Applying New IFC Standards on Climate Change Risk Analysis

Lessons from "early cases" of post-2012 ESIAs aiming for IFC compliance

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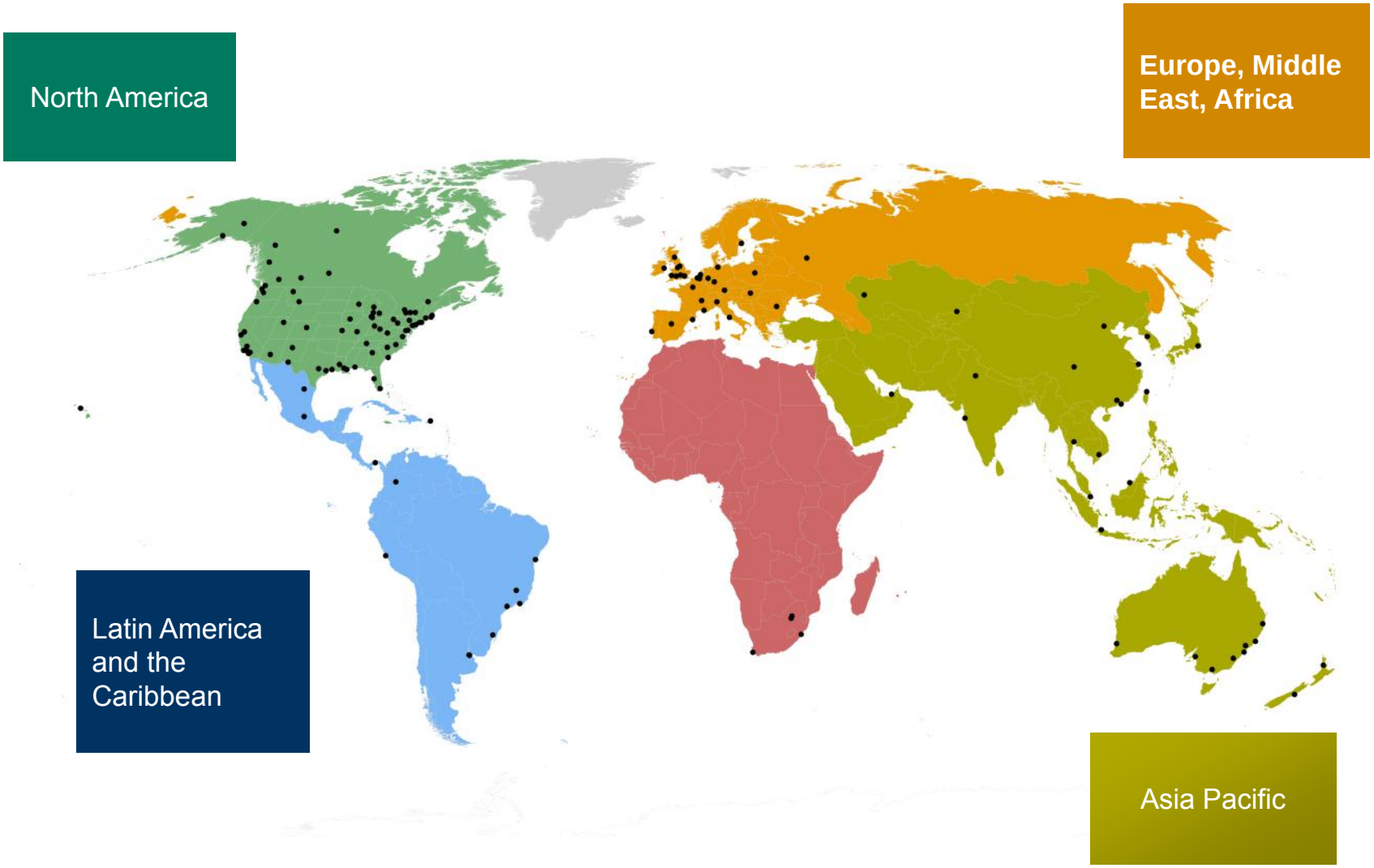
- We have worked closely with over 50% of the Global Fortune 500 companies in the past five years
- Projects in more than 170 countries
- Annual Gross Revenues of US$799m (FY12)
- Over 40 year history

Our global reach



What does ERM do?

