

Review of Screening Tools to Assess Sustainability and Climate Resilience of Infrastructure Development

Final Report

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Executive Summary

The World Wildlife Fund engaged AECOM Technical Services, Inc. (AECOM) to undertake a desk-based review of publicly available guidance, standards, tools, methods and frameworks (herein referred to as *tools*) used to assess sustainability and climate resilience of infrastructure development projects. The purpose of the review was to understand what types of tools were being used in practice, the scale of their application and if any could be identified as best practice and thus promoted more widely. AECOM reviewed a range of tools used by key financial institutions and infrastructure sustainability assessment bodies, which included:

1. Asian Development Bank (ADB)
2. Asian Infrastructure Investment Bank (AIIB)
3. African Development Bank (AfDB)
4. Agence Française de Développement (AFD)
5. European Bank for Reconstruction and Development (EBRD)
6. European Investment Bank (EIB)
7. Inter-American Development Bank (IDB)
8. KfW Development Bank (KfW)
9. World Bank (including IBRD and IDA)
10. International Finance Corporation (IFC) ¹
11. BREEAM Infrastructure
12. CEEQUAL
13. Green Guidelines for the Belt and Road Initiative (BRI)
14. Envision®
15. SuRe® Standard
16. Equator Principles

In undertaking the review, it was found that each of the financial institutions used environmental and social (E&S) assessments as part of their decision making process in financing the project. Each project concept undergoes an initial screening phase which determines the adverse E&S impacts the project will have; based on this classification, those that are categorized as negatively impactful will be required to undergo a detailed E&S assessment. Some of the financial institutions reviewed also use climate risk screening tools as part of their initial screening such as the ADB and AfDB; the AFD and EIB use carbon footprint tools as part of their screening process.

The detailed E&S assessments are undertaken on the project site; associated facilities; and areas and communities potentially affected by the project. The assessment may also include the identification of trans-boundary effects, such as the wider impacts of a project's operations that may affect another country's use of waterways, watersheds, coastal marine resources, biological corridors, regional air sheds and aquifers etc. (however, this will be a high level review and determined on a case-by-case basis). The effects climate change will have on the project are a requirement of the assessment, however details of these assessments were limited². There are some financial institutions that were found to also take a more hands on approach, in supporting project concepts at the design phase of the infrastructure development phase, EBRD, EIB, IDB and the World Bank, as a few examples, who worked with project developers in designing the scope of a project.

The infrastructure standards and assessment tools cater for the design phase (i.e., the project level design) promoting low impact design, sustainable resourcing and carbon emission reductions, amongst other factors; as well as focusing on elements of the planning phases (i.e. larger and wider scale development plans which tend to be carried out pre-project level design). The SuRe Standard aims to also provide a link to the financing phase, by providing a common and understandable language for all parties involved.

There is significant scope for more work to be undertaken in the planning phase, as action at the start of the process could have a substantial impact in ensuring infrastructure developments are in line with national development agendas and requirements. For example, supporting national and regional governments cope with the plethora of competing demands, by prioritizing investment projects is crucial. Financial institutions should also ensure that projects being financed are in line with national development agendas, and can support the countries implementation of international commitments such as Nationally Determined Contributions or the Sustainable Development Goals.

The scope of the study was of course limited by the information published by each financial institution and infrastructure body that was made publicly available. There may be other screening tools and methodologies applied, however details of these were not publicly available. This review was intended to be the first phase, a scene setting exercise, where more targeted, detailed reviews could be undertaken as next steps. Stakeholder interviews with staff from the financial institutions reviewed who undertake the screening and assessment exercises should be undertaken, to better understand the application of the tools; the interviews can also be used to understand what other tools are being used or are in development, but not yet publicly available. Furthermore, a review of the prioritization and screening tools used by the insurance industry, and by the infrastructure engineering and construction industry, will also help identify best practice examples that can be applied more widely.

¹ IFC is part of the World Bank Group, but it has been reviewed separately due to its use of different procedures.

² N.B. The review team are not stating that the integration of climate screening with E&S safeguards/assessments is a measure of success, more that it is what is being observed in practice

1. Introduction

1.1 Context

Assessing the social and environmental risks of infrastructure projects is not a new concept for investors, international financial institutions (FIs), governments and communities. Project level safeguards have been applied to infrastructure projects to manage risks from environmental and social (E&S) impacts; however, these often have limitations in how they integrate environmental sustainability, climate risk and resilience considerations into the development process. Taking into account the increasingly damaging impact of climate change on communities and infrastructure, the World Wildlife Fund (WWF) recognizes the need to move beyond project-based safeguards towards spatial and land use planning processes that adequately consider risks at appropriate scales (geographic, sectoral and temporal), early enough in the policy cycle, to build climate resilience for people, nature and infrastructure. In recent years, there have been considerable advances in screening project risks, with various organizations developing guidance, standards, tools and methods for screening sustainability and climate change risk specifically. However, these have largely been developed by individual organizations, with project-level focus (rather than earlier planning at larger scales), tailored to their own needs with little or no collaboration with similar bodies.

To gain a better understanding of the guidance, standards, tools, methods and frameworks (herein referred to as *tools*) used by certain FIs and infrastructure sustainability assessment bodies, WWF engaged AECOM Technical Services, Inc. (AECOM) to undertake an initial desk-based review of these tools (based on publicly available literature), to determine what is being used in practice. The results from this review will allow more targeted in depth reviews to be designed, inclusive of stakeholder interviews with key members of the institutions and bodies reviewed.

1.2 Objective and approach

AECOM undertook a systematic desk-based literature review of the publicly available tools used at different stages of an investment cycle during the infrastructure development process, in particular at the planning, design and financing stages. This review is an initial step in a larger effort to better understand the extent to which sustainability, climate risk and resilience are being holistically screened at different scales and at different phases of the infrastructure development process. It is important to note that the desk based review was undertaken on publicly available information only; therefore, it is limited in scope and the conclusions are based on the details of tools and policies that are publicly shared. The FIs, bodies and standards included in this review are outlined in Table 1.

Table 1: Financial institutions and global infrastructure standards reviewed

Name of institution / standard

Asian Development Bank (ADB)
Asian Infrastructure Investment Bank (AIIB)
African Development Bank (AfDB)
Agence Française de Développement (AFD)
European Bank for Reconstruction and Development (EBRD)
European Investment Bank (EIB)
Inter-American Development Bank (IDB)³
KfW Development Bank (KfW)
World Bank (including IBRD and IDA)
International Finance Corporation (IFC)
BREEAM Infrastructure
CEEQUAL
Green Guidelines for China's Belt and Road Initiative (BRI)
Envision®
SuRe® Standard
Equator Principles

To support the implementation of the study, the project team developed a literature review protocol, which outlined the methodology for undertaking the review of publicly available information. The literature review protocol is provided in Appendix A.

³ IFC is part of the World Bank Group, it has been reviewed separately due to its use of different procedures.

2. Review of risk screening tools

This chapter provides a summary of the detailed literature review of the FIs and global infrastructure standards outlined in Table 1. The findings from the literature synthesis are first presented in the summary review matrix, and later in the chapter outlined in more detail.

2.1 Overview

Table 2 presents a high-level summary of each reviewed institution/body in a comparison table. Further detail and explanation for each institution and standard is provided in the subsequent section.

Table 2: Summary of the financial institutions / standards reviewed

Standard / Institution	Sustainability and/or Resilience (S&R, S, R)	Geographic / temporal scale & coverage of tool / policy	Cumulative impacts included? If yes, how?	Ecosystem Services Assessment included? If yes, how?	Climate risk method	Level of detail / type of tool	Intended Audience? Co-developed with intended users?	Main users? Level of update and evidence of use.	Developed by? Peer reviewed?	Free and publicly available?	Input needed (time, data, expertise)
Financial institutions (FIs) Safeguards, Standards, Frameworks and Tools											
ADB	For all ADB projects, an initial screening determines the potential adverse environmental impact of a project. If it is deemed to have an impact (either significant or moderate), a detailed environmental and social (E&S) assessment is required. Sustainability is therefore reviewed in terms of E&S considerations. Financial assessments are not included in the E&S assessment (this may be undertaken in parallel to the E&S review; however, as this was not part of the research scope it was not reviewed in detail).	The initial screening is undertaken on the project site. The detailed E&S assessment is undertaken on the project site; associated facilities; and areas and communities potentially affected by the project. The assessment may also include the identification of trans-boundary effect (however, this will be a high level review and determined on a case-by-case basis).	Yes - during the detailed E&S assessment of a project, the cumulative impacts are assessed; however, no further detail on how this is undertaken is provided in the Bank's publicly available guidance documents.	Yes, during the detailed E&S assessment (which could include environmental impact assessments, initial environmental examination, etc.) the implications a project will have on local biodiversity and ecosystems are reviewed (the impacts on ecosystem services were not mentioned in the literature).	Various climate risk methods are used: - Climate risk screening (AWARE tool) - Climate change risk and vulnerability assessment - Technical and economic evaluation of adaptation options Identification of adaptation options To assess the sustainability of transportation projects, ADB uses a Sustainable Transport Appraisal Rating (STAR) tool.	Projects are assessed using the following (in order): - Initial environmental screening - Climate Change/vulnerability risk screening - Detailed E&S assessment.	Bank staff primarily; the guidance documents are more for borrowers to understand requirements on projects.	The E&S safeguards (ESS) and guidance is used by Bank staff, clients (i.e. borrowers) and E&S practitioners. The climate risk tools are used by Bank staff. ESS was last updated in 2012.	Developed by ADB. No detail on peer review was found.	Guidance information is publicly available, but the tools are not available.	AWARE Climate Change risk tool: used by Bank staff. No information on level of detail, time, or expertise was available. STAR Tool: not publicly available, but there is detailed guidance on the step by step requirements.

Standard / Institution	Sustainability and/or Resilience (S&R, S, R)	Geographic / temporal scale & coverage of tool / policy	Cumulative impacts included? If yes, how?	Ecosystem Services Assessment included? If yes, how?	Climate risk method	Level of detail / type of tool	Intended Audience? Co-developed with intended users?	Main users? Level of update and evidence of use.	Developed by? Peer reviewed?	Free and publicly available?	Input needed (time, data, expertise)
	Climate risks and vulnerability assessments are undertaken in parallel to the initial screening process using specific tools developed by the Bank. A further review is also undertaken during the detailed E&S assessment phase.	The guidance, assessments and tools are applied to all of the Bank's countries of operation.									
AIIB	<p>For all projects seeing finance, the Bank undertakes a similar process to ADB – an initial screening is undertaken to determine the potential adverse impact a project may have on the environment. The categorization of the project then determines whether a detailed E&S assessment is required.</p> <p>Sustainability is therefore reviewed in terms of E&S considerations. As with ADB, financial assessments are not included in the E&S assessment phase.</p> <p>An assessment of the high level climate risks and vulnerability of the project are undertaken during the detailed E&S</p>	<p>The initial screening phase and detailed E&S assessments are undertaken on the project site (and associated facilities, if deemed necessary by the Bank). No information was found in the Bank's guidance documents on assessments beyond the project site.</p> <p>The guidance, assessments and tools are applied to all of the Bank's countries of operation.</p>	<p>Yes - during the detailed E&S assessment of a project, the cumulative impacts are assessed; however, no further detail on how this is undertaken is provided in the Bank's publicly available guidance documents.</p> <p>The cumulative impacts will also be reviewed on a case by case basis.</p>	Same response as for ADB.	<p>Methodologies and tools to assess climate risk and resilience are not mentioned explicitly in the Bank's E&S Framework.</p> <p>However, adaptive capacity and resilience are assessed, as outlined in the E&S guidelines.</p> <p>AIIB's E&S Framework is similar to that of ADB and World Bank; it also outlines the requirement for projects to minimize greenhouse gas (GHG) emissions with the aim of the Paris Agreement.</p>	<p>The Bank has an overarching E&S Framework. Its guidance documents outline the requirements of the E&S assessments.</p> <p>Climate risk/resilience assessments are not outlined in detail (there is no tool currently being used).</p>	Bank staff and its clients.	<p>Clients/borrowers – as it provides a breakdown of the project documentation they are required to submit.</p> <p>The E&S Framework was published in 2016.</p>	<p>Developed by AIIB, based on the World Bank and ADB procedures.</p> <p>No detail on peer review was found.</p>	<p>Guidance information and the framework are publicly available.</p> <p>No detail on level of data, time or expertise was available.</p>	

Standard / Institution	Sustainability and/or Resilience (S&R, S, R)	Geographic / temporal scale & coverage of tool / policy	Cumulative impacts included? If yes, how?	Ecosystem Services Assessment included? If yes, how?	Climate risk method	Level of detail / type of tool	Intended Audience? Co-developed with intended users?	Main users? Level of update and evidence of use.	Developed by? Peer reviewed?	Free and publicly available?	Input needed (time, data, expertise)
	assessment phase of the project.										
AfDB	Same response as for AfDB.	AfDB assesses the E&S impacts of the project requesting financing, it will not take into account the impacts of the wider development (if applicable), or wider geographic impacts. The guidance, assessments and tools are applied to all of the Bank's countries of operation.	No specific reference is made to cumulative impacts and/or drivers of change in the Bank's Climate Risk Management and Adaptation Strategy.	Yes, during the detailed E&S assessment. The implications a project will have on local biodiversity and ecosystems are reviewed.	Overarching Climate Risk Management and Adaptation Strategy that requires the following: - Climate Screening - Adaptation Review and Evaluation Procedures (AREP) - Country Adaptation Factsheets.	Detailed overview of AfDB's requirements for an E&S impact assessment, and its Climate Safeguards System (step by step breakdown).	Both Bank staff and clients.	The Bank is responsible for applying the Climate Screening and AREP. The Bank's Climate Risk Management and Adaptation Strategy were published in 2009.	Developed by AfDB. No detail on peer review was found.	Yes – tools and guidance are free and publicly available.	The Bank's guidance document outlines the level of data and expertise required to use each tool. No detail on timeframe provided.
AFD	Same response as for AfDB. In addition, a climate vulnerability screening assessment is undertaken with the Bank's Carbon Footprint Tool (CFT).	The GHG screening is undertaken on a project-by-project basis. No additional information is available on the scale of the E&S assessments. The guidance, assessments and tools are applied to all of the Bank's countries of operation	No specific reference is made to cumulative impacts and/or drivers of change in the Climate Action Plan.	Ecosystems and their services do not appear to be accounted for in the Climate Action Plan.	CFT is a matrix that assigns a value to each project according to the project sector, region and relevant risk. The assessment may lead to certain projects being excluded, depending on AFD's mandate for operations in the region of the project.	The Bank has published extensive guidance on the application of the CFT.	Both Bank staff and clients (i.e. borrowers).	Both Bank staff and clients (i.e. borrowers).	Developed by AFD. The carbon footprint tool for projects was developed in 2011. AFD's E&S risk management guidance was last updated in 2014.	Yes – detailed guidelines and methodology are free and publicly available.	Detailed overview of the input requirements for the CFT; however not on the level of expertise and time required.
EBRD	EBRD follows a similar process as AfDB in terms of the	As a minimum, the E&S assessment is	Yes – E&S impacts and risks related to	Yes - protection, conservation, management and	Climate risk is assessed on a case by case basis; no	The E&S Policy (and Performance Standards that	Bank staff and clients.	Bank staff and clients.	Developed by EBRD.	Yes – the policy is free and	The details outlined in the Performance

Standard / Institution	Sustainability and/or Resilience (S&R, S, R)	Geographic / temporal scale & coverage of tool / policy	Cumulative impacts included? If yes, how?	Ecosystem Services Assessment included? If yes, how?	Climate risk method	Level of detail / type of tool	Intended Audience? Co-developed with intended users?	Main users? Level of update and evidence of use.	Developed by? Peer reviewed?	Free and publicly available?	Input needed (time, data, expertise)
	initial screening and detailed E&S assessments; however climate risk is considered on a case-by-case basis.	undertaken on the project and associated facilities. Wider assessments are defined on a case by case basis. The guidance information and assessments are applied to all of the Bank's countries of operation.	facilities and activities that are associated with the project should be assessed. Potential landscape level impacts should also be considered (however the extent is defined on a case-by-case basis).	sustainable use of living natural resources and the benefits they provide (i.e. ecosystem services) is assessed; as well as impacts on biodiversity.	set methodology was outlined.	make up the policy) outlines the objectives, scope of application, and subsequent requirements for the E&S assessments, and other Bank safeguards that a project must adhere to.		The E&S Policy was published in 2014.	No detail on peer review was found.	publicly available.	Standard provide a high level overview of the requirements; however no detail was found on the time and level of expertise.
EIB	Same response as for ADB.	Same response as for ADB.	No specific reference is made to cumulative impacts and/or drivers of change.	Biodiversity and ecosystem services are taken into account during the pre-appraisal stage; and through the detailed environmental assessment of a project. The latter taking into account: Degradation of ecosystem services, Loss and degradation of habitats, Loss of species diversity and Loss of genetic diversity.	Various are applied at the pre-appraisal phase of a project: 1. Climate sensitive sector screening 2. Carbon Credit Potential and carbon Pricing 3. Assessment 4. Vulnerability Assessment 5. Carbon Footprint Detailed E&S impact assessments are also undertaken.	The screening tool and climate risk and vulnerability assessment both appear to be at a pilot stage, so detail on the tool was not available. The Environmental and Social Handbook (ESH) provides a detailed overview of the assessments required.	EIB Staff, Clients and Practitioners.	The climate screening tool has only yet been piloted by EIB (it is due to be mainstreamed across all operations). The climate risk and vulnerability assessment is carried out by the project promoters.	The climate screening tool was developed by EIB. ESH was also developed by EIB, 2013. No detail on peer review was found.	ESH is publicly available.	The ESH gives an indication on the information required for the assessment. In terms of requirements for the other tools – detail on the exact requirements was not available.
IDB	IDB follows a similar process as AIB in terms of the initial screening and detailed E&S assessments, as	Same response as for ADB.	Same response as for ADB.	Yes, projects are assessed to ensure they do not degrade or significantly convert critical	Climate risks are screened during the E&S assessment; however no additional information was	The Bank developed a Guidance document that outlines the high level requirements	Bank staff and clients.	E&S Compliance Policy is for both Bank staff and borrowers. It was last	Developed by IDB. No detail on peer review was found.	Guidance information is free and publicly available.	IDB's Guidance document outlines the high level requirements for each

Standard / Institution	Sustainability and/or Resilience (S&R, S, R)	Geographic / temporal scale & coverage of tool / policy	Cumulative impacts included? If yes, how?	Ecosystem Services Assessment included? If yes, how?	Climate risk method	Level of detail / type of tool	Intended Audience? Co-developed with intended users?	Main users? Level of update and evidence of use.	Developed by? Peer reviewed?	Free and publicly available?	Input needed (time, data, expertise)
	outlined in its <i>Environmental and Safeguards Compliance Policy</i> . During this process vulnerability to natural hazards/climate change are screened.			natural habitats (incorporates ecosystems).	found on detailed procedures for climate screening, but the Bank noted that additional updates and new pilot efforts are in development. GHG emissions assessments are undertaken for projects to determine possible mitigation options. However, it is unclear when these are undertaken.	for each assessment.		updated in 2006. Preparation of environmental assessments and associated management plans and their implementation are the responsibility of the borrower.			assessment, but does not outline the time or level of expertise required.
KfW	KfW's Sustainability Guidelines state that all funding activities by the Bank are subject to an internal <i>Environmental and Social Due Diligence (ESDD)</i> and a climate assessment. There is no separate tool for assessing both sustainability and climate risk and resilience.	KfW assesses the E&S impacts and climate risk of the project requesting financing; it does not appear to take into account the impacts of the wider development (if the project is part). The guidance, assessments and tools are applied to all of the Bank's countries of operation	The impacts and risks as a result of cumulative effect with other projects in KfW measure region must also be included in assessments.	Among the assessment made there is a requirement for the project to contribute towards significantly enhancing the adaptive capacity of target groups or ecosystems—primarily on the adaptive capacity of ecosystems.	Within the frame of assessments for the climate change adaptation relevance, analyses are carried out to determine: 1) whether the intended development policy impact of KfW measure depends largely upon climate parameters; and, 2) whether KfW measure can contribute towards significantly enhancing the adaptive capacity of target groups or ecosystems—primarily on the capacity for ecosystems to adapt	The Sustainability Guideline approaches are comprehensive and include a series of data gathering. There are sector-specific sustainability criteria that are tailored to range of development projects.	Bank staff and clients.	Bank staff and clients. Sustainability guidelines published in 2016.	Developed by KfW. Typically clients appoint an independent expert and—in consultation with KfW IPEX-Bank—commissions said expert to perform the monitoring to assess the client's own monitoring.	Yes, the Sustainability Guidelines are free and publicly available; however the tools are not publicly available.	No detail on level of detail, time or expertise was available.

