECTED VOLUNTARY GHG EMISSION REDUCTION PROGRAMS		
World Wildlife Fund Climate Savers	Partnership of WWF with leading corporations - including IBM, Nokia, Sony, Coca-Cola and HP - who have agreed to collectively cut carbon emissions by some 14 million tons annually by 2010.	www.worldwildlife.org/climate/climatesavers2.htm
U.S. Environmental Protection Agency Climate Leaders	251 US companies committed to completing a corporate-wide inventory of their GHG emissions, setting aggressive reduction goals, and annually reporting their progress to EPA.	www.epa.gov/climateleaders
American Petroleum Institute Voluntary Climate Challenge Programme	Commitment by API-member refining companies to improve their energy efficiency by 10 percent between 2002 and 2012.	www.api.org/ehs/climate/new/program.cfm
Association des Entreprises pour la Réduction de l'Effet de Serre	French companies from the industry and energy sectors that committed in 2002 to voluntary GHG emissions reductions over 2003/2007.	
Japan Keidanren Voluntary Action Plan	Voluntary commitment by major Japanese industries to stabilize CO2 emissions from fuel combustion and industrial processes at 1990 level by 2020.	www.keidanren.or.jp/japanese/policy/vape/index.html

VOLUNTARY OFFSET STANDARDS			
Scheme	**Scope**		**Methodology**
Gold Standard (www.cdmgoldstandard.org) Developed by WWF	Offset projects and carbon credits (CDM projects). Focus on renewable energy and energy efficient projects in developing countries	CDM methodology Certification	
Voluntary Carbon Standard (www.v-c-s.org). Developed by Climate Group, IETA & WEF.	Offset projects and carbon credits	The VCS assures buyers that the offset project they purchase are real (have happened), additional (beyond business-as-usual activities), measurable, permanent (not temporarily displace emissions), independently verified and unique (not used more than once to offset	

		emissions). It is based on ISO 14064-3:2006.
Green-e Administered by the Centre for Resource Solutions. (www.green-e.org)		Certification for offset sellers. US leading independent certification and verification programme for renewable energy.
Climate, Community & Biodiversity Standards Founded by 13 NGOs and companies. (www.climate-standards.org)	Offset projects. For land-based projects that deliver climate, biodiversity and community benefits.	IPCC Good Practice Guidance & CDM methodology
Plan Vivo (www.planvivo.org)	Offset projects and carbon credits	Plan Vivo certificates represent units of long-term carbon benefit from sustainable community based forest management and agroforestry plus associated quantified, environmental and social benefits. Own "Plan Vivo Standards."
Greenhouse Friendly Australian Government Greenhouse Challenge Plus Programme (www.climatechange.gov.au/greenhousefriendly)	Certification for offset sellers & carbon-neutral products	Greenhouse Friendly Guidelines: the assessment must be performed in accordance with the current Australian Standard for LCA in the ISO 14040 series.
VER+ (www.tuev-sued.de/climatechange) Developed by TÜV SÜD	Offset projects, carbon credits, carbon neutral products	CDM methodology Verification based on monitoring reports from the project developer, conducted by an auditor.
Voluntary Offset Standard European Carbon Investor Services (www.carboninvestors.org)		
Adapted from OECD 2009[173]		

[173] OECD (2009) OECD Conference On Corporate Responsibility http://www.oecd.org/dataoecd/17/42/43356899.pdf

Annex 4:

Chart Showing Examples of Tools and Screening Approaches for Adaptation to Climate Change