- **Provides solutions** to balance environmental concerns with management, economic, technological and social needs
- Works with the **business and regulatory worlds, and local communities**
- **Delivers results** that enable our clients **to maximize earnings**, comply with regulations and **improve their corporate reputation** and public perception
- **Focuses on sustainability** and how our clients can improve their overall environmental impact

Climate change: the problem

Climate Change Risk

- Need to move from static to dynamic understanding of “project baseline”, and implications for project risks and impacts
- Climate change risks to a project, with bottom line implications:
  - Delays to construction
  - Disruption to operations
  - Asset damage
  - Impacts to associated infrastructure / transport networks (e.g. rail links and ports)
  - Disruption to energy supplies
- These changes are also altering the risk/impact profile of projects vis-à-vis communities and the natural environment

IFC Standards

Key changes to IFC 2012 Performance Standards

Standard		New Requirements
1	Assessment and Management of Environmental and Social Risks and Impacts	The risks and impacts identification process will consider the emissions of greenhouse gases, **the relevant risks associated with a changing climate** and the **adaptation opportunities…**
4	Community Health, Safety, and Security	**Consider the effects of climate change on community risk and vulnerability** in identification and evaluation of project risks and impacts to community health, safety, and security, with particular attention to vulnerable groups
6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	**Consider the effects of climate change to ecosystem services and natural habitat, and the role of each in mitigating climate risk,** in identification of and evaluation of project impacts to the natural environment

Current Practices

Methodology

- Examined Category A ESIAs (19) on IFC website with disclosure dates between January 2012 and February 27, 2013
  - Looked for Climate Change reference in Environmental and Social Review Summary text
  - When CC risks mentioned in summary, reviewed full ESIA
- Compared ESIA contents against requirements from Performance Standards on climate risk and vulnerability

IFC Database of Category A Projects

Sector	Number of Projects	Mention of Climate Change Risk/Adaptation in relation to project
Agriculture	2	1
Industrial	4	0
Infrastructure	2	0
Mining	2	1
Oil & Gas	3	0
Power	5	0
Renewables	1	0
TOTAL	19	2

To increase sample size, ERM consulted internally and with professional networks for other project ESIAs aiming to meet 2012 IFC Performance Standards

*as of February 27, 2013

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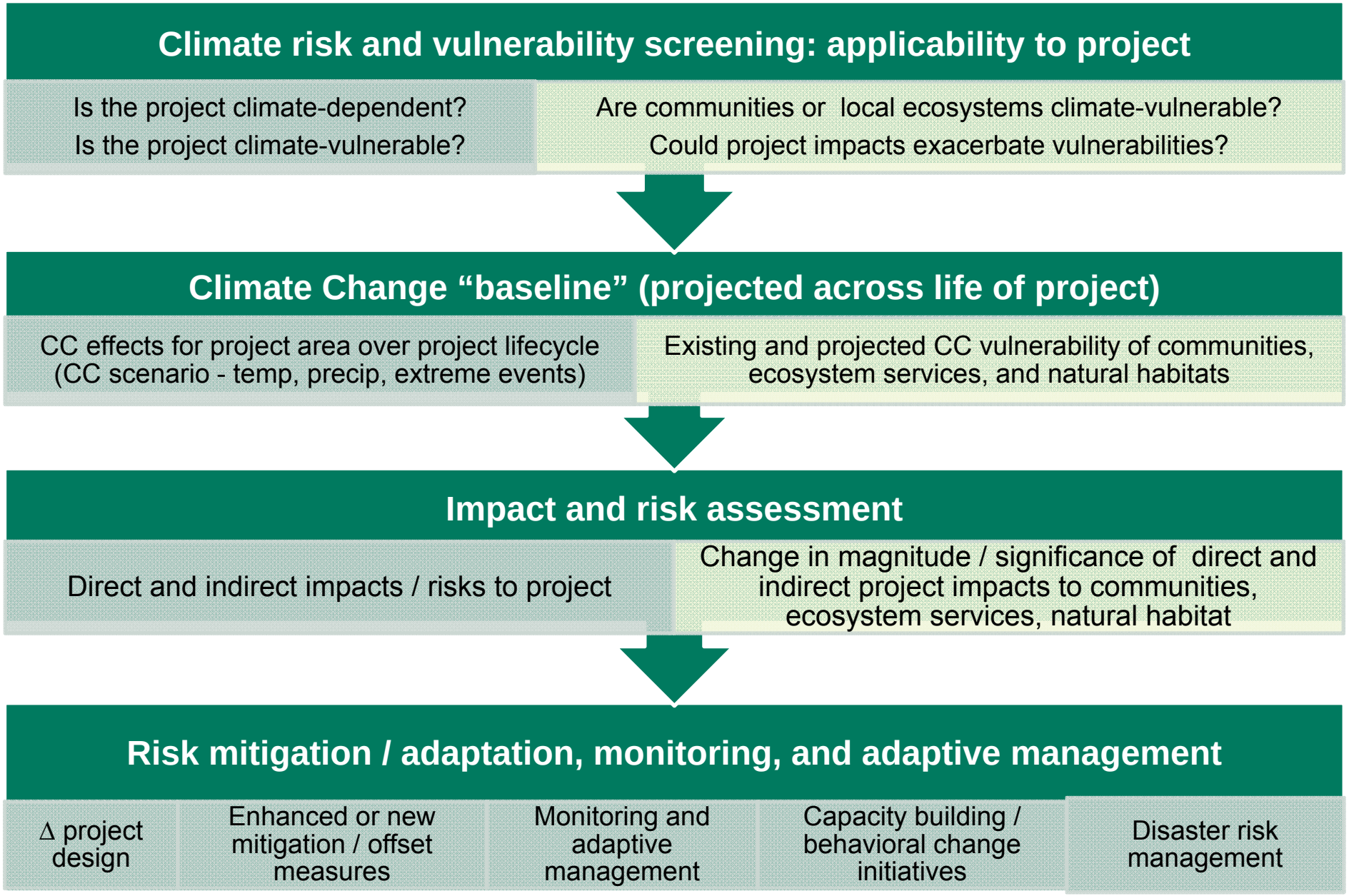
ESIAs Reviewed