Standard / Institution	Sustainability and/or Resilience (S&R, S, R)	Geographic / temporal scale & coverage of tool / policy	Cumulative impacts included? If yes, how?	Ecosystem Services Assessment included? If yes, how?	Climate risk method	Level of detail / type of tool	Intended Audience? Co-developed with intended users?	Main users? Level of update and evidence of use.	Developed by? Peer reviewed?	Free and publicly available?	Input needed (time, data, expertise)
World Bank (IBRD and IDA)	The Bank's E&S Framework includes mandatory E&S procedures (similar to those carried out by ADB: initial screening and a detailed E&S assessment), though it does not explicitly reference climate risk or resilience. The Bank also has E&S Standards, a number of which explicitly reference climate change.	Same response as for ADB.	Cumulative impacts of multiple developments and drivers of change are considered at various points in the E&S Framework.	Ecosystem services are accounted for in several of the standards. For example, borrowers are required to identify a project's "potential risks and impacts on ecosystem services that may be exacerbated by climate change."	The E&S risks accounted for in the framework include "climate change and other transboundary or global risks and impacts," but no detail is provided on how this is done in practice.	The E&S Framework is comprehensive in the range of E&S issues it considers, especially in the ten E&S Standards.	The guidance documents are for borrowers to understand the requirements on projects. They are also used by E&S practitioners and Bank staff.	The E&S Framework and guidance is used by Bank staff, clients (i.e. borrowers) and E&S practitioners. The E&S Framework is due to take effect in 2018	No publicly available information provides a clear answer to this question. However, the E&S Framework was developed after the publication of a report in 2010 from the World Bank's Independent Evaluation Group.	The framework is publicly available.	No detail on level of detail, time or expertise was available.
IFC	Sustainability is covered by the Bank's E&S Sustainability Policy and 8 performance standards. Climate risk and resilience are not fully embedded within these standards though.	Same response as for ADB.	Yes, multiple ways of doing so, including through a Cumulative Impact Assessment.	Yes, ecosystems are taken into account through IFC standards 4 and 6. General guidance on how to do is provided but not specifics.	Through IFC standards and Social and Environmental Framework. But relatively few specific references to climate risk. A process to screen climate impact risk in its investments is reportedly under development	The publicly available information within IFC's policy documents and standards is generic guidance; - there is no specific software tool or step by step guidance. The guidance is quite detailed.	Bank staff primarily; guidance documents are available for borrowers to understand Requirements on projects.	Bank staff, borrowers and practitioners undertaking the assessments The policy and standards were both updated in 2012.	Developed by IFC. No detail on peer review was found.	Guidance information is publicly available, but the tools are not available.	No detail on level of data, time or expertise was available.
Infrastructure Sustainability Standards											
BREEAM	Yes - BREEAM measures sustainable value in a series of categories, ranging from energy to ecology. Climate risk/resilience is not a category in itself, but a number of the categories do partially address it.	The scale depends on the standard selected: 1. Communities Technical Standard – covers master planning of new communities or regeneration projects (medium to	Yes, through BREEAM Communities standard	Not specifically, but Strategic Ecology Framework does aim to understand the existing ecological value	Through the consideration of issues such as GHG emission reduction, climatic modelling, flood risk management, air and water quality and designing for resilience Some BREEAM schemes	BREEAM is a third party assessment and certification scheme. It includes a number of tools, such as the BREEAM Communities tool.	Building, construction industry. No information found on extent of engagement with intended users in development of tools, methodologies.	Those in building, construction. Very heavily used - 80% market share across Europe for sustainable building certification	The operation of BREEAM (and indeed all our assurance activities) is overseen by an independent Governing Body and a Standing Panel for peer and market review.	Full details on assessments are not publicly available. However, considerable detail is in the public domain, including technical manuals.	No detail on time and cost found, though likely to be extensive given need for third party assessor and the level of scrutiny provided,

Standard / Institution	Sustainability and/or Resilience (S&R, S, R)	Geographic / temporal scale & coverage of tool / policy	Cumulative impacts included? If yes, how?	Ecosystem Services Assessment included? If yes, how?	Climate risk method	Level of detail / type of tool	Intended Audience? Co-developed with intended users?	Main users? Level of update and evidence of use.	Developed by? Peer reviewed?	Free and publicly available?	Input needed (time, data, expertise)
		<p>large scale developments).</p> <p>2. Infrastructure standard – civil engineering projects</p> <p>3. New construction standard – for new buildings.</p> <p>In terms of coverage, the standard has been applied in 78 countries worldwide</p>			incorporate future resilience into assessments						
CEEQUAL	<p>Yes - The assessment process primarily reviews E&S impacts. Climate change risk and resilience are not standalone features in an assessment, but are incorporated (in part) within some of the review modules.</p>	<p>The standard is applied to the building / project site.</p> <p>It has been applied primarily in the UK and Ireland; however there is an international version of the assessment.</p>	<p>Yes, there are tailored approaches for multi-package assessments</p>	<p>Ecosystems and their services are considered within some of the assessment modules (e.g. Ecology and Biodiversity, Land use and Landscape and Water Environment)</p>	<p>Some of the modules require impacts and mitigation options to be identified; as well as energy and carbon emissions to be calculated, as well as the identification for reduction measures.</p>	<p>There is a step by step approach (made up of approximately 200 questions) that each assessor must follow to gather the appropriate evidence; as this was not publicly available, it could not be assessed.</p>	<p>Public sector clients, private sector clients, designers or contractors.</p>	<p>Users can be public sector clients, private sector clients, designers or contractors.</p>	<p>Developed by CEEQUAL.</p>	<p>Full details on assessments are not publicly available, as it is a paid for service.</p>	<p>Details on the data and time needed were not publicly available. CEEQUAL is a self-assessment process; however, assessors must undergo CEEQUAL training.</p>
China's Belt and Road Initiative (BRI)	<p>The guidelines aim to drive BRI development in a resource efficient and environmentally friendly manner; however no detail on how this will be achieved has been published (due in 3-5 years).</p> <p>The guidelines cover financial, social and environmental</p>	<p>No detail was found on the geographic / temporal scale of application, as the guidelines are high level at present.</p> <p>It is expected the guidelines should influence infrastructure</p>	<p>The guidance states that environmental impact assessments should be undertaken, however, additional detail is not provided, thus the extent is unknown.</p>	<p>Ecosystems and their services are not explicitly mentioned; however, this could fall within one of the overarching principles of "Leading role of green development with environmental protection as the support."</p>	<p>Climate risk is not explicitly mentioned. Methodologies to assess risk have not been developed or adopted.</p>	<p>Green Guidelines is a set of options that should be considered during the design and implementation of infrastructure developments along the BRI; they are quite general at present. There are intentions to formulate environmental protection</p>	<p>No tools were identified as part of the literature review; currently there is only high level intention by Governments to implement the <i>Guiding Principles on Financing the Development</i></p>	<p>The Green Guidelines and future tools are applicable to all stages of the infrastructure development process (Planning, Design, Financing and Construction); thus applicable to all actors.</p>	<p>The State Council of the Peoples Republic of China.</p>	<p>The Green Guidelines document is publicly available. It is unclear if the tools and methodologies developed in the future will be publicly available too.</p>	<p>Tools have not been formally developed, only principles for future action. These principles have been endorsed by Finance Ministers for all the relevant BRI countries.</p>

Standard / Institution	Sustainability and/or Resilience (S&R, S, R)	Geographic / temporal scale & coverage of tool / policy	Cumulative impacts included? If yes, how?	Ecosystem Services Assessment included? If yes, how?	Climate risk method	Level of detail / type of tool	Intended Audience? Co-developed with intended users?	Main users? Level of update and evidence of use.	Developed by? Peer reviewed?	Free and publicly available?	Input needed (time, data, expertise)
	considerations. Climate change risk and resilience are not explicitly mentioned.	development across all BRI countries (64 countries in four continents).				standards and codes for infrastructure construction.	<i>of the Belt and Road</i> (MoF, 2017), which calls for strengthening E&S assessment and risk management.	Developed in 2017.			
Envision®	Envision® is a framework to evaluate and rate community, environmental and economic impacts and benefits of infrastructure projects. Climate and Risk are also considered.	The standard is applied on a project basis. It is primarily for the U.S. and Canada, but the criteria can be adapted for other locations as well.	Yes, it assesses sustainability both up-front and during the life of the infrastructure project.	Yes, Envision® looks at the preservation of prime habitats, protection of wetlands and surface water, preservation of farm land (arable land), species preservation and control of invasive species. Ecosystem services are not specifically mentioned.	The climate and risk assessment addresses emissions and resilience and looks at quantifying the impact of the project as it relates to harmful emissions and longevity.	Envision® has a step-by-step approach but the main focus is to foster a necessary dramatic improvement in the performance and resiliency of physical infrastructure across the full dimensions of sustainability.	The tool can be used by public sector clients, private sector clients, designers or contractors.	Public sector clients, private sector clients, designers or contractors, environmental groups and policy makers. The framework is aimed as a self-assessment process, with third party verification available.	Developed by Institute for Sustainable Infrastructure in partnership with the Zofnass Program for Sustainable Infrastructure at Harvard University.	The tool is free and publicly available. There are fees associated with the independent third party verification and the support from practitioners, should a project wish to enter for an award.	Information on the level of input (i.e. data from the project, time allocations, etc.) was not available. No prior expertise is required to use the tool. There are trained Envision® sustainability professionals (ENV SP), who are credentialed practitioners available to support users (for a fee).
SuRe®	Yes - sustainability and climate risk and resilience are assessed concurrently.	The standard is applied on an infrastructure development. It is intended to be a global standard, thus applicable to all countries.	Cumulative impacts is an assessment criteria, and requires users to assess and manage them.	Yes, it aims to integrate Natural Capital, Ecosystem Services and Nature-Based Solutions concepts into infrastructure planning and design.	The standard will require vulnerability assessments to be undertaken.	The standard appears to be relatively detailed and/or prescriptive – the assessment criteria are independent of one another and span environmental, social and governance issues.	Particularly focused on: project developers, financiers and public sector institutions.	The first version of the standard was launched at COP21 (2015), it has undergone a second public consultation, before formal launch at COP23. It has been piloted in a few places, but not yet widely applied.	Developed by Global Infrastructure Basel with input from stakeholders in various governing bodies e.g. Standard Setting Committee.	The Standard's methodology has undergone a second public consultation – all the documentation is free and publicly available.	The Standard's methodology has undergone a public consultation, as well as a targeted third party review (by groups of project developers, infrastructure financiers and public sector institutions – i.e. the main users of the tool). SuRe® certification

Standard / Institution	Sustainability and/or Resilience (S&R, S, R)	Geographic / temporal scale & coverage of tool / policy	Cumulative impacts included? If yes, how?	Ecosystem Services Assessment included? If yes, how?	Climate risk method	Level of detail / type of tool	Intended Audience? Co-developed with intended users?	Main users? Level of update and evidence of use.	Developed by? Peer reviewed?	Free and publicly available?	Input needed (time, data, expertise)
											process uses accredited third parties to carry out independent audit
Equator Principles	<p>The framework is used to assess and manage E&S risk, financial risk is not considered.</p> <p>A similar process to that outlined for ADB is followed: an initial screening, and if deemed necessary, a detailed E&S assessment is undertaken.</p> <p>Projects are required to assess its viability in view of reasonably foreseeable changing weather patterns/climatic conditions, together with adaptation opportunities.</p>	<p>The framework appears to be applied on a project basis.</p> <p>In terms of coverage, the Equator Principles are applied globally and to all industry sectors. There are currently 91 FIs in 37 countries who have officially adopted the Equator Principles, covering over 70% of international project finance debt in emerging markets.</p>	<p>The assessment is undertaken on the project seeking finance; there is no suggestion in the publicly available information that consideration is made outside of the project site.</p>	<p>Consideration to ecosystems and services are made in environmental impact assessments, through a review of the project's extent of protection and conservation of biodiversity. Sustainable management and use of renewable natural resources are also reviewed.</p>	<p>Vulnerability to changes in future weather patterns / climatic conditions needs to be assessed.</p> <p>Furthermore, climate change is taken into account in terms of assessing the total GHG emissions emitted by the project annually.</p>	<p>The framework provides a general overview of the assessments that a borrower/FIs must undertake in order to adhere to the Equator Principles. There is no prescribed detailed methodology.</p> <p>There are a number of suggested tools that can be used, but these do not form part of the mandatory tasks.</p>	<p>The framework is intended for FIs to provide a minimum standard for due diligence to support responsible risk decision-making. It can also be used by developers and those seeking finance to review the assessment process / requirements.</p>	<p>FIs.</p> <p>The framework was last updated in 2013</p>	<p>Equator Principles Association, which is the unincorporated association of member Equator Principles FIs whose object is the management, administration and development of the Equator Principles</p>	<p>Yes.</p>	<p>The E&S assessment information can be prepared by the borrower, consultants or external experts; no specific expertise has been outlined in the framework. However, the independent reviewer must be an Independent E&S Consultant. The framework outlines an illustrative list of potential E&S issues to be addressed in the assessments.</p>

2.2 Summary of review findings

The following section of the report provides a summary of the screening tools used by the FIs as well as infrastructure standards reviewed, and aims to provide more detail to that outlined in Table 2. For a detailed overview, please refer to Appendix B.

2.2.1 Asian Development Bank

The Asian Development Bank (ADB) has an overarching long-term strategy for 2008-2020, *Strategy 2020*, that promotes three complementary agendas on inclusive economic growth, environmentally sustainable growth and regional integration (ADB, 2008). It also has a set of safeguards that apply to all projects being financed, including infrastructure projects.

Each project seeking finance from the Bank goes through an environmental classification process, as well as a climate change risk screening review / assessment. However, the two do not appear to be fully integrated. Within the Bank's additional guidance material and procedures, there is not a strong emphasis on joint consideration of environmental, social and climate change issues or guidance on how this can be done for ADB investment projects. For example, there is very little reference to E&S safeguards or Environmental and Social Impact Assessments (ESIAs) in the guidelines on climate proofing investments, and no mention of climate change in the safeguard policy statement or its accompanying operations manual.

During the initial environmental screening, if the project is deemed to have potential adverse environmental impacts (determined in terms of its direct, indirect and cumulative as well as induced impacts in the project's area of influence), a detailed environmental impact assessment is required by Bank procedures. A comprehensive overview of how projects are classified by the Bank was not found to be publicly available. In parallel to the environmental screening, ADB appears to review projects in terms of climate risk, which is carried out in four stages:

1. An initial screening is carried out by the project teams by filling in a checklist. Projects identified to be at medium or high risk undergo a further screening through dedicated screening tools, such as the online tool AWARE for Projects. This tool is a web-based tool used by the Bank's staff to carry out a rapid initial risk screening at project concept phase. The tool uses 16 general circulation models, as well as databases on temperature increase, wildfire, permafrost, sea ice, water availability, precipitation change, flooding, snow loading, tropical storms and landslides (ADB, 2014). Based on answers to a series of questions about the project, the tool produces a climate risk assessment report that provides a summary of key risk areas (with a ranking of low, medium, or high), as well as narratives describing potential impacts of climate change and adaptive measures for further consideration (ADB, 2013). This tool is not publicly available.
2. A climate risk and vulnerability assessment is undertaken, which ranges from a simple desk analysis to a complex assessment based on custom climate projections to enable a more detailed assessment. This assessment is usually conducted by experts with background in climate modelling, impact assessment and economics of climate change who work together with ADB sector specialists, the executing agencies, the project sponsors and other stakeholders to formulate adaptation solutions for the project (ADB, 2014). No prescribed methodology or tools were found to understand how this assessment is undertaken.
3. Following on from the vulnerability assessment, a technical and economic evaluation of adaptation options is undertaken on the basis of their technical feasibility and economic viability. The economic analysis involves estimating and comparing the costs and benefits of the project based on two different scenarios: first, the project under climate change without adaptation measures, and second, the project under climate change with adaptation measures. The economic analysis aims to answer the following questions (ADB, 2015):
 - a. "How will projected climate change impact the estimated costs and benefits of the investment project? If there were to be no technically feasible measure to mitigate these impacts, would the project still be economically viable?" (ADB, 2015)
 - b. "Is climate proofing the investment project desirable from an economic efficiency point of view? If yes, should climate proofing take place at the time of project implementation (built into project design), or should it be delayed to a later point in time? What is the "best timing" to climate proof the investment?" (ADB, 2015)
 - c. "Should benefits other than those strictly associated with climate proofing the investment project be included in the economic analysis? If there are multiple technically feasible and economically desirable climate-proofing options, which of them should be recommended?" (ADB, 2015)

4. The most viable adaptation options or climate proofing measures are then identified, based on consultations with executing agencies or project sponsors, and are integrated in the project design. No standard approach is followed for this, as it's tailored to the project on a case by case basis.