Operational Agency	Tool Name	Substantive Coverage	Where and When Applied
Asian Development Bank	Climate –First (Climate Framework integrating Risk Screening tool)	Climate risk screening software tool for rapid assessment of potential risk of projects from a number of pre-determined climate change impacts and risk factors; classification of projects into high, moderate and low risk categories.	Tool / checklist in draft stage (March 2009).
Danish International Development Agency (DANIDA)	Climate change screening matrix *http://ccs-asia.linddal.net*	Guidance and check-list for use by field-mission representatives and Danish development partners. Climate change integrated as part of wider "environment" as a cross-cutting issue.	Testing on sector programmes in 17 countries. Results available for Benin, Bhutan, Burkina Faso, Cambodia, Kenya, Mali, Nepal, Niger.
Department for International Development (DFID), United Kingdom	Opportunities and Risks of Climate Change and Disasters (ORCHID), and Climate Risk Impacts on Sectors and Programmes (CRISP) *http://tinyurl.com/ccorchid* *Integrated screening*	Portfolio (ORCHID) and sector-based (CRISP) climate risk assessment methodologies.	Piloted in five programmes in India, Nepal, Bangladesh, Afghanistan and Pakistan.
Dutch Ministry of Foreign Affairs (DGIS)	Climate quick scans *www.nlcap.net*	Consultant-based "quick scans" of bilateral portfolios to screen them for risks and identify adaptation entry points.	Netherlands Climate Assistance Programme led work in Bangladesh, Bolivia and Ethiopia. Completed in 2007.
German Technical Cooperation (GTZ)	Climate check *www.gtz.de/climate-check*	Climate-proofing and emission saving; ensuring that climate risks and emissions reduction potentials are taken into account for all affected or relevant development co-operation activities.	Piloted in Morocco and India in 2008.
Swiss Agency for Development and Cooperation (SDC) / Inter-cooperation	Community-based Risk Screening Tool – Adaptation and Livelihoods (CRiSTAL) *www.iisd.org/security/es/resilience/climate_phase2.as*	Project management tool to help *(a)* understand the links between local livelihoods and climate; *(b)* assess a project's impact on livelihood resources important for climate adaptation; and *(c)* devise adjustments to improve a project's impact on these key livelihood resources.	Field-tested on natural resources/livelihoods projects in Bangladesh, Mali, Tanzania, Nicaragua, Sri Lanka, Ecuador and India.
United States Agency for International Development (USAID	SERVIR-viz climate mapper *www.servir.net*	GIS-based information tool for environmental decision-making.	Meso-America, with current development of tools for Africa.

World Bank	World Bank climate change portal, including ADAPT tool *http://sdwebx.worldbank.org/climateportal*	Google maps-based platform representing wide range of data; the portal presents climate model outputs, historical climate observations, natural disaster data, crop yield projections and socio-economic data.	ADAPT tested in South Asia and sub-Saharan Africa.
Source: Adapted from OECD, 2009.[174]			

[174] OECD (2009) Policy Guidance on Integrating Climate Change Adaptation into Development Co-operation.

ANNEX 5

Glossary of Climate Change Terminology

Adaptation – A process by which strategies (policies, actions and other initiatives) moderate, cope with or take advantage of the consequences of climatic events are enhanced, developed and implemented.

Capacity – The ability of a system to adjust its characteristics or behavior in order to expand its coping capacity under existing climate variability or future climate conditions. Actions that lead to adaptation can enhance a system's coping capacity and increase its coping range, thereby reducing its vulnerability to climate hazards. The adaptive capacity inherent in a system represents the set of resources available for adaptation, as well as the ability or capacity of that system to use these resources effectively in the pursuit of adaptation.

Climate Change - Any significant change in climate over time, whether due to natural variability or because of human activity. Human activity leading to climate change primarily includes emission of greenhouse gases into the atmosphere, leading to less radiation of heat and global warming.

Climate Change Mitigation - Response measures that reduce the emission of greenhouse gases into the atmosphere or enhance their sinks, aimed at reducing their atmospheric concentrations and therefore the probability of reaching a given level of climate change.

Climate Change Vulnerability - The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity.

Climate Proofing - Actions to ensure that development efforts are protected from negative impacts of climate change, climate variability, and extreme weather events and to ensure that climate-friendly development strategies are pursued to delay and reduce damages caused by climate change.

Climate Resilience - The capacity of a system, community or society potentially exposed to climate hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.

Climate Risk - The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged), resulting from interactions between climate-induced hazards and vulnerable conditions.

Climate Risk Management - An approach to systematically manage climate-related risks affecting activities, strategies or investments, by taking account of the risk of current variability and extremes in weather, as well as long-term climate change.

Climate Variability - Reflects shorter-term extreme weather events, such as tropical hurricanes and the El Niño Southern Oscillation (ENSO), and North Atlantic Oscillation (NAO). Variability may be due to natural internal processes within the climate system (internal variability), or to variations in natural or anthropogenic external forcing (external variability).

Extreme Events – Climate events departing markedly from the average values or trends, and that is exceptional. Mostly, the return period substantially exceeds 10 years.

Mainstreaming - In the context of addressing climate change and related issues, the term "mainstreaming" is used to describe the integration of policies and measures to address climate change in ongoing and new development policies, plans, and actions. Mainstreaming adaptation aims to enhance the effectiveness, efficiency, and longevity of initiatives directed at reducing climate-related risks, while at the same time contributing to sustainable development and improved quality of life.

National Adaptation Programme of Action (NAPA) - National Adaptation Programmes of Action (NAPAs) are intended to communicate priority activities addressing the urgent and immediate needs and concerns of Least Developed Countries (LDCs), relating to adaptation to the adverse effects of climate change.