- From the IFC disclosure website:
  - Port Gentil Fertilizer (Ammonia-Urea) Plant, Gabon
  - Oyu Tolgoi Copper/Gold Mine, Mongolia
- From internal or other professional sources:
  - Confidential Zinc Mine, Southern Africa
  - Confidential Bioethanol Project, South America

What are we aiming for?



Summary of Findings – approach and "baseline"

- No consistent methodology in evaluating climate risks/ impacts within ESIAs reviewed
  - Range of depth of analysis and location within ESIA document; generally poor integration with rest of study
  - "Baselines" generally refer to regional IPCC projections / qualitative trends; partial (if any) discussion of CC vulnerability of communities and ecosystems in project area
- Greater focus on slow-onset climate changes -- e.g., increasing average temp and changes to average precipitation – than on expected changes to frequency or intensity of extreme events

Summary of Findings – Impact/risk analysis (1)

Project	CC risks/impacts to the project	CC effects on project impacts to communities	CC effects on project impacts to natural environment
Southern African Mine	Water shortage risk, flooding from extreme events, impacts to workforce	Impacts to surrounding communities from water stress (including food security issues) and flooding	Not discussed
Oyu Tolgoi Mine (Mongolia)	Water shortage risk	Increased water stress for herders; increased dust impacts to local communities	Not discussed
Port Gentil Fertilizer Project (Gabon)	Sea level rise – threat to project facilities	Not discussed	Not discussed
South American Bioethanol Project	Water shortage risk	*Indirect mention*: Effects of reduced river flows on water security and greater impacts from project discharges	*Indirect mention*: Reduced river flows -> intensified effects to biodiversity

Summary of findings: Impact/risk analysis (2)

- Project analysis focuses on key facilities. Limited mention of risks to supply chains; only one ESIA mentions risks to workforce or associated facilities
- Community impacts – partial analysis; stronger focus on food/water security than on safety issues and emergency mgmt
- Weak / absent treatment of implications for ecosystem services and natural habitats
- Overall general analysis – no evidence of integration into detailed technical studies (hydrology, biodiversity, etc.)