ADB also has a tool for the transport sector specifically, the *Sustainable Transport Appraisal Rating* (STAR) tool to assess the sustainability of ADB's transport portfolio. The tool is intended to serve as a tool to design more sustainable transport projects, in line with the bank's Sustainable Transport Initiative Operational Plan (ADB, 2014). The tool measures a project's contribution to delivering economic, social and environmental objectives. It is used during the pre-appraisal and appraisal stages of the project finance investment cycle.

Following on from the initial environmental screening, projects with potential adverse environmental impacts, undergo a detailed environmental assessment (environmental impact assessments / initial environmental impact assessments). It is during this assessment where considerations are made for biodiversity, ecosystems and natural resources; however, a detail overview of the methodology or assessment was not publicly available.

For publicly available information sources, there does not appear to have been an evaluation of the environmental / climate risk screening methodologies or tools (AWARE / STAR); however it is understood that their application is mainstreamed across the Bank.

2.2.2 Asian Infrastructure Investment Bank

The Asian Infrastructure Investment Bank (AIIB) *Environmental and Social Framework* (ESF) is a system that supports the Bank and its clients in achieving environmentally and socially sustainable development outcomes. It is applicable to all of the Bank's members/countries of operation. The Framework lays out a vision, a policy and three supporting standards that are broadly similar in nature to those of the World Bank⁴ (WB), ADB and other established multilateral development banks. The ESF integrates good international practice on E&S planning and management of risks and impacts into decision-making on, and preparation and implementation of, Bank supported Projects (AIIB, 2017). It also makes reference to adherence and support to the Paris Agreement and the Sustainable Development Goals (SDGs).

All projects are screened to determine their E&S impact, and categorized into one of the following categories (AIIB, 2016):

- Category A: significant adverse E&S impacts that are irreversible
- Category B: limited number of potentially adverse E&S impacts
- Category C: minimal or no adverse impacts

Environmental and Social Standard (ESS) 1 of the ESF, refers to *Environmental and Social Assessment and Management*, the objective of which is to ensure the E&S soundness and sustainability of Projects and to support the integration of E&S considerations into the Project decision-making process and implementation. It applies if the Project is likely to have adverse environmental risks and impacts or social risks and impacts (or both). The scope of the E&S assessment and management measures are proportional to the risks and impacts of the Project. Instruments used to carry out the assessments include, but are not limited to (AIIB, 2016):

- Strategic ESIA's on a policy, plan or programmatic level
- Regional or sectoral E&S assessments
- ESIA for the Project
- On a specialized basis, a cumulative impact assessment or other assessment instruments.

The ESF gives an in-depth walk through their process and how each project is categorized and carried out by following a set of guidelines. The document, along with the supporting policy, are both publicly available.

Climate change considerations are made in the environmental assessments, with requirements to "develop mitigation or adaptation measures to reduce risk of climate change, as relevant; assess the impacts of the Project on climate change, including emissions, as well as the implications of climate change for the Project; identify opportunities for low-carbon use, where applicable, and for reducing emissions, enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, incorporating climate-proofing

⁴ In April 2017, World Bank and AIIB signed memorandum of understanding provides an overall framework for cooperation between the two banks; it also paves the way for the two institutions to further enhance coordination at the regional and country levels (World Bank, 2017).

into the Project, and promoting the use of renewable energy, where these are technically and financially feasible” (AIIB, 2016). A prescribed methodology or guidance was not publicly available.

The Bank recognizes the value of natural infrastructure in its ESF, such as wetlands, and the importance of enhancing or restoring the ecosystem services where appropriate (AIIB, 2017); these are considered as part of the Bank’s categorization and screening process. However, how and to what extent they are accounted for is not outlined in AIIB’s documentation.

AIIB clearly outlines the roles and responsibilities both for themselves and their clients in carrying out the Environmental and Social Framework on each project (AIIB, 2016):

- The Bank is responsible for screening each Project to assign an E&S category; it also undertakes the E&S due diligence regarding the Project as outlined in the Environmental and Social Policy (ESP). It also reviews the Client’s E&S documentation required under this ESP and applicable ESSs, to determine whether appropriate measures are in place to avoid, minimize, mitigate, offset or compensate for adverse E&S risks and impacts in compliance with this ESP and applicable ESSs. Finally, it also determines the feasibility of the Bank financing for the Project.
- The Client is responsible for assessing the Project and its E&S risks and impacts; preparing the Project’s E&S documentation, in accordance with the ESP and ESSs; and engaging with people affected by the Project and other stakeholders, through information disclosure, and meaningful consultation.

The ESF also provides a high level overview of the various stages of the E&S assessment, thus an outline of the type of data required. No indication on the timeframe of the project was provided.

2.2.3 African Development Bank

The African Development Bank’s (AfDB) *Climate Risk Management and Adaptation Strategy* (CRMA) is the Bank’s primary response to the challenges posed by climate change and applies to all of the Bank’s Regional Member Countries (RMCs). It informs AfDB’s Climate Change Action Plan, which in turn guides the implementation of the CRMA. The original document outlining the CRMA’s objectives is dated from 2009 and is based on lessons learned, as well as several regional stakeholder consultation forums and the recommendations of the AfDB President’s Working Group on Climate Change (AfDB, 2009); the CRMA may therefore be out of date, but there is no additional information to suggest that it has been superseded. The CRMA has two specific objectives:

- “To reduce vulnerability within RMCs to climate variability and promote climate resilience in past and future Bank-financed development investments making them more effective”; and
- “To build capacity and knowledge within RMCs to address the challenges of climate change and ensure sustainability through policy and regulatory reforms.”

To deliver the CRMA strategy, AfDB developed a *Climate Safeguards System* (CSS) for climate proofing their investments; these were developed through regional consultation (primarily via five workshops) which allowed the AfDB to take on board and address the concerns raised by its stakeholders and the civil society (AfDB, 2013). The CSS is a set of decision-making tools and guides that enable the Bank to screen projects for climate change related risks and to identify appropriate adaptation measures to reduce project vulnerability; however this tool is not publicly available. The CSS comprises of four modules (AfDB, 2011):

- *Climate Screening*: the screening process assesses the vulnerability of a project concept to climate change and assigns to the project a categorization, ranging from 1 (most vulnerable) to 3 (least vulnerable).
- *Adaptation Review and Evaluation Procedures* (AREP): this set of procedures has been developed to enable the user to identify adaptation measures for a project; a different set of procedures is followed depending on the categorization of the project.
- *Country Adaptation Factsheets*: the factsheets can be produced at any time and are independent of the processes described above; they are based on a template into which up-to-date information on climate projections and country indicators can be imported from various sources.
- *CSS Information Base*: the Information Base contains a portal that gives direct access to the climate projections developed for African countries by the University of Cape Town; it also contains a database of adaptation activities and links to a wide range of information sources on adaptation; it provides information required for use of the modules described above.

Guidance notes (including the climate screening tool) which provide a step-by-step breakdown of each of the four modules mentioned above have been published by the Bank. For each module it provides a summary of the steps required, the outputs of the module, the information/capability required completing the module and a

detailed step by step summary of the actions required. For the AREP module, the guidance document provides a breakdown of the actions required for the different climate and vulnerability risk classification of the projects.

The climate screening assessment classification in the CSS only takes into account climate; however the broader categorization scheme in the CRMA combines analysis of climate change vulnerability with the potential E&S impacts arising from a project. For example, projects that fall into Category 2(H) are those that have “moderately detrimental impacts on the environment and/or society, or exacerbate climate risks, and whose performance is highly vulnerable to climate risks” (AfDB, 2009). A detailed overview of AfDB’s requirements for an E&S impact assessment are publicly available (AfDB, 2003). As part of the E&S impact assessment, AfDB is only responsible for assessing the impacts for the project requesting financing. If the project is part of a larger infrastructure development process, the assessments will just be for the project, not the wider developments. However, the impacts the project will have on the immediate project site, and wider area will be taken into account in the environmental assessments. It is within these assessments that the impacts of projects on ecosystems are assessed (which seems to be disconnected from the climate risk screening process) (AfDB, 2003).

CSS appears to be at a pilot stage, and currently applies only to AfDB’s public sector operations in the agriculture, water, energy and transport sectors (AfDB, 2011). It is therefore unclear how widely adopted it is.

2.2.4 Agence Française de Développement

All operations financed by Agence Française de Développement's (AFD) are required to comply with the national regulations of the country where the operation is implemented, including for E&S issues. It is during the project appraisal phase that AFD qualify and assess its E&S risks and evaluate their level. AFD's *2012-2016 Climate Action Plan* (most current version) informs AFD’s funding decisions, as well as applying to a project’s post-implementation stage. In terms of risk screening, the “selectivity policy” categorizes projects depending on the extent of their GHG emissions. It is unclear whether the Climate Action Plan continues to influence the AFD’s funding allocations.

AFD categorizes E&S risk and climate sensitivity risk separately. The Bank’s E&S risk management process (including risks related to climate change) applies to all the operations it finances, throughout the project life cycle (AFD, 2014). It uses *IFC Performance Standards* and *World Bank Safeguard Policies* to undertake due diligence on projects.

AFD measures and assesses the climate vulnerability of projects with their *Carbon Footprint Tool (CFT)* (AFD, 2011). The CFT is a matrix that assigns a value to each project according to the project sector (e.g., hydrology, roads), region and relevant risk factors (e.g., proximity to the coast, steepness of slope). When projects are screened in terms of GHG emissions, this is on a project-by-project basis. Wider emissions (i.e., beyond the project) are not taken into account. There is extensive guidance on the application of the carbon footprint measurement tool, including detail on general and guiding principles (AFD, 2011). These principles indicate what gases should be measured by the tool, what measurement unit should be used for different gases, and how emission sources should be categorized. The same document has a step-by-step guide to carrying out carbon footprint calculations.

Climate risk is assessed by means of the selectivity policy. The selectivity policy does not provide step by step guidance, but it is prescriptive because it limits the number of projects AFD can finance in certain parts of the world.

It was unclear from publicly available information how ecosystems and their services are accounted for, as a reference does not appear in the Climate Action Plan.

2.2.5 European Bank for Reconstruction and Development

The European Bank for Reconstruction and Development (EBRD) is governed by an *Environmental and Social Policy (ESP)*, which strives to instill sustainability into their operations. It undertakes E&S assessments of all of its projects and integrates climate risk assessments and adaptation measures in their investment operations. From the review of the publicly available information, EBRD does not appear to have separate tools for assessing climate, sustainability and resilience risks. Climate risk is assessed on a case-by-case basis by drawing on sectoral guidance and country-level information that has been developed by the bank.

EBRD’s ESP makes a few references to climate change concerning the need to address both the causes and the consequences of climate change in its countries of operation and identifying opportunities to reduce emissions (EBRD, 2014). In assessing the E&S impacts of a project, the Bank categorizes each project to

determine: the nature and level of E&S investigations; information disclosure; and stakeholder engagement required. Each project is ranked A to C. "A" projects will potentially have significant adverse future environmental and/or social impacts and thus require a formalized and participatory ESIA process; whereas "C" projects are likely to have minimal or no potential adverse future environmental and/or social impacts, and can readily be addressed through limited E&S appraisal.

All projects (no matter where they are located geographically) undergo E&S appraisal to help EBRD decide if the project should be financed and, if it is, the way in which E&S issues should be addressed in its planning, implementation and operation. The E&S appraisal and monitoring of projects is integrated into EBRD's overall project cycle and decision making process; all projects seeking finance must undergo this review (EBRD, 2014).

EBRD adopts the *European Financing Institutions Working Group on Adaptation to Climate Change* (EBRD, 2016) standardized approach for assessing climate change vulnerability. This covers the assessment of climate change vulnerability and how climate resilience may be integrated into the entire project cycle.

EBRD's E&S Policy uses a precautionary approach to the protection, conservation, management and sustainable use of living natural resources and requires relevant projects to include measures to safeguard and, where feasible, enhance ecosystems and the biodiversity they support (EBRD, 2014). Projects involving the use of living natural resources are required to assess the sustainability of the resource, as well as account for the potential impacts on ecosystems and the biodiversity they support considering the following principles (EBRD, 2014):

- The use of any living natural resource needs to be considered in the context of the core ecological functions it provides within the ecosystem
- Consideration of direct, indirect and cumulative impact
- The use of the living natural resource will follow the mitigation hierarchy approach and seek to optimize benefits for other users
- The production and/or use of species or populations that are not natural to the location and not tested for their invasiveness and/or dominance over local species should be restricted or be subject to adequate studies and approval by the relevant national competent authorities, prior to production or use.

EBRD support its clients in the project scoping and financing phases; it would therefore be involved in the *Design* and *Financing* stages of the infrastructure development process (EBRD, 2014).

2.2.6 European Investment Bank

The European Investment Bank (EIB) adopted its *Climate Strategy* in 2015, which draws on the EU's climate policy objectives, and putting them into practice. The *Climate Strategy* identifies three key strategic areas around which EIB will focus its efforts. Furthermore EIB has developed an *Environmental and Social Handbook (ESH)* that provides its staff with advice on the planning and management of the E&S appraisal and monitoring of EIB operations in accordance with the established EIB environment and social policy framework.

Before EIB proceeds with full due diligence, an E&S screening is carried out for all projects. There is a simple checklist the Bank uses to assess each project in terms of: E&S issues; biodiversity, climate change and adaptation (climate sensitive sector screening, carbon footprint and vulnerability assessments), however this document was not publicly available. Projects are categorized depending on their impacts, with those demonstrating potentially adverse impacts required to undergo a detailed E&S due diligence assessment. During the detailed E&S assessment, public consultation and stakeholder engagement is undertaken (where required) to identify the possible shortcomings of the project, mitigation solutions and subsequent follow up meetings/engagements (if deemed necessary by the bank); three examples were provided in the ESH:

- Consultation carried out under and environmental impact assessment process or equivalent
- Consultation related to nature assessment resettlement action plan, indigenous peoples plan, etc.
- Meetings with project affected people and civil society organizations, public administrations etc.

The ESH provides a detailed overview of what is required at each stage of the E&S assessment. It does not provide a step by step breakdown of the methodology followed by the Bank's staff, but it does detail the different stages of the assessment and what information is required. The screening tool and climate risk and vulnerability assessment both appear to be at a pilot stage, information was not found on these. The other tools, such as EIB's carbon pricing approach, or the GHG assessment, are accompanied by more extensive guidance: *Economic Appraisal of Investment Projects at the EIB* and the Bank's *Induced GHG Footprint Guidelines*, respectively (EIB, 2013) (EIB, 2014).

Every project seeking finance from the Bank has to undergo an environment and social assessment, which includes a climate change assessment as one of the steps; with the detail of the review depending on the initial classification of the project. Although not explicitly mentioned in the documents, it is assumed these tools are widely used across the Bank.

2.2.7 Inter-American Development Bank

The Inter-American Development Bank (IDB) launched its first *Sustainable Energy and Climate Change Initiative* in 2007 and in 2011, approved an *Integrated Climate Change Mitigation and Adaptation Strategy* to address financial gaps in the climate change space. The Bank has developed E&S safeguard policies, standards and guidelines to mainstream E&S concerns, as well as to minimize negative impacts of its investments (IDB, 2017).

IDB's *Environmental and Safeguards Compliance Policy* outline the assessments undertaken on each project. First, a project is screened to determine the potentially adverse E&S impacts it may have, this then determines the level and detail of the E&S assessment that may be required (by assigning it a classification based on the risk). As part of this process, all projects are also screened for climate related disaster risks (mainly from a hazard perspective at present, in accordance with the bank's *Environmental and Safeguards Compliance Policy* and *Disaster Risk Management Policy*. The classification that takes place, categorizes projects as A, B, or C; "A" category projects are likely to cause significant negative environmental and associated social impacts, or have profound implications affecting natural resources, whereas "C" will likely have minimal or no negative environmental and associated social impacts.

Following the initial screening and classification, if the project is determined to have adverse impacts, a detailed E&S assessment is required. This is undertaken by the borrower. The assessment will, among other E&S factors, assess the project's compliance with IDB policies; transboundary impacts; and impacts on natural habitats and cultural sites. Projects are also required to identify mitigation measures for identified impacts. For natural habitats, if the project is found to significantly convert or degrade a critical natural habitat (in the bank's opinion) it will not be supported. However, if it is found not likely to significantly convert or degrade the critical natural habitat, but might still negatively impact it, the borrower will be required to develop and integrate mitigation and monitoring measures to overcome these impacts that are acceptable to the bank's project team.

Although climate risk is covered in the E&S assessment required under the *Environmental and Safeguards Compliance Policy*, a detailed methodology is provided separately and not publicly available for review. It is understood that IDB is currently exploring better ways to screen projects for climate and sustainability risk, and has recently improved its screening tool. Further improvements are being made for a planned release in late 2017 to incorporate project level risk parameters (due to the limitations of hazard data availability at project scales). The IDB is also working to develop and pilot climate related disaster risk assessment and management approaches for its projects, to provide guidance to borrowers on what to do when their project is classed as medium or high risks during the screening phase⁵.

It was also found that GHG footprints are also calculated for the Bank's investments to deliver a reduction in emissions generated and to increase avoided emissions; however it is unclear if this is used as a screening mechanism, or post decision making.

All Bank-financed operations are screened and classified according to their potential environmental impacts. IDB will only finance operations and activities that comply with its *Environmental and Safeguards Compliance Policy Directives* (IDB, 2006). In terms of the infrastructure development process, this would take place in the design and financing stages.

2.2.8 KfW Development Bank

On behalf of the German Federal Government, KfW Development Bank (KfW) provides funds to partner countries, with the objective of promoting sustainable development. It is governed by a set of E&S guiding principles outlined in the bank's *Sustainability Guideline*. One element of this is the E&S responsibility assessment and climate assessment of a project seeking support, which is undertaken before implementation commences. The assessment aims to identify the possible negative effects of the project at an early state and to allow mitigation measures to be identified and integrated into the design, to remove or reduce the risks to an acceptable degree (KfW, 2016). KfW's sustainability guiding principles aim to pursue the financing of projects that: 1) avoid, reduce, or limit environmental pollution and damage including climate-damaging emissions and pollution; 2) preserve, protect and/or sustainably manage biodiversity and natural resources; and 3) have taken

⁵ This information is based on discussions between AECOM and IDB unrelated to this project.

into account future climate change risks and impacts, and have incorporated suitable adaptation options in their design (KfW, 2016).

KfW's *Sustainability Guideline*, published in 2016, states that all funding activities by the Bank are subject to an internal E&S due diligence and a climate assessment process. They undergo a screening process to determine its relevance in terms of E&S impacts and risks, as well as in terms of substantial GHG reduction potential, and substantial need for adaptation to possible climate change. The screening process is designed to identify and appraise the type and scale of any adverse E&S impacts or risks that may arise from the planned investment measure, potential for reducing GHG emissions and possible climate change impacts on the investment measure that may impair the achievement of objectives. Projects are classified into one of three categories: A, B, or C, according to the relevance of their potentially adverse E&S impacts and risks.

There is no separate tool for assessing both sustainability and climate risk and resilience. Project assessments however must cover: impacts and risk as a result of cumulative effects; whether the intended development policy impact of KfW measure depends largely upon climate parameters; and, whether KfW measure can contribute towards significantly enhancing the adaptive capacity of target groups or ecosystems—primarily on the capacity for ecosystems to adapt.

2.2.9 World Bank (including IBRD and IDA)

The World Bank - including the International Bank for Reconstruction and Development (IBRD) and the International Development Agency (IDA) – approved its new *Environmental and Social Framework*⁶ (framework) in 2016. The framework will replace the existing safeguard policies in 2018. The framework is made up of the World Bank's vision for sustainable development, policies relating to sustainable development, and ten *Environmental and Social Standards* (ESS) that set out mandatory requirements for the World Bank and for borrowers in relation to projects funded through investment project financing. The framework will apply to all new investment projects when it is launched in 2018. However, current safeguards will run in parallel to the new framework for seven years to govern projects approved before the framework's implementation. Given that the framework has yet to be introduced, it is difficult to draw firm conclusions on its strengths and weaknesses.

The framework includes mandatory E&S procedures, though it does not explicitly reference climate risk or resilience. However, the framework requires the World Bank to take into account environmental risks and impacts related to climate change during due diligence on projects, and a number of the ESSs do explicitly reference climate change (World Bank, 2016).

Cumulative impacts of multiple developments and drivers of change are considered at various points in the Environmental and Social Framework, in particular under ESS 1, where borrowers are required to undertake a cumulative impact assessment (depending on the scope and nature of the project), as part of the E&S assessment. The impact a project will have on ecosystem services and the use of living natural resources is also accounted for in several of the standards, as well as how these can be exacerbated by climate change; however, guidance on these are both still general at present (World Bank, 2016).

It is notable, however, that there is no information or guidance in any of these documents that make up the framework on how climate risk and resilience are assessed. There are also no references to impacts on future livelihoods.

The World Bank has also developed an *Infrastructure Prioritization Framework* that is a multi-criteria decision support tool designed to assist governments with the planning and prioritization of infrastructure projects, i.e., the selection of infrastructure projects on a systematic basis, reflecting full economic and financial costs and benefits including environmental and social costs and benefits (World Bank, 2016). The key strength of the framework is that it may be flexibly applied. However, the toolkit appears to be for the use of national governments, and not for financing decisions by the Bank.

2.2.10 International Finance Corporation

The International Finance Corporation (IFC), part of the World Bank Group, has a detailed policy on environment and social sustainability, and eight performance standards which cover E&S risks. The standards in particular have proved to be extremely influential and have been widely adopted and used by other institutions. These were both updated in 2012. Alongside the standards, the IFC has published detailed guidance notes on their

⁶ Note: the updated Environmental and Social Framework is not applicable to the World Bank Group widely i.e. it is not applicable to the International Finance Corporation, the Multilateral Investment Guarantee Agency and the International Centre for Settlement of Investment Disputes.

application. There are relatively few references to climate change, and in particular to climate risk and resilience, within both the policy and the standards themselves. The guidance notes do however contain extensive references, including on assessing the impact of future climatic conditions on investments.

Climate change and addressing climate risk appears to have become a bigger priority for IFC in recent years, which probably explains the relative lack of references in the 2012 standards and policy. The Bank published a *Climate Implementation Plan* in 2016, which includes *Accounting for climate risk – the physical risk of climate impacts and the carbon asset risk in IFC’s investment selection*, as one of the four objectives of the plan. The plan also stated IFC’s intention to develop a process to screen climate risk in its investments. It is not clear if this has been developed, and if so it is likely that it is an internal document as no information regarding it was available online. The IFC also encourages use of non IFC tools to assess climate risk and resilience, however these are not involved in the Bank’s project screening process.

IFC’s guidance notes contained fairly detailed information on how to assess the impact of an investment on ecosystems, and on ecosystem services. The guidance also contains a number of references to assessing the impacts to future livelihoods, and also of assessing cumulative impacts. The guidance notes do not reference natural capital approaches (other than mentions of ecosystem services).

2.2.11 BREEAM Infrastructure

The Building Research Establishment Environmental Assessment Method (BREEAM) was first published in 1990 by the Building Research Establishment (BRE) for assessing, rating and certifying the sustainability of buildings, infrastructure and master planning projects. There are currently five BREEAM technical standards that are used to assess projects at varying stages of the infrastructure development cycle: *Communities* (for master planning); *Infrastructure* (for civil engineering and public realm projects); *New Construction* (for building projects); *In-Use* (for buildings); and *Refurbishment and Fit-out* (for buildings). The BREEAM assessment process evaluates the procurement, design, construction and operation of a development against targets that are based on performance benchmarks. Assessments are carried out by independent, licensed assessors, and developments rated and certified on a scale of pass, good, very good, excellent and outstanding. BREEAM is extensively used across the world, in particular in Europe where it has an 80% market share across Europe for sustainable building certification.

BREEAM measures sustainable value in a series of categories, ranging from energy to ecology. Each of these categories addresses the most influential factors, including low impact design and carbon emissions reduction; design durability and resilience; adaption to climate change; and ecological value and biodiversity protection. A number of these categories incorporate future climate resilience into assessments, including on materials and buildings.

In recent years, BREEAM has introduced a number of new standards and frameworks which more fully address climate risk and resilience. In 2011, *Communities* was launched, a standard aimed at addressing key environmental, social and economic sustainability objectives that have an impact on large-scale development projects. It includes a step to ensure that the development is resilient to the known and predicted impacts of climate change. This standard also focuses on the community-wide impacts of large developments, meaning that cumulative impacts were addressed by BREEAM for the first time.

BREEAM have also developed a strategic ecology framework, which includes a requirement to understand the existing ecological value of sites. This framework is currently only used in the UK. BREEAM has also recently produced a *New Construction* standard (pilot) methodology, which is aimed at certifying the social, economic, and environmental impact of new infrastructure assets by integrating sustainable approaches into the design and construction process.

2.2.12 CEEQUAL

CEEQUAL is an international sustainability assessment, rating and award for civil engineering, infrastructure, landscaping and public realm projects. It promotes and celebrates the achievement of high E&S performance. The assessment is not publicly available, as users are required to pay for the services from the Building Research Establishment (BRE).

As the detailed assessment methodology was not publicly available, it is difficult to ascertain the full extent to which climate risk, resilience and natural capital are taken into account in the development process. The assessment process requires users to assess the project under nine subsections, of which there are multiple ‘environmental’ focused modules (such as *Ecology & Biodiversity*, *Land Use and Landscape*, *Water Environment* etc.), where considerations are made for the project’s impacts on and protection of the water

environment; flood risk; energy and carbon emissions in use, energy and carbon performance on site, minimizing material use and waste, etc. Actors involved in these stages are able to assess the sustainability for the whole, or part, of the project, allowing for elements of best practice to be drawn out.

Although CEEQUAL is an international tool, it appears to be more UK focused in its application. Aside from the UK, based on information from its website, a scoring weighted system has only been developed for Hong Kong and Sweden, at present.

CEEQUAL was acquired by BRE in 2015. During the literature review, it was found that the BRE's intention of acquiring CEEQUAL is to develop a new and improved scheme for industry that combines the team and process-focused approach of CEEQUAL with the asset-based scientific methodology of BREEAM.

2.2.13 China's Green Guidelines for the Belt and Road Initiative

The State Council of the Peoples Republic of China (Chinese government) approved the Silk Road Economic Belt and the 21st-Century Maritime Silk Road Initiative (BRI) to promote policy coordination, facilities connectivity, unimpeded trade, financial integration and people-to-people exchange among the countries along the Belt and Road, promote orderly and free flows of economic factors, efficient allocation of resources and deep integration of markets, and jointly create an open, inclusive and balanced regional economic cooperation framework that benefits all (MoF, 2017).

The Chinese government's *Guidance on Promoting Green Belt and Road* is not a tool, more a set of options to be considered during the planning, design, financing and implementation of infrastructure developments. It does make reference to tools and methodologies that will be used in all the BRI countries; however, these have not yet been developed. In three to five years, the Chinese government intends to implement an environmental protection and support exchange system between BRI countries that will help develop and execute a series of eco-environment risk prevention policies and measures. In five to ten years, it aims to set up a "full-fledged environmental service, support and guarantee system" that aims to be applied to all development projects across the BRI (PMPRC, 2017). The guidelines also suggest considerations are made to ecosystems, biodiversity, climate change resilience and adaptation, however no further information is available at present.

The Chinese government has published its intention to provide "energy-efficient, low-carbon and renewable energy materials to the BRI countries, launching cooperation projects on solar energy, wind energy, methane gas, hydroelectric power and clean cooking stoves, organizing dialogues and exchanges on energy efficiency, energy saving and environmental protection, and offering training to address climate change" in its south-south cooperation with other BRI countries (Office of the Leading Group for the BRI, 2017).

2.2.14 Envision®

Envision® is a holistic sustainability rating system released by the Institute for Sustainable Infrastructure (ISI) used to assess all types and sizes of infrastructure projects from roads, bridges, pipelines, railways, airports, dams, levees, landfills, water treatment systems and other civil infrastructure (ISI, 2017). It was primarily developed for public projects in the U.S. and Canada, but the criteria can be adapted for other locations and types of projects as well.

Envision® addresses the full range of environmental, social and economic impacts to sustainability in project design, construction and operation (Envision, 2017), and incorporates climate risk and resilience as part of the evaluation criteria (ISI, 2017). The Envision toolkit has 60 sustainability criteria, called credits, arranged in five categories that address major impact areas (ISI, 2017): *Quality of Life; Leadership; Resource Allocation; Natural World and Climate and Risk*.

Envision assesses how an infrastructure project depends on natural capital but it also aims to help conserve and restore natural resources and ecological systems. Specific to biodiversity, Envision assesses projects' ability to (ISI, 2017):

- Maintain and restore the ecosystem functions of streams, wetlands, water bodies and their riparian areas
- Protect biodiversity by preserving and restoring species and habitats
- Use appropriate non-invasive species and control or eliminate existing invasive species
- Restore soils that were disturbed during construction and previous development to bring back ecological and hydrological functions.

It also considers the climatic condition of an area for infrastructure projects and potential risks in terms of considering ways in which a project can (ISI, 2017):

- Avoid traps and vulnerabilities that could create high long-term costs and risks for the affected communities
- Be resilient to the consequences of long-term climate change, perform adequately under altered climate conditions, or adapt to other long-term change scenarios
- Increase resilience and long-term recovery prospects of the project and site from natural and human induced short-term hazards.

The tool is applicable at any point in an infrastructure project's life cycle, and it's used to evaluate and recognize transformational and collaborative approaches that integrate sustainability into a development. It covers roads, bridges, pipelines, railways, airports, dams, levees, landfills, water treatment systems and other civil infrastructure (ISI, 2017).

Envision is free to download and anyone is able to use it, no prior expertise is required. ISI has developed training material to support users to undertake self-assessments. There is also a group of Envision sustainability professionals (ENV SP), who are credentialed practitioners trained by ISI in the use of the Envision rating system. These practitioners work to guide the project team to achieve higher levels of sustainability and to document project sustainability accomplishments. In order to be eligible for certification, a project must be assessed with a practitioner involved in the process (ISI, 2017). However, there are fees associated with the independent third party verification and the support from practitioners.

2.2.15 SuRe® Standard

The Standard for Sustainable and Resilient Infrastructure® (SuRe Standard) is a global voluntary standard that integrates “sustainability and resilience aspects into infrastructure development and upgrades” (GIB, 2017). The SuRe Standard aims to establish a common language and basis of understanding between project developers, financiers and public sector institutions regarding sustainable and resilient infrastructure. It also aims to increase the flow of financing from multilateral and private investors, by improving the attractiveness of sustainable and resilient infrastructure (GIB, 2017). The Standard is applicable for projects activities performed as a part of the planning, design, operation and maintenance of the project (GIB, 2017).

Sustainability and climate risk and resilience are assessed concurrently under the SuRe Standard certification. The SuRe Standard consists of 63 criteria against which an infrastructure project is assessed and can be classified in one of three certification levels: bronze, silver and gold. The certification process uses accredited third parties to carry out independent audit and verification of projects against the 63 assessment criteria. Projects have to achieve minimum compliance or better with these criteria. Of the 63 criteria, 22 are mandatory, meaning minimum compliance is required to achieve certification (GIB, 2017). In addition, the SuRe Standard requires that sustainability and resilience are embedded at the core of infrastructure projects (GIB, 2016). In particular, the SuRe Standard addresses resilience planning through a vulnerability assessment, and also aims to ensure that “projects shall be designed and operated to avoid negative impacts on climate change” (GIB, 2016).

Climate resilience is also considered in the SuRe Standard's assessment criteria. Sustainability and resilience management is one of the broad themes included in the governance aspects of the standard. More specifically, “climate resilience and infrastructure adaptability” is included in the list of assessment criteria. This criterion requires that for projects at risk due to climate change impacts, the project owner “shall demonstrate the project design's ability to withstand, within reason, identified climate change risks and hazards in different yet plausible scenarios.” (GIB, 2016)

Ecosystem services are also accounted for in one of the SuRe Standard's 63 assessment criteria. In particular, the SuRe Standard requires that infrastructure projects are ‘designed as far as possible in a way that integrates ecosystem services as a part of the planned infrastructure function and avoids negative impacts on biodiversity and ecosystems’ (GIB, 2016). Where impacts on ecosystem services are unavoidable, the SuRe Standard requires that the “project owner shall seek to minimize impacts and implement restoration measures in accordance with a zero net-loss approach.”

The SuRe Standard is relevant to three groups of stakeholders: project developers, financiers and public sector institutions. The standard developers estimate a relatively short timeframe for certification to be achieved once all documentation is in place – one to two months (GIB, 2016), but the standard is not yet launched or widely applied so this is likely an under-estimate. A condensed timeframe is potentially advantageous from the point of view of project developers or financiers.

The methodology for the standard has undergone a second round of public consultation in its design. The GIB Foundation also conducted a stakeholder mapping exercise to identify groups of project developers,

infrastructure financiers and public sector institutions (i.e., the end users of the standard) to review the Standard methodology (Version 0.4 at the time of writing this study report) (GIB, 2017).

2.2.16 Equator Principles

The Equator Principles is a risk management framework, adopted by many FIs, for determining, assessing and managing E&S risk in projects (financial risk is not considered). It is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making (Equator Principles, 2017). The Equator Principles are applied globally and to all industry sectors. There are currently 91 FIs in 37 countries who have officially adopted the framework

The framework is made up of ten principles, which ensure projects are correctly screened, reviewed and subsequently monitored. All FIs that have adopted the framework have committed to ensuring their investments meet all ten principles, as a minimum.

All projects must undergo an E&S screening, where the project will be classified A, B, or C in terms of their potential environmental and social risks and impacts (“A” potentially having significant adverse E&S risks and/or impacts that are diverse, irreversible or unprecedented; through to “C” that are projects with minimal or no adverse impacts). Such screening is based on the E&S categorization process of IFC. A detailed E&S assessment is required for all Category ‘A’ and “B,” where a detailed review of risks and impacts of the proposed project will be undertaken. During this assessment a review of the project’s protection and conservation of biodiversity and sustainable management and use of renewable natural resources is made. The framework does also outline a range of best practice guidelines that take into account ecosystems and their services; however, these are not mandatory to undertake.

Furthermore, for all projects that are expected to emit more than 100,000 tons of CO₂ equivalent annually (Scope 1 and 2 emissions), an alternatives analysis will be conducted to evaluate less GHG intensive alternatives. Consideration is also made to the “viability of project operations in view of reasonably foreseeable changing weather patterns/climatic conditions, together with adaptation opportunities.”

The framework provides a general overview of the assessments that borrower/FIs must undertake in order to adhere to the Equator Principles. There is no prescribed detailed methodology, but a series of illustrative lists of factors that should be considered in an assessment, for example the *Illustrative List of Potential Environmental and Social Issues to be Addressed in the Environmental and Social Assessment Documentation* in version 3 of the risk management framework.

3. Analysis of findings

This section of the report analyzes the findings from the literature review. It provides examples of tools demonstrating best practice of screening infrastructure projects in terms of sustainability, climate and resilience; as well as highlighting the limitations and gaps of the tools.

3.1 Overview

There was no one tool that stood out to demonstrate best practices in terms of screening sustainability, climate and resilience risk, in particular across each of the stages of the infrastructure development process being assessed as part of this study. The scope and applicability of tools reviewed ranged across the three phases, as highlighted in Table 3.

Table 3: Sustainability, climate and resilience risk screening tools applied across the different stages of the infrastructure development process

Financial Institution / infrastructure standard	Infrastructure development process		
	Planning	Design	Finance
Asian Development Bank			
Asian Infrastructure Investment Bank			
African Development Bank			
Agence Française de Développement			
European Bank for Reconstruction and Development			
European Investment Bank			
Inter-American Development Bank			
KfW Development Bank			
World Bank (including IBRD, IDA)			
International Finance Corporation			
BREEAM Infrastructure			
CEEQUAL			
Belt and Road Initiative Green Guidelines			
Envision®			
SuRe® Standard			
Equator Principles			

Key:

- Significant coverage
- Moderate coverage
- Limited coverage
- No coverage

(Based on an assessment on the findings from the literature review of publically available information only)

The financial institution tools were found to be more focused on the financing phase of the infrastructure development process, as one would expect, as they help screen and assess projects to assist in a bank’s decision making process (i.e., whether a project is financed). However, it was also found that some FIs took a more hands-on approach and assisted borrowers in the scoping and design of project proposals and concepts, thus are involved in the design phase of the infrastructure development process as well. The screening tools in this case can be used to identify more resilient design options, as an example. The Equator Principles framework was also found to assist in financing decisions, as it provides a minimum standard of E&S due diligence to support many private finance institutions undertaking responsible investment decision making.

During the review, it was also found that some FIs could be seen to engage in the planning phase of the infrastructure development process beyond the project level; however, this was more in terms of high level policy engagement with national governments. The screening tools were not applied to this phase, hence the fields in the planning column in Table 3 are marked as “no coverage.” The Asian Development Bank, African Development Bank and World Bank were identified as institutions who engaged in this manner. For example, the African Development Bank works with each of its borrowing regional member countries to define a medium-term to long-term development strategy and operational program in a document called Country Strategy Paper (CSP); through this engagement technical support is provided, which can support policy development (AfDB, 2017). The World Bank works with the governments of their borrowing countries (as well as other stakeholders) to determine how financial and other assistance can be designed to have the largest impact.