Findings – adaptation and risk management

- Project design changes which could reduce CC risk:
  - elevating plant site from 1.3 meters above sea level to 3.5 masl
  - diversion channels around mine pit to reduce flood risks
  - sourcing water from a farther away but more “secure” supply and building more ditches and drains for new supply
  - modifying irrigation system design for sugarcane fields
- **….however, in all of these cases, design changes are justified based on current climate variability rather than future climate change -> “no regrets” measures**
- “Additional” measures are rarely identified, except to monitor / apply adaptive management
- Only one mention of climate change in context of disaster / emergency management

Emerging good practices

- Oyu Tolgoi: going beyond impact mitigation to build resilience for local herders
  - Commitment to ensure local herders' continued water supply, irrespective of mine
  - Participatory monitoring program to build local capacity on climate change and adaptation
  - Responds to key stakeholder feedback and fears around cumulative effect of CC and project impacts; contributes to social license to operate

Recommendations and key remaining challenges

Key Recommendations

Strengthening rigor and comprehensiveness of CC risk/impact analysis

- Build capacity and understanding within organizations (IFC, project sponsors, and consulting teams) to analyze climate risk implications across technical areas of ESIA, and to develop strategies for adaptation
- Establish feedback loops for peer review and integration

Adaptation

- Consider “additional” design buffers beyond what is required under current climate variability
- More attention to disaster management elements
- More focus on “green” adaptation measures - ecosystem conservation as a measure to reduce risk
- Look for opportunities to strengthen local resilience, not just mitigate impact

…and key remaining challenges / questions

- Should analysis be integrated across technical sections, or stand-alone within ESIA?
  - Ring-fencing, coordination of analysis, and capacity considerations
- Is ESIA the right tool to be dealing with climate change risks and vulnerability? Where to draw the line, and ensure coordination, in roles and responsibilities for adaptation between project sponsor and government / other actors?
  - too far “downstream” in project planning to effectively influence key decisions around basic project feasibility? ESIA vs SEA roles
  - CC forecast uncertainty and short project timelines
  - Government’s role in adaptation

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Farrell, Leanne[1]; Burwell, Ariane; and Mwangi, Wairimu (2013). Environmental Resources Management(ERM)[2].

Introduction

Climate change is already presenting material risks and opportunities to businesses. As greenhouse gas emissions continue to increase, these risks and opportunities have grown in prominence, as businesses – including project developers and their financiers - begin to see the linkage with to financial performance. Projects may be directly affected by climate change if, for example, critical freshwater supplies become more scarce, or intensified storm surges and high winds threaten project facilities or associated infrastructure. Furthermore, climate change can cause impacts such as delays to construction, disruption to operations, damage to assets, impacts to associated infrastructure (e.g. rail links and ports), and/or disruption to energy supplies. In the context of project impact assessment, climate change further introduces a new, dynamic dimension to the previously assumed static baseline upon which project impacts occur. This means that climate change, irrespective of a project's emissions, may alter the overall significance or magnitude of project impacts on the human and natural environment far into the future. Therefore, it is critical to capture the cumulative impacts of the project plus climate change in the project planning stage, including through the impact assessment process.

Understanding these effects at a facility or project level -- particularly for major new infrastructure, in the context of an Environmental and Social Impact Assessment (ESIA) and project planning process -- and building resilience and adaptation measures into project design as well as impact management programs is now being mandated by a growing number of financial institutions, as well as national and state governments. At the forefront of these entities is the International Finance Corporation (IFC) of the World Bank Group, which in its recently revised Performance Standards on Social and Environmental Sustainability (issued in January 2012)[3] now requires the consideration of 'relevant risks associated with a changing climate and the adaptation opportunities' associated with these risks (IFC PS1, para 7), and specifically calls attention to the need to consider the effects of climate change on community risk and vulnerability as well as on ecosystem services and natural habitats, especially where they play a role in mitigating climate risk. These standards have since also been formally adopted by the Equator Principles Association.

Changes to the IFC Performance Standards covering climate change risk and impact are found in Performance Standards 1, 4, and 6. Performance Standard 1, the "umbrella" standard mandates the need to consider climate risk within the ESIA, and the accompanying guidance note emphasizes that "a project's vulnerability to climate change and its potential to increase the vulnerability of ecosystems and communities to climate change should dictate the extent of climate change considerations in the risks and impacts identification process" (GN1 para 33), and that, proportional to that vulnerability profile, the ESIA should "(i) identify potential direct and indirect climate-related adverse effects that may affect

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[2] www.erm.com
[3] IFC Performance Standards on Environmental and Social Sustainability. January 2012. http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_handbook_pps

the project during its life-cycle, (ii) identify potential direct and indirect climate-related adverse effects that may be exacerbated by the project, and (iii) define monitoring program and mitigation and adaptation measures, as appropriate" (GN1 para 35).