The infrastructure standards and assessment tools cater for the design phase (i.e., the project level design) promoting low impact design, sustainable resourcing and carbon emission reductions, amongst other factors; as well as focusing on elements of the planning phases (i.e. larger and wider scale development plans which tend to be carried out pre-project level design). BREEAM, for example, through its Communities Technical Standard supports planners, local authorities and master planning teams measure and certify the sustainability of developments at the neighborhood scale and beyond. Envision® and the SuRe Standard can be used in the planning phase to screen infrastructure sustainability options at a very high level.

The Belt and Road Initiative Green Guidelines is different to all the other tools reviewed, as it is more a set of principles with related high level plans, and intentions to develop tools, strategies and procedures to mainstream environmental, sustainability, climate and resilience assessments / screening into all BRI developments. The guidelines state these will cover all three phases of the infrastructure development process, and beyond.

The FIs were found to be governed by an overarching E&S policy / framework (or similar), which is underpinned by a series of standards (or sometimes called safeguards, principles etc.). It is these standards and procedures that determine the level and detail of the E&S assessment that is required. Within the impact assessment methodology, climate change considerations are taken into account. The European Investment Bank, International Finance Corporation and World Bank are the best examples that outlined a comprehensive range of standards a project must adhere to in order to receive financing. The Inter-American Development Bank has a number of recently updated or about to be released policies and procedures that look across projects and issues and, like many of the other FIs, is actively pursuing better tools and policies to address these issues.

The policies and supporting standards provided a high level overview of the banks' requirements from a borrower; all were found to have an environmental assessment requirement. However, prior to this assessment being undertaken, each institution requires a project to undergo an initial risk screening to determine the potential adverse E&S impacts it may have on and around the project site. Projects tend to be placed into three categories: highly, medium, or low/none impactful projects. Highly and medium impactful projects are required to undergo detailed environmental assessments. In undertaking the review of publicly available information, it was found that as part of the initial screening phase, climate risk and resilience vulnerability assessments are incorporated by some FIs, where they have developed their own bespoke tools. The Agence Française de Développement and African Development Bank, for example, use climate risk screening that forms part of the categorization score; they have developed and apply a carbon footprint tool, and the *Climate Safeguard System* tool, respectively, as part of the screening process. It may be the case that other FIs do use tools reviewing climate risk, however these were not found to be publicly disclosed. It is therefore difficult to determine which tool/practice is best practice.

Once the project has undergone the initial categorization, all high and medium impactful projects will undergo a detailed environmental assessment. It is during this assessment that considerations are made to biodiversity, ecosystems (and their services), and natural habitats. These are also taken into account in environmental impact assessments and initial environmental examinations. The development of an environmental management plan is used to minimize the anticipated impacts during construction and operation is also required at this stage, as followed by the International Finance Corporation.

Not all the FIs considered climate risk and resilience in great detail during the environment review. As part of a standard environmental assessment, projects are often asked to assess the implications of changing temperature and climate conditions on a project site. However, it was found that some banks, if the projects are identified as high/medium in terms of climate risk, require additional climate assessments. The Asian Development Bank, for example, has developed its web based *AWARE Project* tool that allows the Bank staff to review these types of projects and develop climate risk assessment reports that provide a summary of the key risk areas, as well as potential impacts from climate change. Their vulnerability assessment aims to quantify the risk and identify adaptation options that can be integrated into the project design.

Whilst the FIs' overarching policies, frameworks and guidelines were found to be free and publicly available; many of the *tools* used by the FIs to undertake the climate risk or vulnerability screening were not publicly available. A detailed review of the tools was therefore unable to be undertaken. Rather, this review uncovered the need for such tools to be made publicly available to encourage further uptake, collaboration, innovation and sharing of best practice. It was also found that no public consultations are undertaken at the screening stage of a project, and instead left till the detailed environmental assessment.

All projects seeking finance, within the respective financial institution's geographical operational remit, must undergo the process outlined above; therefore this is applicable to infrastructure projects as well.

The Infrastructure standards are more structured towards assessing, rating and certifying sustainability and - to a lesser extent - master planning. They are made up of a set of criteria that the user needs to respond to, and gather evidence to support the response. The assessments have online platforms, but not all are free and publicly available as they are revenue sources for the organizations that designed them – this is the case for BREEAM and CEEQUAL. Users must pay a subscription or assessment fee in order to have access to the portal. A review of the tool for these standards was therefore not possible. Envision and SuRe Standard are both freely available. There is a fee associated with Envision for independent verification to take place. It was also found that only the SuRe Standard intends to be compliant with ISEAL guidelines (the other standards did not report to be).

It was found that all Infrastructure standards, except for BREEAM, were self-assessment tools; however in order to enter awards or achieve the accreditation, use of experts/practitioners are required to audit / verify the assessment. BREEAM is a third party assessment scheme, therefore projects seeking certification must use a qualified BREEAM assessor to undertake the review.

No direct comparison could be made for the Belt & Road Initiative Green Guidelines as no tools, methodologies or detailed guidance notes have been developed. The guidelines are at present the Chinese government’s intention to develop sustainability, climate and resilience screening tools for all future Belt & Road Initiative developments.

3.2 Emerging best practices and limitations of the tools

As previously discussed, no one process or tool stood out as delivering best practices in terms of screening sustainability, climate and resilience risk for infrastructure projects; Table 4 aims to highlight the elements of best practices, and also the limitations of the tools reviewed.

Table 4: Emerging best practice and limitations of the tools reviewed

Financial Institution / Infrastructure Standard	Emerging Best Practice	Limitations and Gaps
ADB	<ul style="list-style-type: none"> ADB appears to have a robust climate risks and vulnerability screening process, undertaken in parallel with the E&S screening processes. The Bank has developed a climate risk screening tool called <i>AWARE Projects</i> which produces a climate risk assessment report that provides a summary of key risk areas, as well as potential impacts of climate change. ADB has published sector specific guidelines for integrating climate risk management into the project cycle. These are publicly available and provide developers, borrowers, etc. with guidance on considerations they should integrate in projects. ADB has developed the <i>Sustainable Transport Appraisal Rating (STAR)</i> tool to assess the sustainability of ADB’s transport portfolio, this is applicable to transport infrastructure as well. The tool is intended to design more sustainable transport projects. 	<ul style="list-style-type: none"> The climate risk screening tool is not publicly available, and currently only used by Bank staff. During the literature review, there was reference to other screening tools; however, these were not found.
AIIB	<ul style="list-style-type: none"> AIIB’s E&S framework provides a detailed overview of the requirements on projects in the initial screening and appraisal phase. AIIB and WB cooperation agreement will establish a framework for easier collaboration, knowledge sharing and joint financing opportunities. 	<ul style="list-style-type: none"> There is little detail on how ecosystems and natural capital are accounted for in the Bank’s E&S framework. A recent independent evaluation of AIIB’s operations and investment decisions found that the Bank could improve by: setting targets for low-carbon investments; adopting a carbon footprint benchmark; and applying a shadow carbon price to fossil fuel-related investment evaluations (ODI, 2016).
AfDB	<ul style="list-style-type: none"> AfDB’s Climate Safeguards System for climate proofing their investments is a set of decision-making tools and guides that enable the Bank to screen projects for climate change related risks and 	<ul style="list-style-type: none"> AfDB has not made their <i>Climate Safeguards System</i> publicly available. It is also unclear from the publicly available information how mainstreamed these

	<p>to identify appropriate adaptation measures to reduce project vulnerability. It consists of:</p> <ul style="list-style-type: none"> ○ <i>Climate Screening methodology</i> ○ <i>Adaptation Review and Evaluation Procedures (AREP)</i> ○ <i>Country Adaptation Factsheets</i> ○ <i>Information Base</i> containing a portal that gives direct access to the climate projections developed for African Countries by the University of Cape Town <ul style="list-style-type: none"> ● There are step by step guidance notes provided by the Bank to undertake the four modules above. 	<p>assessments are, or whether they have in fact been implemented.</p>
AFD	<ul style="list-style-type: none"> ● AFD has a selectivity policy that excludes from financing projects likely to produce high emissions. ● The Bank also uses a carbon footprint measurement tool that calculates the carbon emissions produced by projects that have received financing from AFD. 	<ul style="list-style-type: none"> ● AFD's <i>Climate Action Plan</i> is out of date, it does not appear to have been updated. ● There also appears to be little information on the methodologies used to assess climate change risks. ● AFD seems to look at climate mitigation separately from adaptation and resilience.
EBRD	<ul style="list-style-type: none"> ● EBRD's risk analyses are informed by country level and sector strategies that refer to climate change; each country and sector strategy provides information on the requirements and also key climate change risks, thus providing a clear guide for its staff. ● EBRD's E&S Policy is comprehensive enough to capture necessary protections for ecosystem sustainability and services. 	<ul style="list-style-type: none"> ● Climate risk screening is undertaken on a case by case basis – it does not appear to be fully mainstreamed into the Bank's decision making on a project by project basis. ● Considerations can be enhanced in the Bank's directives for addressing climate risk and resilience in the case of ecosystem sustainability and services (e.g., the use of forecasting or modelling to make informed decisions).
EIB	<ul style="list-style-type: none"> ● Detailed ESH (publicly available) that outlines all the requirements of projects. Its strengths comes from: extensiveness of the tools it comprises, which range from tools for identifying and assessing climate risks (e.g. the climate screening tool and the climate risk and vulnerability assessment, carbon footprint) to financial instruments like Climate Awareness Bonds. 	<ul style="list-style-type: none"> ● Tools were not found to be publicly available.
IDB	<ul style="list-style-type: none"> ● IDB has developed and published a natural habitats decision making process that takes into account E&S impacts of a project. 	<ul style="list-style-type: none"> ● The Bank does have a <i>Climate Change Strategy</i>; however, it serves more as a guiding instrument for scaling up IDB support for actions to mitigate and adapt to climate change within Latin America and the Caribbean, rather than a project screening tool. ● The Bank is making improvements to its risk screening tool 2017 to incorporate project level risk parameters (due to the limitations of hazard data availability at project scales). The IDB is also working to develop and pilot climate related disaster risk assessment and management approaches for its projects to provide guidance to borrowers on what to do when their project is classed as medium or high risks during the screening phase. Additional details are not available at this time.
KfW	<ul style="list-style-type: none"> ● KfW has a combined sustainability (E&S) due diligence and a climate assessment. ● Detailed guidance notes on what is required from the sustainability and climate assessments are available from the Bank. 	<ul style="list-style-type: none"> ● Tools referenced in the guidelines were not found to be publicly available, and were for internal Bank use only
World Bank	<ul style="list-style-type: none"> ● <i>The WB's updated E&S framework is due to be implemented across the bank in 2018; Bank staff are undergoing training for the updates, and guidance materials are still under development, thus it is difficult to draw firm conclusions about the framework's strengths and weaknesses.</i> 	
IFC	<ul style="list-style-type: none"> ● Climate change is much more embedded in guidance notes, such as the Climate 	<ul style="list-style-type: none"> ● The tools the Bank does use are not publicly available.

	<p>Implementation Plan or the <i>Climate Risk and Business: Practical Methods for Assessing Risk</i>, than the Bank's Performance Standards, which include detailed information on how to interpret and put into practice the Bank's sustainability policies and standards, including on relevant issues like ecosystem services, future livelihoods, etc.</p> <ul style="list-style-type: none"> • A process to screen climate impact risk in its investments is reportedly under development • The Bank also encourages use of non IFC tools to assess climate risk and resilience; however, these are not involved in the Bank's project screening process. • The Bank's Climate Risk Working Group is developing a climate risk screening tool that will be rolled out as a pilot on the following sectors: ports, waterways, forestry, pulp & paper and insurance. The climate risk assessment is not intended to be the basis for a go/no-go decision, but an additional data point in the decision making process. However, no further details were available on this tool. 	
BREEAM	<ul style="list-style-type: none"> • BREEAM's methodology now encompasses the whole life cycle of buildings from planning to in-use and refurbishment. Recent BREEAM methodologies have put an increased focus on sustainability, environmental impact and climate change resilience. • Detailed guidance notes on the methodology is available. 	<ul style="list-style-type: none"> • Online tool is not publicly available, as it is a fee paying assessment tool. • It was not apparent that a natural capital approach has been incorporated into BREEAM, although the Strategic Ecology Framework does place a greater importance on ecological value.
CEEQUAL	<ul style="list-style-type: none"> • Self-assessment process that allows the user to undertake their own evaluation, and not be reliant on third parties. 	<ul style="list-style-type: none"> • Assessment methodology is not publicly available, as it is a fee paying assessment tool. Thus, it is difficult to ascertain the full extent to which climate risk, resilience and natural capital are taken into account in the process. • Although CEEQUAL is an international tool, it appears to be more UK focused in its application. • [Applicable to all standards] There is no current consensus in the engineering and construction industry on how to perform risk assessment for climate change. Some of the tools evaluated are used by individual firms on a case-by-case basis, usually based on discussions with the client, but the standard of practice in the industry is still evolving.
BRI	<ul style="list-style-type: none"> • The BRI is ambitious in aiming to develop tools/methodologies to screen sustainability, climate and resilience risk across all the infrastructure development process. 	<ul style="list-style-type: none"> • No tools or methodologies have been developed at present. The Chinese Government has set out plans for 2-5 years and 5-10 years to ultimately build a "full-fledged environmental service, support and guarantee system" that will be applied to all BRI developments. No additional information is available on how this will be undertaken.
Envision®	<ul style="list-style-type: none"> • Holistic approach to risk by combining sustainability and climate risk in its online self-assessment process • The tool is publicly available at no cost. 	<ul style="list-style-type: none"> • Currently only mainly used in the U.S. and Canada.
SuRe® Standard	<ul style="list-style-type: none"> • SuRe Standard has a comprehensive coverage; its assessment criteria encompass environmental, social and governance issues and reference key environmental concepts like climate change resilience, ecosystem services and natural capital, primarily for the design phase of an infrastructure development. The score/ certificate achieved is intended to also aid the financing phase. 	<ul style="list-style-type: none"> • Achieving the SuRe Standard certification requires <i>minimum compliance</i> with at least 22 separate assessment criteria, which may be overly onerous for project developers and other stakeholders.

	<ul style="list-style-type: none"> • The standard is intended to serve as a globally applicable common language tool for infrastructure project developers, financiers and public sector institutions. • The standard is also compatible with international guidelines and safeguards used by international financial organizations. 	
Equator Principles	<ul style="list-style-type: none"> • Equator Principles risk management framework is widely used internationally. All FIs who have adopted the framework have committed to ensuring their investments meet all ten principles. The framework therefore sets a good baseline level assessment for a review of a project. • The guidance information is all publicly available. 	<ul style="list-style-type: none"> • Equator Principles framework could be strengthened in terms of its climate risk assessment and vulnerability; at present there is only a requirement to undertake a GHG emissions assessment of the project, and one element in the E&S assessment to determine how changing weather patterns/climatic conditions can affect the viability of the projects. Additional guidance or a more detailed methodology for undertaking such a review could be considered.

It was also found that there is an overarching limitation to the FIs' tools; although cumulative impacts are assessed as part of the detailed E&S assessments, they are still only engaged in response to a single project seeking financing. Wider regional impacts or interactive impacts among multiple projects are not captured in terms of wider natural resources management.

3.3 Improving the focus on pipeline prioritization and planning

There are multiple challenges when considering climate change and infrastructure investments, two angles of the lens are: how might a particular project or development affect climate change (or the surrounding environment), but also how might climate change impact a project itself.

Many of the E&S and climate screening tools are assessing risks that focus on the local impacts of the project. Little is currently being undertaken to review wider impacts, say at a regional and national level. However, it is difficult to assess the cumulative impacts without national knowledge and policy familiarity on natural capital and climate risks/ dependencies. For the case of FIs, it is unclear if financing decisions take into account the national development agenda for the country; for example, will a project help the country meet its NDC or achieve the SDGs. The European Bank for Reconstruction and Development was found to produce country level strategies that outline the key climate change risks for the country – projects seeking finance should demonstrate they support mitigating these risks; however it was unclear during the review whether these country strategies are in line with their international commitments.

Applying climate screening or undertaking E&S impact assessments addresses the issue where projects have been designed in the absence of considering environmental shifts projected to occur as a result of climate change that may affect a project's future net returns. They are typically applied towards the end of the design phase. However, active engagement at early phases in the infrastructure development process (i.e. the planning phase) and thus supporting project prioritization can be more impactful, in particular in developing countries where resources and technical expertise are limited. The World Bank's *Infrastructure Prioritization Framework* quantitative tool that synthesizes and displays financial and economic as well as social and environmental indicators at the infrastructure project level, aims to support governments with competing infrastructure needs and aid in their planning and decision making (World Bank, 2016). It gives legitimacy to government decisions through the establishment of a clear, transparent prioritization strategy. It is unclear how regimentally this is followed however, and it also isn't clear if other FIs are supporting it in national planning strategies. This is a priority area where additional financial and technical support is required both in the set-up of the framework, assessment and ongoing monitoring and evaluations.

4. Opportunities and further research

This desk review of the current policies and tools has identified a number of entry points where further engagement, research or promotion of best practices can be undertaken to strengthen sustainability, climate and resilience risk assessment and management more widely. Although there have been significant advances in the development of more holistic tools, methodologies and guidelines, there are opportunities to further refine and align the development and implementation of these policies and tools. This section aims to highlight opportunities and areas where further efforts could be valuable.