Performance Standard 4 recognizes that project activities, equipment, and infrastructure can increase community exposure to health and safety risks and impacts, particularly for vulnerable groups, and requires that "communities that are already subjected to impacts from climate change may also experience an acceleration and/or intensification of impacts due to project activities" (PS4 para 1). The standard further requires identification of "risks and potential impacts on priority ecosystem services that may be exacerbated by climate change" (PS4 para 8).

The Guidance Notes accompanying Performance Standard 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources notes that determination of areas of critical habitat should consider "ecosystems of known special significance to endangered or critically endangered species for climate adaptation purposes" (GN6 para 56), as well as "sites of demonstrated importance to climate change adaptation for either species or ecosystems" (GN6 para 96). Selection of mitigation measures should furthermore take into consideration "existing non-project related threats to biodiversity values", which include, among other threats, climate change.

Figure 1 summarizes the key new requirements on climate risk in the new 2012 IFC Performance Standards and accompanying Guidance Notes.

Figure 1: Changes to IFC Performance Standards on Climate Risk

Standard		New Requirements
1	Assessment and Management of Environmental and Social Risks and Impacts	The risks and impacts identification process will consider the emissions of greenhouse gases, **the relevant risks associated with a changing climate** and the **adaptation opportunities…**
4	Community Health, Safety, and Security	**Consider the effects of climate change on community risk and vulnerability** in identification and evaluation of project risks and impacts to community health, safety, and security, with particular attention to vulnerable groups
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Research Methodology

In spite of these new requirements in the IFC standards, there is no globally accepted "good practice"methodology that helps prescribe how to investigate these impacts. As part of this study, ERM sought to identify how these requirements are being dealt with in practice in project-level ESIAs.

As a first step, ERM reviewed publically available project level information on the IFC website[4], including the project summaries and environmental documents, for projects that had been posted after the date that the new Performance Standards went into effect (January 1, 2012). Specifically, ERM reviewed the Summary of Investment Information as reported by the IFC across all environmental categories (A, B, C, and FI) for all projects listed between January 1, 2012 to February 27, 2013 (approx. 178 records). In these documents, there were several oblique references to climate change and adaptation, but no direct sections or discussion and the information did not provide enough detail for further analysis. ERM then examined all of the Category A ESIAs (19) posted between January 29,2012 to February 27, 2013, where the environmental documents were available. (Note that Category A projects are defined as those with potential significant adverse social or environmental impacts that are diverse, irreversible or unprecedented. As per IFC disclosure requirements, the full environmental studies for these projects must be posted directly on IFC´s website for download prior to approval of financing by IFC.) From this review, ERM identified two projects, from the mining and agricultural sectors respectively, with a discussion of climate change risk and vulnerability in the Environmental and Social Review Summary (ESRS) and in the accompanying full ESIA. These two projects were: the Oyu Tolgoi Copper/Gold Mine in Mongolia, and the Port Gentil Fertilizer (Ammonia-Urea) Plant in Gabon.

To increase the sample size of ESIAs incorporating climate change risk and vulnerability so as to be able to draw more robust conclusions about the current "state of practice" in incorporating these issues into ESIAs, ERM also consulted internally and with professional networks for other project ESIAs conducted with the intent to comply with 2012 IFC Performance Standards. Through this process, ERM identified two more documents that had been prepared for project sponsors aiming to receive financing from Equator Principles Financial Institutions, both in their final draft versions (and thus not yet available to the public). While the specific project names must remain confidential given the ongoing state of finalization at the time of review, they included a zinc mine in Southern Africa and a biofuels project in South America. The total sample for review was thus brought up to four.

To evaluate the completeness of the ESIAs' treatment of climate change vulnerability and risk issues, ERM created a review checklist to compare the ESIA contents against the IFC Performance Standard and accompanying Guidance Note language. Application of the checklist to the four ESIAs enabled systematic review and comparison across the sample of the comprehensiveness of coverage as well as overall approach to addressing the requirements within the ESIAs. This does not include discussion or analysis of a project's contribution to global greenhouse gas (GHG) emissions, which was not the focus of this study.

As an important disclaimer about the methodology employed, ERM reviewed only the core ESIA documents associated with each project. In the case of the two projects under active consideration by IFC, review was limited to publicly available information posted to the IFC's website. In the case of the two internally identified studies, while these studies were not yet publicly available at the time of the review given that they were still in draft form, ERM's analysis included only ESIA documents which *would* become part of a public disclosure package, consistent with the type and level of information available on the IFC website for Category A projects. Associated technical studies, feasibility studies, and other project planning and development documents were not available to the review team. The authors of this paper were not privy to all project related information (including all the information

[4] IFC Project Database. 2013.
http://ifcext.ifc.org/ifcext/spiwebsite1.nsf/frmshowview?openform&view=CRUDate&start=1&count=100&page=1

which may have been available to others within ERM who were directly involved in work related to one or more of the projects reviewed). Furthermore, the review did not intend to definitively judge whether in any specific case climate change would or should have been identified as a significant issue or risk in the ESIA screening and scoping phases, or whether it should have altered the priority rating for an ecosystem service or natural habitat or the magnitude or significance of a given identified project impact, or resulted in specific additional adaptation measures for communities, etc. This was just a preliminary analysis, aiming to identify high level trends in whether and how IFC's new requirements on climate risk and vulnerability are being dealt with in an ESIA context, for projects that are aiming to comply with these standards.

Findings

ERM found that the vast majority of projects being prepared under the auspices of the new IFC requirements (or associated Equator Principles), at least among those reviewed by ERM during the course of the study, are still not incorporating climate change issues into the ESIA process. Therefore, it is worth stating that the four identified documents that did include explicit mention of climate change risks and impacts in the context of project planning and impact analysis are already ahead of the curve of ESIAs on this issue.

Among the four ESIAs which at least mentioned climate change risk and impacts, ERM found widely varying methodologies and approaches in incorporating climate change evaluation into the overall ESIA process. The overall approach to incorporating climate change was highly varied, spanning the range of stand-alone discussion and analysis as a separate chapter of the ESIA (although with no cross-references or mentions back to this chapter anywhere else in the document), to partially embedded discussion within just one section of the ESIA (for example, reference to climate change in the chapter on impacts to aquatic resources in one ESIA as a force that may exacerbate water related impacts, but no further information or discussion in corresponding water baseline or water management plan sections), and finally a fully "embedded" approach (e.g., at least partial inclusion and treatment of climate change within the baseline chapter, impact analysis chapter, and impact mitigation and management chapter of the overall ESIA) . Within the sample reviewed, the pros of stand-alone approach were that it generally enabled a more systematic and thorough analysis of climate change issues noted for the region and in the context of the project, whereas ESIAs attempting embedded approaches tended to be far less detailed, explicit, or comprehensive in their treatment of climate change issues. In all cases, there was little evidence of the integration of climate change into detailed technical studies accompanying the ESIA (e.g., hydrology, biodiversity, etc.), at least insofar as the key elements and findings of these studies were summarized in the ESIA (the detailed technical documents themselves were not available to ERM for review).

In the climate change discussions that were included in each of the four studies reviewed, the comprehensiveness of coverage was widely varied, with a range in the granularity and completeness of the analysis. The review found, interestingly, a greater focus on slow-onset climate changes (e.g., increasing average temperature, changes to average precipitation, and sea level rise), rather than on expected changes to the frequency or intensity of extreme events and related implications for the project and its surrounding environment (including with respect to emergency and disaster risk mitigation and management). Similarly, project analyses tended to focus on the potential risks posed by climate change to key project facilities, but had limited mention of potential risks to associated facilities which the project depends upon (such as road networks) or project supply chains, with the exception of freshwater supply, which was mentioned to varying degrees in all four studies as a key resource which

may become less reliably available with climate change (although not all studies concluded this could pose a significant risk to the project, depending on the specifics of each project).

Furthermore, while all four studies noted at least one effect of climate change as potential issue risk to the *project* (even if not fully comprehensive even in this respect), the analyses were far weaker overall in looking at how climate change may alter the social and environmental baseline context of the project's area of influence, with implications for the identification and assessment of project impacts to ecosystems and communities. The effects of climate change on *communities,* and implications with respect to project impacts which could exacerbate these effects, were more readily acknowledged than the effects of climate change on *ecosystems* and *ecosystem services.* Three of the four studies reviewed at least acknowledged that the key noted potential project risks due to climate change (for example, increased scarcity of freshwater, or increased flood risks) would likely also affect local communities in the project area. These analyses generally did not go beyond looking at potential community impacts and risks from climate change that were already noted as relevant to the project, however. Only one of the four ESIAs mentioned the potential for climate change to affect the local workforce (such as through increased flooding of access roads or neighborhoods where workers live, or potential food security and health issues which may affect the workforce).