- Many of the FIs' overarching policies and frameworks reviewed as part of the study are now dated, thus might not reflect recent international environmental and climate policy decisions (e.g., SDGs and the Paris Agreement commitments), refinements in science and the current state of practice in sustainability and resilience. A review of their screening tools might pose an opportunity to encourage FIs to update their documentation, and, in the process, enhance their risk screening methodologies and tools, as the European Investment Bank is doing at present.
- Exploring how risk screening tools can support the implementation of the SDGs (in particular SDG9, SDG 13 and SDG 15: "Build resilient infrastructure, promote sustainable industrialization and foster innovation", "Take urgent action to combat climate change and its impacts" and "Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss", respectively (UN, 2014), and NDCs, will assist in national planning efforts.
- In most of the FIs reviewed, environmental screening is already well established in the appraisal stages of a project seeking financing, in particular for a project site itself and the surrounding area (as determined by the institution). An assessment of the impacts on natural capital and ecosystem services, however, remains a relatively new concept, rarely operationalized in the tools and only generally mentioned in some standards. Natural capital experts and partners could engage FIs and/or infrastructure standard bodies to develop capacity within the organizations, to enhance their approaches in terms of natural capital (or target infrastructure teams within FIs). Coupled with a bottom up approach, where national governments establish enabling environments, providing for example national maps for legally recognized Resilient Ecological Infrastructure Networks/REINs (as currently being undertaken by the Government of Mozambique). This approach could lead to both a stronger understanding and valuation of natural capital and also a more comprehensive and aligned approach across the institutions. As the institutions' requirements tend to drive the market and governments shape the parameters and incentives in the market, this could have a broader effect than just the financed projects.
- The SuRe® Standard should be investigated further as the finalized guidance is released at COP23. It appears to be one of the strongest tools in terms of assessing the planning and design phase, as well as aiding the financing phase through creating a common language between developers and financiers. Furthermore, the scoring criteria take into account a wide range of environmental, social and governance issues.
- As the scope of this study was solely a desk based review of publicly available literature, it would be highly beneficial to engage directly with FIs through interviews and consultations with key members of staff (in particular with those institutions' whose tools are not publicly available or are in review or development stages). This activity will be useful to better understand the tools, i.e., scope and limitations, and understand if updates are being made to revise/strengthen their future screening efforts. Additional information can help inform the design of better tools, and the incorporation of elements of best practice that may not have been possible to identify in this study. Furthermore, the internal reviews of risk screening tools that certain FIs (for example, Asian Development Bank, and possibly others) have already undertaken should also be consulted.
- Although all the FIs reviewed undertake a form of sustainability, climate risk and vulnerability assessment, these vary in coverage and detail. Understanding the priorities of organizations, or the rationale for undertaking the practices they do, could help prepare targeted proposals for improvement. To do so, stakeholder interviews in the various institutions would need to be undertaken.
- A wider review of tools, to gather more evidence of best practice, should be undertaken. Best practice guidance from policy institutions, such as the OECD, could be evaluated to be used in proposals for updated approaches to FIs and infrastructure standards. A review of the prioritization and screening tools used by the insurance industry, and by the infrastructure engineering and construction industry, will also help identify best practice examples that can be applied more widely.
- To support in the wide application of tools, the development of case studies that demonstrate viable business cases (i.e. in terms of productivity, returns, costs, volatility, etc.) on the required investments costs and scope of benefits of adopting climate and natural capital de-risking could promote the update.

- Reaching out to existing working groups such as the *European Financing Institutions Working Group on Adaptation to Climate Change* (EUFIWACC) to understand their position, and possible collaboration opportunities could be beneficial.
- The Equator Principles Association Steering Committee co-ordinates the administration, management and development of the Equator Principles; engaging with the committee to enhance the methodologies and tools could have a significant impact, as there are over 91 FIs who have officially adopted the framework. Stakeholder interviews with committee members could also identify the main barriers and issues in implementing more stringent frameworks, thus more realistic options can be developed.
- It would be helpful to convene a group of lenders, investors, NGOs and other stakeholders to discuss, coordinate, and share knowledge with the goal of building comprehensive and coordinated model policies, and standards. Suggested participants include MDBs such as IDB and ADB, both of whom have expressed an interest in this effort; NGOs like WWF who have policy interests in this area, such as TNC and WRI; sovereign and institutional investors such as Norges Bank Investment Management and Blackrock; and the international organizations such as the Green Climate Fund. An approach could be explored similar to the way model building codes are developed and provided to organizations to adopt. It is very hard to get a large group of organizations to agree to adopt a collaborative standard or policy, but tends to be easier to provide a model they can review, adopt, or modify if desired. In our discussions with the banks and other stakeholders, it is clear that most people think there is room for improvement and better cooperation.

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Appendix A Literature review protocol

A.1 Introduction

Context

Assessing the social and environmental risks of infrastructure projects is not a new concept for investors, international financial institutions, governments and communities. Project level safeguards have been applied to infrastructure projects to manage risks from environmental and social impacts; however, these often have limitations in how they integrate environmental sustainability, climate risk and resilience considerations into the development process. Taking into account the increasingly damaging impact of climate change on infrastructure, the WWF recognizes the need to move beyond project-based safeguards towards spatial and land use planning processes that adequately consider risks at appropriate scales (both geographic and temporal), early enough in the policy cycle, to build climate resilience for people, nature and infrastructure. In recent years, there have been considerable advances in screening project risks, with various organizations developing guidance, standards, tools and methods for screening sustainability and change risk specifically. However, these have largely been developed by individual organizations, tailored to their own needs with little or no collaboration with similar bodies.

Objectives

The ultimate aim of this review is to understand the extent to which sustainability, climate risk and resilience are being holistically screened at different scales and at different phases of the infrastructure development process. To do so, we will undertake a systematic desk based literature review of the publicly available guidance, standards, tools, methods and frameworks (herein referred to as “tools”) used at different stages of an investment cycle.

This report

The purpose of the protocol is to describe all of the decisions regarding how the review will be undertaken – from the search strategy to information retrieval. The report also sets out the proposal for identifying relevant information and the proposed methodology for recording all the information that is reviewed.

A.2 Research Questions

Aims of the protocol

The literature review will underpin the successful completion of the study; the key research questions to be addressed are as follows:

- Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?
- What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?
- Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?
- How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?
- Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?
- At what stage in the infrastructure development process are these tools typically used?
- How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?
- Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?
- What kinds of inputs (time, data and expertise) are required for using each tool?
- Which tools are being widely used (and by what types of actors) or not, and why?
- Where data available, which tools are most highly rated or evaluated (by region and key user group)?
- Is the tool rated by an independent third party?

A.3 Review Protocol

Search resources and terms

The aim of this study is to gather information on existing climate change risk screening tools currently being used in the infrastructure development process, in particular at the planning, design and financing stages. The agreed list of financial institutions, bodies and standards are outlined in Table A-1.

Table A-1: Financial institutions and global infrastructure standards reviewed

Name of institution / standard

Asian Development Bank (ADB)
Asian Infrastructure Investment Bank (AIIB)
African Development Bank (AfDB)
Agence Française de Développement (AFD)
European Bank for Reconstruction and Development (EBRD)
European Investment Bank (EIB)
Inter-American Development Bank (IDB)
KfW Development Bank (KfW)
World Bank (including IBRD and IDA)
International Finance Corporation (IFC)⁷
BREEAM Infrastructure
CEEQUAL
Green Guidelines for the Belt and Road Initiative (BRI)
Envision®
SuRe® Standard
Equator Principles

To identify the most relevant documents and tools to review, an inclusive approach will be required. For the purposes of this review, the search will rely predominantly on the internet to identify and obtain relevant studies and documents to consult. The search engines and other websites that we will interrogate are:

- Google
- Websites of other Multilateral Development Banks, in particular the pages regarding climate change risk screening, and environmental social standards and procedures
- Websites of leading international organizations and governments on environmental and social standards for investments, including AIIB, KfW, Principles for Responsible Investment and China's Green Guidelines for the Belt and Road Initiative
- Websites for the international infrastructure standards, including SuRe® standard, Envision® and CEEQUAL / BREEM Infrastructure

Each search engine and database will be searched using a range of key words. The key words that will be used, either singularly or in combination, are:

- Sustainability / Climate Risk /Green Infrastructure/ Natural Infrastructure / Ecological Infrastructure / Climate Change Resilience/ Natural Capital/ Assessing climate change impacts / Climate Change Standards / Safeguards / Tools / Screening
- MDBs / Development Banks / IDB / IFC / World Bank / EBRD / ADB / AfDB / World Bank / Environmental and Social Standards / Resilience / climate change portfolio / climate change risk/ climate screening/ Screening tools / Risk standards
- Risk / Disclosure / Natural Capital / Climate / Resilience / ESG / Screening / Due diligence / Safeguards
- Best practice / guidance / integration / Environmental and Social Standards / European Union / United Nations / UNFCCC / Climate change policy framework / KfW / AIIB
- Infrastructure standards / SuRe® standard / Envision®/ CEEQUAL / BREEM Infrastructure/ Best practice / Climate Risk / Screening

Study selection criteria

⁷ IFC is part of the World Bank Group, however, it has been reviewed separately due to its use of different procedures.

The study selection criteria have been developed to assist with providing a review that is coherent and manageable within the project time and budget. The aim of the study selection is to identify those documents that help to answer the review questions.

The proposed selection criteria are as follows:

- **Date:** given this is a fast moving area with the large amount of recent work reflecting the increased importance and awareness of climate change risks on the political agenda, we propose focusing predominantly on recent guidance and literature produced since 2009.
- **Language:** the search will be conducted in English.
- **Peer / influential organizations:** Priority will be given to documents published by organizations that can be considered peers to EIB, such as other MDBs, as well as guidance from national and international organizations known to be influential in developing best practice on environmental and social standards, and key supra-national organizations and groupings such as the United Nations and the European Union.

Information extraction and storage

To keep track of the sources of information identified during the review, a searchable reference database of the reviewed documents will be developed that will serve to:

- Keep a record of the sources of all information gathered
- Help prevent duplication of the research
- Allow the review to be updated in the future

The database will be developed in MS Excel and will record information on all of the studies included within the review using the following criteria:

- Document title
- Published date
- Author
- Organization/ Body/ Institution
- Source
- Document type
- Language
- High-level summary using key works
- Reviewer's name
- Comments – high level messages of the content of the document and the relevance to the study.

Appendix B Detailed literature review findings

This section of the report provides a detailed overview of the climate change risk screening tools and standards used by the financial institutions and Infrastructure bodies (outlined in Table 1) against the research questions for this study.

B.1 Asian Development Bank

Overview

The Asian Development Bank (ADB) supports economic growth and cooperation in the Asia and Pacific region by providing technical assistance, grants, loans and equity investment. There are 67 member countries, 48 of which are from the Asia and Pacific region. ADB’s long-term strategy for 2008-2020 “Strategy 2020” promotes three complementary agendas on inclusive economic growth, environmentally sustainable growth and regional integration (ADB, 2008). It is a requirement of ADB that exposure and vulnerability to climate change risks be identified and accounted for in the preparation of investment projects. In response to this requirement ADB developed a framework for the climate risk management of investment projects (ADB, 2014).

Review

Table 5 outlines the findings from the desk based literature review of ADB’s climate change and sustainability risk screening tools. For a full list of the information sources, see Section 5.

Table 5: Review of ADB’s climate change risk screening

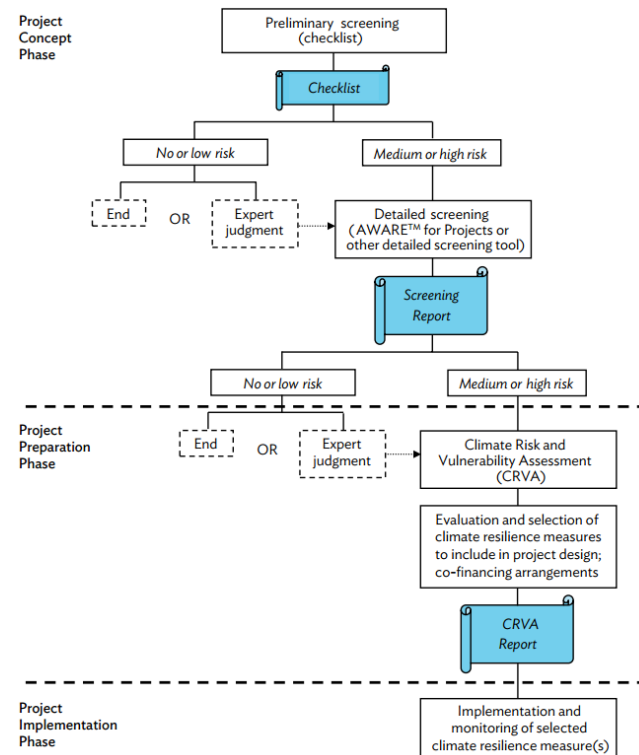
Analysis Criteria	Analysis
Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?	<ul style="list-style-type: none"> • ADB has overarching safeguards that apply to all projects being financed by the bank. <i>Safeguard 1</i> applies to the <i>Environment</i>, <i>Safeguard 2</i> applies to <i>Involuntary Resettlement</i>, <i>Safeguard 3</i> applies to <i>Indigenous Peoples</i> and <i>Safeguard 4</i> outlines the <i>Special Requirements for Different Finance Modalities</i>. Although all three aspects are assessed in a potential investment for the Bank, there does not appear to be a tool that holistically screens financial, social and environmental risks in one assessment. • <i>Safeguard 1</i> requires all projects to be screened in terms of its environmental impacts. ADB uses a classification system to reflect the significance of a project’s potential environmental impacts. A project’s category is determined by the category of its most environmentally sensitive component, including direct, indirect, cumulative and induced impacts in the project’s area of influence. Each proposed project is scrutinized as to its type, location, scale and sensitivity and the magnitude of its potential environmental impacts (ADB, 2009): <ol style="list-style-type: none"> i. <i>Category A</i> projects are likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. ii. <i>Category B</i> projects are likely to have potential adverse environmental impacts that are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible and in most cases mitigation measures can be designed more readily than for category A projects. iii. <i>Category C</i> projects are likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed. <p>Depending on the significance of project impacts and risks, the assessment may comprise a full-scale environmental impact assessment (EIA) for category A projects, an initial environmental examination (IEE) or equivalent process for category B projects, or a desk review (ADB, 2009).</p>

A detailed overview of how projects are classified by the Bank was not found to be publicly available.

- In parallel to the environmental screening, ADB appears to review projects in terms of climate risk with the aim to reduce risks resulting from climate change to investment projects in Asia and the Pacific. ADB's *Climate Change Risk Management Framework* identifies climate change risks to project performance in the early stages of project development, and incorporates adaptation measures in the design of projects at risk (for all projects, including infrastructure investments). It comprises of the following steps (ADB, 2014):
 - i. *Climate risk screening - All* ADB projects are screened for climate risks. An initial screening is carried out by the ADB project team by filling in a checklist. Projects identified to be at medium or high risk undergo a further screening through dedicated screening tools, such as the online tool *AWARE for Projects*. Risks considered are those resulting from temperature increase, precipitation change, wind speed change, sea level rise, solar radiation change, water availability, flooding, tropical storms, wildfire, permafrost, sea ice, snow loading, and landslide (ADB, 2014).
 - *AWARE for Projects* is a web-based, climate risk screening tool that can be used by a ADB project team to carry out a rapid initial risk screening at project concept paper phase, the results will provide substantial information to guide the detailed assessment during preparation phase. The tool uses 16 general circulation models, as well as databases on temperature increase, wildfire, permafrost, sea ice, water availability, precipitation change, flooding, snow loading, tropical storms and landslides (ADB, 2014). Based on answers to a series of questions about the project, the tool produces a climate risk assessment report that provides a summary of key risk areas (with a ranking of low, medium, or high), as well as narratives describing potential impacts of climate change and adaptive measures for further consideration. [No publicly available link to this tool could be found.] (ADB, 2013)
 - ADB is facilitating the development of a regional *Climate Projections Consortium and Data Facility* to provide and deliver robust climate data and projections in support of vulnerability assessment, adaptation planning and capacity building. The design of the facility is based on user needs identified through consultations and other relevant analyses the bank has undertaken. It will provide a hierarchy of data and scenario products, ranging from aggregated national level summary information to facilitate awareness-raising and policy dialogue, to detailed high resolution scenarios to inform the engineering design of critical infrastructure. [No publicly available link to this database could be found.] (ADB, 2013)
 - ii. *Climate Risk and Vulnerability Assessment-* A detailed climate risk and vulnerability assessment is carried out for projects classified as medium or high risk during project preparation (i.e., risk screening phase). The assessment aims to quantify risks and identify adaptation options that can be integrated into the project design. The level of technical rigor of the assessment depends on the project complexity and availability of climate data and information for the project area. It can range from a simple desk analysis to a complex assessment based on custom climate projections to enable a more detailed assessment. This assessment is usually conducted by experts with background in climate modelling, impact assessment and economics of climate change who work together with ADB sector specialists, the executing agencies, the project sponsors and other stakeholders to formulate adaptation solutions for the project (ADB, 2014).
 - iii. *Technical and Economic Evaluation of Adaptation Options -* Based on the climate risk and vulnerabilities assessed, adaptation options are identified and evaluated on the basis of their technical feasibility and economic viability. Technical feasibility evaluates whether proposed engineering and non-engineering measures can be implemented with available skills; equipment; and costs other local factors such as geography, governance and capacity. The economic analysis involves estimating and comparing the cost and benefits of the project based on two different scenarios: (i) the project under climate change without adaptation measures and (ii) the project under climate change with adaptation measures. It aims to identify which adaptation option yields the highest net benefit. It also aims to estimate the incremental cost of adaptation as the cost of project activities aimed at addressing specific climate vulnerabilities.

- Recognizing that investing in adaptation measures may be costly and that future benefits may be uncertain, the economic analysis can also point to the best timing for investing in adaptation (ADB, 2014).
- iv. *Identification of Adaptation Options* - The most viable adaptation options or climate proofing measures are identified in consultation with the executing agencies or project sponsors, and are integrated in the project design. There is no standardized approach to climate proofing. In some cases, climate proofing is essential to ensure the project is not negatively affected by climate change. In other cases, the lifetime of the project is such that climate proofing is not a viable option or climate readiness is a more appropriate approach. Climate proofing may involve adjusting engineering design such as increasing drainage capacity of water supply systems, elevating roads in areas particularly at risk from flooding, or ecosystem-based adaptation measures such as re-vegetation of unstable slopes (ADB, 2014).
 - v. *Monitoring and Reporting* - The level of risk identified during project concept development and the findings of climate risk and vulnerability assessment carried out during project preparation are documented in ADB board documents. A supplementary document describing the assessment and adaptation measures incorporated in the project design and associated costs can also be attached to ADB board documents. The level of risk assigned to the project and the budget allocated to the incremental cost of adaptation are recorded in ADB project classification system for monitoring and reporting purposes (ADB, 2014).

Figure 1: ADB's flowchart for assessing climate risk of projects



Source: (ADB, 2015)

	<p>From the literature reviewed, the environmental and climate change risk assessments are applicable to all projects, including infrastructure investments.</p> <p>For the transport sector specifically (including transport infrastructure), ADB has developed the <i>Sustainable Transport Appraisal Rating (STAR)</i> tool to assess the sustainability of ADB's transport portfolio (ADB, 2014). The STAR tool is intended to serve as a tool to design more sustainable transport projects, in line with the bank's <i>Sustainable Transport Initiative Operational Plan</i> (ADB, 2014). The tool measures a project's contribution to delivering economic, social and environmental objectives. STAR is primarily concerned with the changes to a transport system brought about by a project. These changes are the project's outcomes or impacts, defined here as the likely short-, medium-, or long-term effects of a project on a transport system, institutions, beneficiaries and context.</p> <ul style="list-style-type: none"> The Bank has developed a series of sector briefings that provide information on the climate change impacts on various sectors and outline each sector's vulnerability to climate change both in biophysical and socioeconomic terms, to help identify risks and priority adaptation responses (ADB, 2012).
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> In order to be considered for investment, all projects (irrespective of geography or sector) are required to undergo an environmental classification assessment to determine whether additional environmental assessments (such as Environmental and Social Impact Assessments, ESIA) are required. Impacts and risks will be analyzed in the context of the project's area of influence. This area of influence encompasses <ol style="list-style-type: none"> The primary project site(s) and related facilities that the borrower/client (including its contractors) develops or controls, such as power transmission corridors, pipelines, canals, tunnels, access roads, borrow pits and disposal areas and construction camps; Associated facilities that are not funded as part of the project (funding may be provided separately by the borrower/client or by third parties), and whose viability and existence depend exclusively on the project and whose goods or services are essential for successful operation of the project; Areas and communities potentially affected by cumulative impacts from further planned development of the project, other sources of similar impacts in the geographical area, any existing project or condition and other project-related developments that are realistically defined at the time the assessment is undertaken; and Areas and communities potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location. The area of influence does not include potential impacts that might occur without the project or independently of the project. <p>The assessment will identify potential trans-boundary effects, such as air pollution, increased use or contamination of international waterways, as well as global impacts, such as emission of greenhouse gases (GHG) and impacts on endangered species and habitats.</p> Since 2014, all projects are also required to undergo a climate change risk screening assessment. Although the screening / assessments are undertaken on a project by project basis, wider impacts are taken into account in the overall categorization.
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> During the initial screening process of a project when the environmental impact category is being determined, direct, indirect, cumulative and induced impacts in the project's area of influence are taken into account (ADB, 2009).
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> Explicit linkages between biodiversity and climate change are not made within the <i>Safeguard Policy Statement</i>, although such linkages are considered by projects (e.g., opportunities for ecosystem based adaptation). Impacts on ecosystems are considered during the environmental assessments; additional reviews will be taken into account during the EIAs or IEEs, if the projects are categorized as A or B. The <i>Climate Change Risk Framework</i> does include a vulnerability assessment that aims to understand some of the biophysical drivers of vulnerability. Climate risk and resilience of a project is assessed when ADB's climate change risk management framework is applied (see the answer to the first question for a detailed overview). <p>Other related information published by the bank:</p>

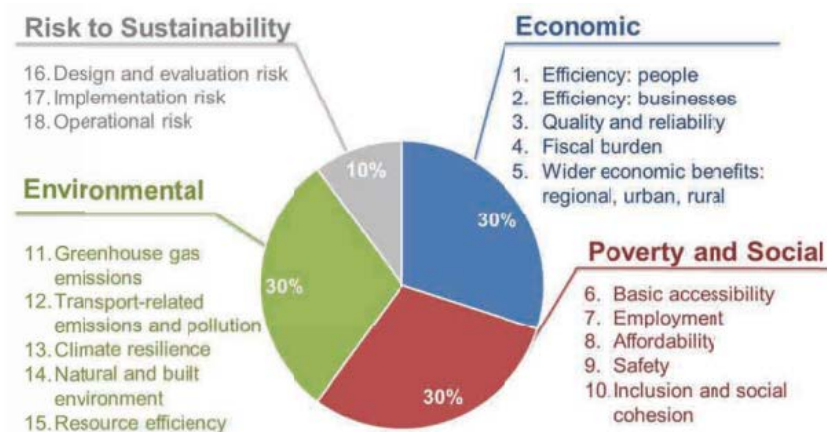
	<ul style="list-style-type: none"> • Ecosystem benefits that arise out of climate proof specific investments (e.g. the planting of mangrove or restoration of a degraded coastal wetland to protect a coastal road investment project from storm surges may also serve as a habitat for fisheries) are recognized as co-benefits or ancillary benefits that should be taken into account in the economic analysis of climate proofing investment projects (ADB, 2015) • ‘The outcome of a climate risk and vulnerability assessment may result in three different types of decisions: (i) climate proof the project at the time of project implementation; (ii) ensure that the project can be climate proofed at a later time, if needed; or (iii) do not undertake any climate-proofing action while collecting information and data to support a reassessment of climate-proofing needs at a later time, if needed. The technical feasibility and economic assessments of the climate-proofing options will provide guidance as to the most desirable means of proceeding.’ (ADB, 2016)
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> • During the environmental assessment of a project, 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 need to be identified (ADB, 2009). Impacts on ecosystem services are assessed during the EIAs or IEEs of projects (<i>however a detail overview of the methodology or assessment was not publicly available</i>). • The environmental and climate risk assessments are undertaken prior to financing. No indication on the length of time to undertake the assessments was outlined in the publicly available literature. <p>Other related information published by the bank:</p> <ul style="list-style-type: none"> • ADB’s Strategy 2020 acknowledges that arresting tropical deforestation and the sustainable management of forest and other natural resources provides the basis for local livelihoods, clean water supplies and protection of biological diversity. Resilience is also linked to food security and agricultural production (ADB, 2008).
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • As of 2014 it is a mandated requirement of ADB that exposure and vulnerability to climate change risks be identified and accounted for in the preparation of investment projects. In response to this requirement ADB developed a framework for the climate risk management of investment projects (ADB, 2014). It comprises of the following stages: (i) context-sensitive climate risk screening at the concept development stage to identify projects that may be at medium or high risk; (ii) climate change risk and vulnerability assessment during preparation of projects at risk; (iii) technical and economic evaluation of adaptation options; (iv) identification of adaptation options in project design; and (v) monitoring and reporting of the level of risk and climate-proofing measures. These are undertaken at the ‘Design’ and ‘Financing’ stages of the infrastructure development process (see Figure 1). • The STAR tool process can be carried out in parallel and as an integral part of the standard project cycle. In ADB this includes the country partnership strategy (programming), project preparation (concept development), project approval (appraisal), project implementation, and completion/evaluation. In the programming stage, the framework can serve as a checklist, to initially screen project proposals against the criteria. In later stages, the framework can be applied with more rigor, based on data collected during project preparation (ADB, 2014).
<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> • To facilitate the implementation of the overall framework, the activities are subdivided into 20 steps. A flowchart depicting the steps involved in the risk assessment framework, see Figure 1 (ADB, 2015). • A detailed climate risk and vulnerability assessment is carried out for projects classified as medium or high risk during project preparation. The level of technical rigor of the assessment depends on the project complexity and availability of climate data and information for the project area. It can range from a simple desk analysis to a complex assessment based on custom climate projections to enable a more detailed assessment (it is not clear from the publicly available literature whether this assessment includes a review of the impacts on ecosystem services). • ADB has also published sector specific guidelines for integrating climate risk management into the project cycle – to date these include guidelines for the following sectors: Agriculture, Energy, Health, Transport, Water, Rural development and Food security and Urban Development. • For STAR tool, the rating is constructed in three steps (ADB, 2014): <ul style="list-style-type: none"> – Step 1 – an investment is assessed against the project performance against each of the 18 sub-criteria (page 6) for the sustainable transport objectives and risk areas. An assessment of a project to “preserve the natural environment and maintain the integrity of ecosystems, biodiversity, and the services they provide” is one of the sub criteria. The rater’s opinion is expressed as a qualitative rating on a seven point scale. The risk rating follows a three point scale from low to high.

- Step 2 – the project is rated according to four criteria: economic, poverty and social, environmental and risk to sustainability. The rating of these core criteria draws upon the individual sub criteria ratings, using a set of rules for aggregating them. Aggregation, however, is not simply a weighted average of the sub criteria ratings: the rater is asked to develop a professional judgment. A seven point scale is used for the economic, social and environmental criteria. A score between -3 and 3 is now associated with each of the ratings. A three point scale is used for the risk rating, associated with a score between -1 and 1.
- Step 3 – the overall rating is derived by aggregating the core criteria scores and comparing the total with predefined thresholds. The rating range from 'Highly Sustainable' (score of 7 to 10) to 'Highly Unsustainable' (score of -5 to -10), as outlined in Figure 2. The rating composition is an equal 30% weight applied to economic, environmental and social risks, while risk to sustainability is awarded 10%, as outlined in Figure 3.

Figure 2: ADB's STAR tool scoring breakdown

Score	Rating
7 to 10	Highly Sustainable
5 to 6	Sustainable
3 to 4	Moderately Sustainable
1 to 2	Marginally Sustainable
-1 to 0	Moderately Unsustainable
-2 to -4	Unsustainable
-5 to -10	Highly Unsustainable

Figure 3: ADB's STAR tool rating composition



- There is a detailed score book available (for each of the three steps) in ADB's Appraisal Framework for Transport document.

Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?

- No explicit mention of natural capital was found in the Bank's environmental and climate risk assessment documentation. However, there are multiple references to the impact of a project on ecosystems, but a detailed overview on how this was considered was not available. As mentioned above, impacts on ecosystems and biodiversity both local and wider to the project is assessed in the EIAs.
- The *AWARE for Projects* climate risk screening tool does take into account future climate conditions in the assessment of a project (ADB, 2014).
- Natural capital is not explicitly mentioned in the STAR tool; however one of the categories of the assessment does review the environmental sustainability of a transport infrastructure investment, of which some of the review question investigate the effect on ecosystems and natural resources (ADB, 2014). The five questions are:
 - ENV-1: GHG emissions – does it reduce transport-related emissions of GHG?
 - ENV-2: Pollution and nuisances – does it reduce transport-related emissions of air pollutants, noise, vibration and light, and pollution of surface water, groundwater and soil?
 - ENV-3: Resource efficiency – does it minimize use of natural resources, materials, energy, water and land and limit waste generation and disposal?
 - ENV-4: Natural and built environment – does it preserve the natural environment and maintain integrity of ecosystems, biodiversity, and the services they provide, and enhance the built environment, landscape, townscape, physical cultural resources, and their settings?
 - ENV-5: Climate resilience - does it improve the climate resilience of the transport system?

<p>What kinds of inputs (time, data and expertise) are required for using each tool?</p>	<ul style="list-style-type: none"> • <i>AWARE for Projects</i> is an online tool used to screen projects for climate risks and uses data from 16 general circulation models, as well as databases on temperature increase, wildfire, permafrost, sea ice, water availability, precipitation change, flooding, snow loading, tropical storms and landslides (ADB, 2014). The tool is used by bank project staff to assess a project for potential financing. The tool was not found to be publicly available. No indication on the time or level of expertise to use the tool was found during the review. • A more detailed assessment for projects identified as high risk is usually conducted by experts with background in climate modelling, impact assessment and economics of climate change who work together with ADB sector specialists, the executing agencies, the project sponsors and other stakeholders to formulate adaptation solutions for the project (ADB, 2014)
<p>Which tools are being widely used (and by what types of actors) or not, and why?</p>	<ul style="list-style-type: none"> • All projects seeking ADB financing undergo an environmental assessment (i.e. are categorized in terms of their impact, and then must undergo additional assessment if they are deemed to be more environmentally impactful) and are also screened for climate risks, which involves: <ul style="list-style-type: none"> – <i>Climate Risk Screening</i> undertaken by the ADB project teams, which would include the infrastructure team (and the users of tools like AWARE; other tools are referred to in the bank’s literature, but no additional information is available.) – <i>Climate Risk and Vulnerability Assessments</i> which is again undertaken by ADB, but it is unclear whether a specific team undertakes this function, or if it falls on ADB project sector teams (quantification of risks and the identification of adaptation options – no detail on these methodologies was publicly available) – <i>Technical and Economic Evaluation of Adaptation Options</i> which appears to be undertaken by the economists among project sector teams (detailed guidance on climate proofing investments is available, which also makes reference to tools developed by the bank – however no additional detail on these could be found) (ADB, 2015) – <i>Identification of Adaptation Options</i> • For the STAR tool, sources of information and individuals that can be drawn upon include project documents, project officer(s), the project’s peer reviewer, the head/secretariat of the transport community of practice, the internal departments or divisions in charge of economic evaluation, risk and safeguard compliance, and the independent evaluation office (ADB, 2014). The rating can be prepared by any of these individuals/teams.
<p>Where data available, which tools are most highly rated or evaluated (by region and key user group)?</p>	<ul style="list-style-type: none"> • No evaluation of the environmental / climate risk screening methodologies or tools (AWARE / STAR) was publicly available; their use and application are all however mainstreamed across the Bank.
<p>Is the tool rated by an independent third party?</p>	<ul style="list-style-type: none"> • No information was available on whether the environmental / climate risk screening methodologies and tools are independently audited by third parties.

B.2 Asian Infrastructure Investment Bank

Overview

The Asian Infrastructure Investment Bank (AIIB) is a new multilateral financial institution, founded in January 2016, working to bring countries together to address the daunting infrastructure needs across Asia. AIIB offers sovereign and non-sovereign financing for sound and sustainable projects in energy and power, transportation and telecommunications, rural infrastructure and agriculture development, water supply and sanitation, environmental protection and urban development and logistics. There are 56 member countries (AIIB, 2017)

Review

Table 6 outlines the findings from the desk based literature review of AIIB’s environmental and climate screening tools. For a full list of the information sources, see Section 5.

Table 6: Review of AIIB’s climate change risk screening

Analysis Criteria	Analysis
<p>Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?</p>	<ul style="list-style-type: none"> • All projects are screened to determine their environmental and social impact, and placed into one of four categories (AIIB, 2016): <ol style="list-style-type: none"> i. Category A: significant adverse environmental and social impacts that are irreversible ii. Category B: limited number of potentially adverse environmental and social impacts iii. Category C: minimal or no adverse impacts iv. Category FI: if the financing structure involves the provision of funds to or through a financial intermediary • Instruments used to carry out the assessments include (but not limited to) (AIIB, 2016): <ul style="list-style-type: none"> – strategic environmental and social impact assessment on a policy, plan or programmatic level; – regional or sectoral environmental and social assessments; – ESIA for the Project; and – on a specialized basis, a cumulative impact assessment or other assessment instruments – GHG emission qualification, in order to support the Bank in its reporting in line with the Paris Agreement. • The Bank’s <i>Environmental and Social Framework</i> (ESF) is a system that supports the Bank and its clients in achieving environmentally and socially sustainable development outcomes. The Framework lays out a vision, a policy, and three supporting standards that are broadly similar in nature to those of the World Bank (WB), ADB and other established multilateral development banks. <ul style="list-style-type: none"> – The ESF integrates good international practice on environmental and social planning and management of risks and impacts into decision-making on, and preparation and implementation of, Bank supported Projects (AIIB, 2017). – <i>Environmental and Social Standard 1</i> (ESS 1) of the ESF, refers to <i>environmental and social assessment and management</i>. The objective of ESS 1 is to ensure the environmental and social soundness and sustainability of Projects and to support the integration of environmental and social considerations into the Project decision-making process and implementation. – ESS 1 applies if the Project is likely to have adverse environmental risks and impacts or social risks and impacts (or both). The scope of the environmental and social assessment and management measures are proportional to the risks and impacts of the Project. – ESS 1 provides for both quality environmental and social assessment and management of risks and impacts through effective mitigation and monitoring measures during the course of Project implementation. • Climate Change is included in the assessment and management process: “Design and implement the Project so as to minimize emissions in accordance with the aims of the Paris Agreement of December 2015. Develop mitigation or adaptation measures to reduce risk of climate change, as relevant. Assess the impacts of the Project on climate change, including emissions, as well as the implications of climate change for the Project. Identify opportunities for low-carbon use, where applicable, and for reducing emissions, enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, incorporating climate-proofing into the Project and promoting the use of renewable energy, where these are technically and financially feasible” (AIIB, 2016). • Climate risk and resilience is not mentioned explicitly in the ESF. • There is no reference to climate in the risk management framework, only environmental and social risk is listed as a type of risk (AIIB, 2016).
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • The ESF is applicable to all AIIB’s countries of operation / members in Asia. • The detailed environmental and social impact assessment undertaken on projects seeking finance from AIIB must be undertaken on the project site, and the associated facilities of the projects (this can also include the facilities not controlled by the borrower seeking finance, if the project is part of a larger development) (AIIB, 2016). • No detail was found in the ESF on requirements on wider assessments, i.e. beyond the project site.

<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> The categorization process of projects takes into account E&S impacts that are direct, indirect, cumulative and induced impacts, as relevant, in the Project area (AIIB, 2016). These are reviewed on a case by case basis, on assessment by AIIB staff.
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> In the ESF the Bank recognizes the value of natural infrastructure, such as wetlands, and the importance of enhancing or restoring the ecosystem services where appropriate (AIIB, 2017). How exactly they are accounted for is not outlined.
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> Resilience is not mentioned as a term to describe the projects but the detailed screening, categorization and monitoring impacts is covered. However, a time-scale was not given.
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> The Bank screens and categorizes each proposed project to determine the nature and level of the required environmental and social review, type of information disclosure and stakeholder engagement for the project. The categorization takes into consideration the nature, location, sensitivity and scale of the project and it's proportional to the significance of its potential environmental and social risks and impacts. As part of this process, the Bank also screens the project to determine which of the ESSs applies. In cases where environmental and social assessment work may already have been carried out for the project, the Bank reviews the work, and in consultation with the Client, determines whether any additional environmental or social work is required. (AIIB, 2016).
<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> The ESF gives an in-depth walk through of their process and how each project is categorized and carried out by following a set of guidelines. There are four types of categories a project may be placed in; the category is determined by the project's component that presents the highest environmental or social risk, including direct, indirect, cumulative and induced impacts, as relevant, in the project area (AIIB, 2016).
<p>Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?</p>	<ul style="list-style-type: none"> How the project is impacting natural capital and surrounding conditions is put into consideration as part of the Bank's categorization and screening process.
<p>What kinds of inputs (time, data and expertise) are required for using each tool?</p>	<ul style="list-style-type: none"> There is an <i>Environmental and Social and Management Plan</i> (instilled in the <i>Environment and Social Framework</i> document) that each project needs to be adhere to. <ul style="list-style-type: none"> i. On identification of the project environmental and social risks, an implementation schedule of mitigation measures that are required to be carried out as part of the project to reduce the risks, (showing phasing and coordination with overall implementation plans) need to be produced The ESF outlines the broad steps that need to be carried out to undertake this plan (AIIB, 2016).
<p>Which tools are being widely used (and by what types of actors) or not, and why?</p>	<ul style="list-style-type: none"> The ESF is publicly available and provides an overview of the roles and responsibilities that are to be expected by the client and the Bank (AIIB, 2016): <ul style="list-style-type: none"> – The Bank: screens each Project to assign an environmental and social category to it; undertakes environmental and social due diligence regarding the Project as outlined in AIIB <i>Environmental and Social Policy</i> (ESP); reviews the Client's environmental and social documentation required in the ESP and applicable ESSs, to determine whether appropriate measures are in place to avoid, minimize, mitigate, offset or compensate for adverse environmental and social risks and impacts in compliance with the ESP and applicable ESSs; and determines the feasibility of the Bank financing for the Project.