With respect to climate change effects to ecosystems and ecosystem services, treatment was almost completely absent across the four studies, with the exception of ecosystem services upon which the project itself is dependent (e.g., freshwater supplies). Only one study – for the South American biofuels project even mentioned the fact that the projected effects of climate change to the region (in that project's case, decreased overall precipitation and increased average temperatures) would broadly affect natural systems that depend on current water resources, although no further specific analysis or management measures were offered, except a statement that the ESIA's already-proposed water impact management measures were therefore even more critical to implement in full. In none of the cases reviewed did determination of critical habitat acknowledge the potential importance of certain natural habitats in providing regulating ecosystem services or facilitating species migration and adaptation, and likewise none of ESIAs with explicit chapters discussing ecosystem services raised climate change as an issue which could affect the prioritization rating of various ecosystem services in the project area.

Deserving of mention, one of the studies reviewed demonstrated an emerging good practice in treating the potential effects of climate change on the local community. The ESIA for the Oyu Tolgoi Copper/Gold Project went beyond committing to mitigation of the direct impacts of the project on local herder populations, and instead commits the project to a series of actions aiming to build climate change resilience for local herders in the face of projections of a shrinking water supply in an already water scarce region. Climate change was brought up by local stakeholders in public consultations as a key concern in the project area, particularly with local herding populations who were concerned that the mine's demand for freshwater would threaten communal aquifers which are already climate change vulnerable. The ESIA thus committed the mine to ensure local herders' continued water supply, irrespective of impacts from the mine, but in recognition that exacerbated water scarcity in light of climate change was a critical social risk for the project. In addition, the project has committed to a participatory water monitoring program that aims build local capacity and understanding of climate change and adaptation.

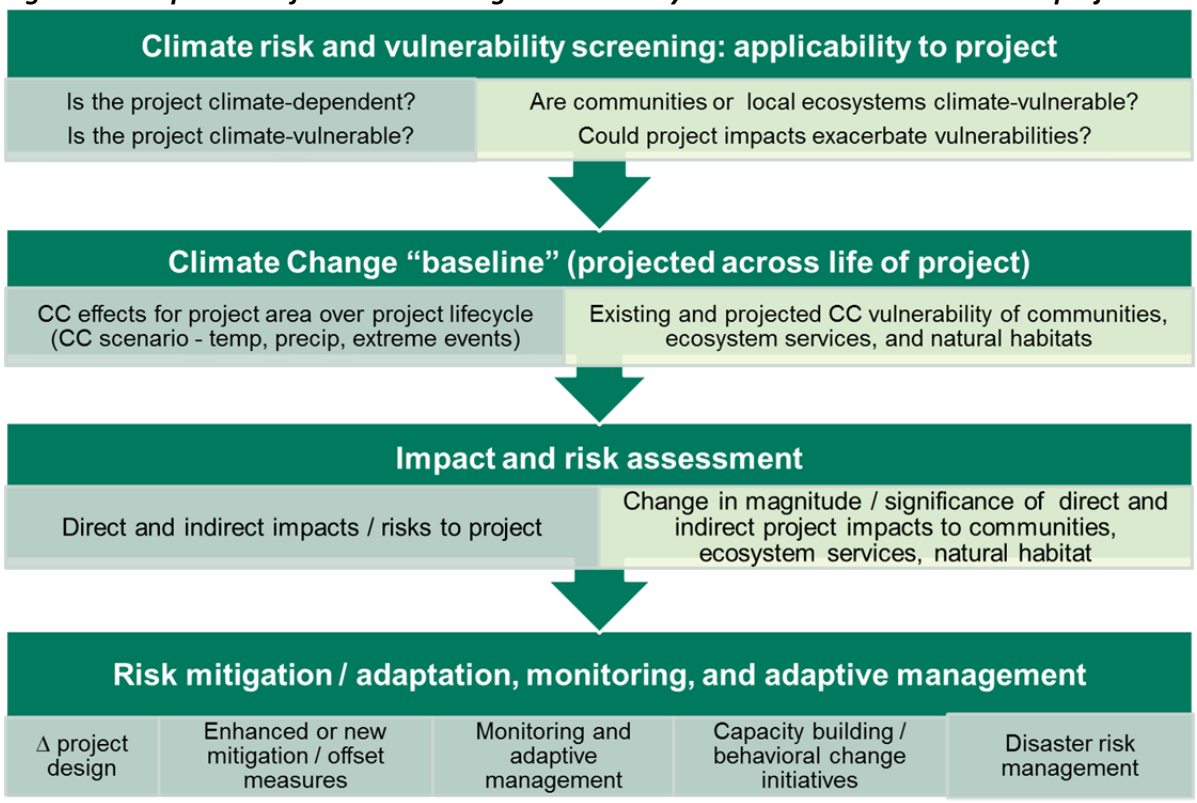
This research suggests that there is an ongoing need to build capacity and understanding within organizations (IFC, project sponsors, and consulting teams) to consistently and comprehensively analyze

climate risk implications across technical areas of project impact assessments, and to develop strategies for adaptation which are integrated into overall project management plans, to ensure ownership and integration by project teams during implementation. As climate change continues to intensify and become better understood, its explicit and comprehensive consideration in project ESIAs as well as other project planning documents will become increasingly important to long-term business performance, not just to ensure the resilience of project facilities and supply chains over the project lifecycle, but also to maintain a social license to operate and make a positive contribution to local sustainable development.

Recommended Process

Ideally, projects going forward will fully incorporate climate change into the ESIA by fully exploring how climate vulnerability and risk might be applicable to a project, both directly (to project facilities, workers and supplies) and indirectly (vis-a-vis changes to the baseline vulnerability and susceptibility of communities and ecosystems in the project area of influence that in turn may change the impact profile of the project). Figure 2 illustrates a proposed conceptual framework for how a project should explore climate vulnerability and risk within the context of the main steps of an ESIA process. A thorough ESIA will include the following four elements, both in terms of their implications *to the project* as well as *to surrounding communities and natural environment*: climate risk and vulnerability screening; climate change baseline; impact and risk assessment; and risk mitigation, adaptation, and monitoring.

Figure 2: Components of a Climate Change Vulnerability and Risk Assessment within a project ESIA



Once climate change is determined to be relevant to the project, the baseline examines historical, existing, and projected climate change scenarios to include temperature, precipitation, and extreme

events such as 100 year flood, hurricanes and droughts. Furthermore, the baseline should examine existing and projected climate change vulnerabilities of communities, ecosystem services and natural habitats.

The impact and risk assessment should examine direct and indirect impacts as a result of climate change, including risks to, as well as exacerbated by, the project. The assessment should include the magnitude and significance of direct and indirect project impacts to communities, ecosystem services and natural habitats. Magnitude is determined according to type, extent, duration, and scale of impact. Significance is determined using magnitude of impact and sensitivity or vulnerability (based on frequency and likelihood of the impact) of a project.

Based on the impacts identified in the impact and risk assessment, risk mitigation and adaptation strategies should be enacted. Mitigation and adaptation measures should be integrated into a monitoring and adaptive management plan, and cross referenced in the relevant associated management plans across technical areas (for example, social management plan, water management plan, biodiversity management plan, etc.). Measures should be identified by a multi-disciplinary team within the ESIA team and based on diverse stakeholder inputs obtained through consultations. Such measures may include, for example, changes in project design, adjustments to commitments around issues such as ecological flow rates and maximum effluent discharge levels, strengthening of mitigation measures, and additional offset measures, and will vary depending on project size, location, and impact profile. Monitoring will enable projects to mitigate the rapid effects on the project from climate change impacts (i.e. increased flooding impacts on a project). Monitoring activities should include both actual climate data as well as periodic review of updates to regional climate projections (temperature, precipitation). Adaptation is the ability to plan for or build resilience from impacts to climate change. Adaptive management techniques that allow for projects and communities to manage impacts to climate change include capacity building, behavioral change initiatives, and disaster risk management and response measures.

This research has demonstrated that integrating climate change into ESIAs is an evolving field, and as the evolving body of knowledge on this continues to grow and develop, the importance of a consistent and comprehensive methodology and approach becomes ever more important. More work is needed in this area to better develop out, and build capacity on, such methodological approaches.