	<ul style="list-style-type: none"> – The Client: assesses the Project and its environmental and social risks and impacts; prepares the Project’s environmental and social documentation, in accordance with the ESP and ESSs; and engages with people affected by the Project and other stakeholders, through information disclosure and meaningful consultation • It also provides a high level overview of the various stages of the E&S assessment, thus an outline of the types of data required. No indication on the timeframe of the project is provided.
Where data available, which tools are most highly rated or evaluated (by region and key user group)?	<ul style="list-style-type: none"> • No information was found to answer this question.
Is the tool rated by an independent third party?	<ul style="list-style-type: none"> • The Overseas Development Institute (ODI) has a working paper that evaluates what AIIB could contribute more of. However, it does not reference specific tool(s) that AIIB may use. It does give a list of recommendations the ODI feels AIIB should consider in their efforts in the climate industry. • ODI’s recommendations to better incorporate climate change into AIIB’s operations and investment decisions (ODI, 2016): <ol style="list-style-type: none"> i. Start with INDCs and the SDGs as a framework for programming and for developing investment decision criteria ii. Set targets for low-carbon investments iii. Create staff incentives for promoting green programs iv. Adopt a carbon footprint benchmark v. Apply a ‘shadow’ carbon price to fossil fuel-related investment evaluations

B.3 African Development Bank

Overview

The African Development Bank’s (AfDB) *Climate Risk Management and Adaptation Strategy (CRMA)* is the Bank’s primary response to the challenges posed by climate change. It informs AfDB’s Climate Change Action Plan, which in turn guides the implementation of the CRMA. The original document outlining the CRMA’s objectives is dated from 2009; the CRMA may therefore be out of date, but there is no additional information to suggest that it has been superseded. The CRMA has two specific objectives:

- ‘To reduce vulnerability within Regional Member Countries (RMCs) to climate variability and promote climate resilience in past and future Bank-financed development investments making them more effective’; and
- ‘To build capacity and knowledge within RMCs to address the challenges of climate change and ensure sustainability through policy and regulatory reforms’.

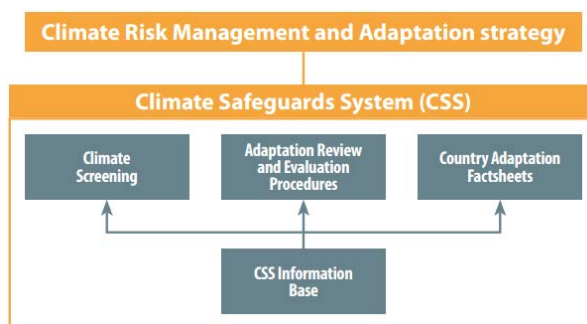
Review

Table 7 outlines the findings from the desk based literature review of AfDB’s Climate Risk Management and Adaptation Strategy. For a full list of the information sources, see Section 5.

Table 7: Review of AfDB’s climate and resilience risk screening

Analysis Criteria	Analysis
<p>Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?</p>	<ul style="list-style-type: none"> • Although not explicitly focused on climate change, AfDB’s <i>Operational Safeguards</i> require its borrowers or clients to be responsible for conducting environmental and social assessments and for developing, as an integral part of project documentation, an appropriate plan for managing possible impacts. The Bank’s <i>Integrated Safeguards System</i> guidance document provides an overview of the environmental and social assessments that are required for projects (AfDB, 2015). • The Bank adopted the CRMA in 2009 with the overall goal of ensuring progress towards eradication of poverty and contributing to sustainable improvement in people’s livelihoods taking into account CRMA. The specific objectives are (AfDB, 2009): <ol style="list-style-type: none"> i. To reduce vulnerability within the RMCs to climate variability and promote climate resilience in past and future Bank financed development investments making them more effective; ii. To build capacity and knowledge within the RMCs to address the challenges of climate change and ensure sustainability through policy and regulatory reforms. • To deliver the CRMA strategy, AfDB developed a <i>Climate Safeguards System</i> (CSS) for climate proofing their investments. It is a set of decision-making tools and guides that enable the Bank to screen projects for climate change related risks and to identify appropriate adaptation measures to reduce project vulnerability. The CSS comprises of four modules, as outlined in Figure 4 (AfDB, 2011): <ol style="list-style-type: none"> i. Climate Screening: the screening process assesses the vulnerability of a project concept to climate change and assigns to the project a categorization, ranging from 1 (most vulnerable) to 3 (least vulnerable); <ul style="list-style-type: none"> ▪ Category 1 projects may be <u>very</u> vulnerable to climate risk. These projects require a detailed evaluation of climate change risks and adaptation measures. Comprehensive, practical risk management and adaptation measures will also be integrated into the project design and implementation plans based on the results from this screening. ▪ Category 2 projects may be vulnerable to climate risk. They will also require a review of climate change risks and adaptation measures. Practical risk management and adaptation options will be integrated into the project design and implementation plans. ▪ Category 3 projects are not vulnerable to climate risk. For these projects, a voluntary consideration of low cost risk management and adaptation measures is recommended, but no further action is required. ii. Adaptation Review and Evaluation Procedures (AREP) are a set of procedures that have been developed to identify adaptation measures for a project; a different set of procedures is followed depending on the categorization of the project; iii. Country Adaptation Factsheets can be produced at any time and are independent of the processes described above; they are based on a template into which up-to-date information on climate projections and country indicators can be imported from various sources; iv. The CSS Information Base contains a portal that gives direct access to the climate projections developed for African Countries by the University of Cape Town; it also contains a database of adaptation activities and links to a wide range of information sources on adaptation; it provides information required for use of the modules described above.

Figure 4: AfDB's climate safeguards system



- As part of the CRMA, AfDB aimed to develop *Climate Risk Analysis Frameworks* for use at sub-regional, country, sector, program and project levels (AfDB, 2009). It is unclear if the Climate Risk Analysis Frameworks are still under development, or whether they have been implemented in AfDB's work.

<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • The CRMA applies to AfDB's RMCs. There are 54 RMCs in total, including the Cape Verde Islands, Comoros Islands and Madagascar. • The Bank is only responsible for assessing the impacts for the project requesting financing; if the project is part of a larger infrastructure development process, the assessments will just be for the project, not the wider developments. However, the impacts the project will have on the immediate project site, and wider area will be taken into account in the assessments.
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> • No specific reference is made to cumulative impacts and/or drivers of change in the AfDB's Climate Risk Management and Adaptation Strategy. <p>Additional information</p> <ul style="list-style-type: none"> • The climate screening classification in the CSS only takes into account climate; however the broader categorization scheme in the CRMA combines analysis of climate change vulnerability with the potential environmental and social impacts arising from a project. For example, projects that fall into Category 2(H) are those that have "moderately detrimental impacts on the environment and/or society, or exacerbate climate risks, <u>and</u> whose performance is highly vulnerable to climate risks" (AfDB, 2009).
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> • AfDB's Climate Safeguards System assists project teams in assessing climate risk in their operations (AfDB, 2012). • The CSS includes a climate screening tool, which puts projects into one of three categories based on their vulnerability to climate change (AfDB, 2011). Projects in category 1 are very vulnerable to climate risk. • No explicit mention to ecosystems is made in the CSS process. All projects requesting finance from the Bank must submit an environmental and social assessment within its submission; the impacts of a project on ecosystems are assessed in this process, however this appears to be disconnected from the climate risk screening process (AfDB, 2003).
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> • The CRMA's overall goal is to 'contribute to sustainable improvement in people's livelihoods taking into account climate change' (AfDB, 2009); it does therefore link climate resilience to future livelihoods. • No information was found in terms of the timescale.
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • The climate screening tool in the Climate Safeguards System is used in the project identification/preparation stage of the project cycle, prior to the completion of Project Concept Notes (AfDB, 2011). Within the infrastructure development process, this would relate to the Design and Financing stages. • The Climate Risk Management and Adaptation Strategy is a higher-level approach and applies to AfDB's operations more broadly.

<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> • There is a detailed overview of AfDB’s requirements for an environmental and social impact assessment (AfDB, 2003). • The Bank has also published specific guidance on its CSS (including the climate screening tool) (AfDB, 2011), which provides a step-by-step breakdown of each of the four modules mentioned above. For each module it provides a summary of the steps required, the outputs of the module, the information/capability required completing the module and a detailed step by step summary of the actions required. For the AREP module, the guidance document provides a breakdown of the actions required for the different climate and vulnerability risk classification of the projects. • The climate screening tool is available online to facilitate categorization; however this is not publicly available, it is only accessible by AfDB staff. External climate change experts are sometimes contracted by the bank to undertake the AREP assessments for Category 1 projects, and they are given special access to the tool. • Screen shots of the tool were identified during the review through presentation material delivered by Bank staff, however the document is quite dated now, so the tool may have developed in this time (AfDB, 2012)
<p>Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?</p>	<ul style="list-style-type: none"> • One of the CRMA’s main areas of intervention (‘climate-proofing investments’) aims to ensure that infrastructure invested in by AfDB is ‘capable of withstanding extreme events’ like ‘warmer temperatures, stormy conditions and torrential rains and floods’ (AfDB, 2009). • In order to ensure that infrastructure is resilient to adverse climatic conditions, the CRMA supports the development of ‘climate resilient engineering and architectural design standards, building materials and codes of practice for operations and maintenance of all types of infrastructure, including improved safety infrastructure’ (AfDB, 2009).
<p>What kinds of inputs (time, data and expertise) are required for using each tool?</p>	<ul style="list-style-type: none"> • The Bank is responsible for applying the Climate Screening and AREP to climate-proof its project portfolio. Application of the Climate Screening and AREP is the responsibility of Task Managers and Project Teams. Work may be delegated to Environmental Experts or Climate Change Experts at the Bank and, for Category 1 projects, external consultants. • Application of the Climate Screening and AREP is undertaken prior to completion of the Project Concept Note (PCN). For Category 1 projects, some further steps are taken after completion of the PCN. However, all steps are completed before Project Appraisal commences. • To undertake the CCS, the following information is required: <ul style="list-style-type: none"> – Climate Screening: A good understanding of the project concept; Some understanding of the sector(s) covered by the project; Some knowledge of host country institutions for the sector(s), their experience and their performance; Some understanding of the physical geography and climate of the host country. Note: No knowledge of climate change is required. – Adaptation Review and Evaluation Procedures (AREP): A completed scorecard with category classification (i.e. the output from Module 1); A good understanding of the project concept; Some understanding of the sector(s) covered by the project; A good knowledge of host country institutions for the sector(s), their experience and their performance; Some understanding of the physical geography and climate of the host country. Some knowledge of climate change. Note: Information on current climate and climate change projections for the project area is available online in the CSS Information Base. • Detail on the timeframe of the assessments has not been outlined by the Bank.
<p>Which tools are being widely used (and by what types of actors) or not, and why?</p>	<ul style="list-style-type: none"> • The Climate Safeguards System appears to be at a pilot stage, and currently applies only to AfDB’s public sector operations in the agriculture, water, energy and transport sectors (AfDB, 2011). It is therefore unclear how widely adopted it is. • Similarly, the CRMA appears to apply to AfDB’s operations in general. However, the documents that were publicly available (AfDB, 2009) are out of date, and the application of the CRMA may have changed.
<p>Where data available, which tools are most highly rated or evaluated (by region and key user group)?</p>	<ul style="list-style-type: none"> • No evaluation or review was available on AfDB’s tools to answer this question.
<p>Is the tool rated by an independent third party?</p>	<ul style="list-style-type: none"> • There is no evidence to suggest that the CRMA has been rated by an independent third party. However, the CRMA’s development was shaped by external consultations held in collaboration with the World Bank (AfDB, 2009). It also drew on the recommendations of the President of AfDB’s Working Group on Climate Change (AfDB, 2009).

B.4 Agence Française de Développement

Overview

All operations financed by Agence Française de Développement (AFD) are required to comply with the national regulations of the country where the operation is implemented, including for environmental and social issues. It is during the project appraisal phase that AFD qualify and assess its environmental and social risks and evaluate their level. AFD's 2012-2016 Climate Action Plan (now out of date) outlined the Bank's primary strategy for addressing climate change, which was based around three pillars:

- An objective of allocating 50% of its annual funding in developing countries to combating climate change;
- An objective to measure the climate impact of the projects it finances; and
- A policy of selecting projects according to their climate impacts (a 'selectivity policy').

The Climate Action Plan therefore informed AFD's funding decisions, as well as applying to a project's post-implementation stage. In terms of risk screening, the selectivity policy categorized projects depending on the extent of their GHG emissions. It is unclear whether the Climate Action Plan continues to influence the AFD's funding allocations.

Review

Table 8 outlines the findings from the desk based literature review of AFD's 2012-2016 Climate Action Plan and climate change risk screening. For a full list of the information sources, see Section 5.

Table 8: Review of AFD's climate change risk screening

Analysis Criteria	Analysis
Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?	<ul style="list-style-type: none"> • AFD categorizes environmental and social risk and climate sensitivity risk separately. • AFD's Action Plan 2012 - 2016 (now out of date) does highlight the Bank's overarching climate approach that was based on three core pillars (AFD, 2011): <ol style="list-style-type: none"> i. An objective of a sustainable financial commitment to the climate representing 50% of AFD's allocations to developing countries; ii. A systematic measurement of the carbon footprint of funded projects, using a robust and transparent methodology; and iii. A policy of selecting projects according to their climate impacts, taking into account the level of development of the countries in question. • AFD measures and assesses the climate vulnerability of projects with a Carbon Footprint Tool (AFD, 2011). The Carbon Footprint Tool is a matrix that assigns a value to each project according to the project sector (i.e. hydrology, roads), region and relevant risk factors (i.e. proximity to the coast, steepness of slope). AFD developed a project selectivity matrix (Figure 5) which aims to ensure that it: <ol style="list-style-type: none"> i. Does not fund highly emissive projects in emerging countries; ii. Does not fund strongly emissive projects in middle-income countries, particularly Mediterranean countries, unless such a project is part of a national and sectoral GHG emission mitigation policy.

Figure 5: AFD's GHG screening project selectivity matrix

	LEAST DEVELOPED OR CRISIS COUNTRIES	MIDDLE-INCOME COUNTRIES	EMERGING COUNTRIES
Mitigation project (< -10ktCO ₂ e p.a.) Or project with low impact (between -10ktCO ₂ e p.a. and 10ktCO ₂ e p.a.)	AFD Group funding possible.	AFD Group funding possible.	AFD Group funding possible.
Emissive project (between 10ktCO ₂ e p.a. and 1MtCO ₂ e p.a.)	AFD Group funding possible.	AFD Group funding possible.	Possible if not concessional funding. Concessional funding possible if, and only if, the country has a climate policy.
Strongly emissive project (> 1MtCO ₂ e p.a.)	Funding possible. If the funding is concessional the country must have a climate policy	No funding unless the country has a climate policy.	No AFD Group funding.

Source: (AFD, 2011)

- AFD's environmental and social risk management process (including risks related to climate change) applies to all the operations it finances, throughout the project life cycle (AFD, 2014). It uses IFC Performance Standards and World Bank Safeguard Policies to undertake due diligence on projects.
- AFD also has an exclusion list, which was approved by AFD's Boards of Directors in early 2011 and indicates the types of project that the Group refuses to finance on the grounds of ethical, regulatory, environmental and social criteria.

What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?

- The methodologies and tools used by the Bank to assess investments are applicable to all of AFD's countries of operation.
 - When projects are screened in terms of GHG emissions, this is on a *project-by-project* basis. Emissions beyond the project are not taken into account. During the wider environmental assessments, the extent of the review is unknown (no publicly available information was found).
- Additional information:
- The Climate Action Plan's selectivity policy is geographically delimited (AFD, 2011). In particular:
 - AFD does not fund highly emissive projects in any country that has a 'green and inclusive growth' mandate;
 - It does not fund highly emissive projects in middle-income countries, particularly in the Mediterranean Basin; and
 - No funding restrictions apply to 'fragile, priority-poor and sub-Saharan African' countries, except South Africa, Mauritius and the Seychelles.
 - Priority poor countries include Benin, Burkina Faso, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Ghana, Madagascar, Mali, Mauritania, Niger, Republic of Guinea, Senegal and Togo.

Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?

- No specific reference is made to cumulative impacts and/or drivers of change in the Climate Action Plan documents reviewed.
- There is also recognition that climate change issues are underpinned by three interlinked development challenges (sustainable energy generation, valuing climate and environmental services and considering vulnerability to climate change - (AFD, 2011).

How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?

- Ecosystems and their services do not appear to be accounted for in the Climate Action Plan.
- Climate risk is assessed by means of the selectivity policy.

	<ul style="list-style-type: none"> • In addition, AFD appears to use rules, good practices and directives produced by standard-setting organizations as a reference for its projects (AFD, 2014); mainly (AFD, 2014): <ol style="list-style-type: none"> i. The UN Principles for Responsible Investment (UNPRI); ii. The World Bank Safeguard Policies for public sector financing; iii. IFC Performance Standards for private sector financing. These standards are applied by Proparco (AFD's private investment arm) for high-risk projects (A and B+); iv. The "Principles for Responsible Financing." They are used by all European Development Finance Institutions (EDFI Group) and are applied by Proparco. <p>The major international conventions ratified by the countries where AFD operates are also used as references, mainly:</p> <ol style="list-style-type: none"> i. The United Nations Universal Declaration on Human Rights; ii. The International Labor Organization fundamental conventions on labor law; iii. The United Nations Convention on the Elimination of All Forms of Discrimination against Women; iv. The OECD guidelines.
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> • Although the objectives of the Climate Action Plan do not explicitly reference resilience and/or future livelihoods, sustained ecosystem functioning and delivery of ecosystem services, various associated documents discuss resilience. For example, 'Reconciling development and the fight against climate change' (AFD, 2011) notes that AFD 'adds criteria and specifications to ensure that a project really contributes to increase the resilience of communities or the economy...'
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • AFD's screening assessments are at the stage of financing in the infrastructure development process; it doesn't appear to influence the design stage, as other financial institutions do. • AFD's environmental and social risk management process (including risks related to climate change) applies to all the operations it finances, throughout the project life cycle (AFD, 2014). • The carbon footprint measurement of the Climate Action Plan applies 'from the identification of financing and is gradually honed during the appraisal process' (AFD, 2011). • The selectivity policy appears to apply at the funding appraisal and evaluation stage, however this is at the discretion of AFD (AFD, 2011).
<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> • The selectivity policy does not provide step by step guidance, but it is prescriptive because it limits the number of projects AFD can finance in certain parts of the world. • There is extensive guidance on the application of the carbon footprint measurement tool, including detail on general and guiding principles (AFD, 2011). These principles indicate what gases should be measured by the tool, what measurement unit should be used for different gases, and how emission sources should be categorized. • The same document (AFD, 2011) has a step-by-step guide to carrying out carbon footprint calculations.
<p>Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?</p>	<ul style="list-style-type: none"> • The selectivity policy and the carbon footprint measurement tool do not include consideration of how infrastructure depends on natural capital/climatic conditions.
<p>What kinds of inputs (time, data and expertise) are required for using each tool?</p>	<ul style="list-style-type: none"> • Inputs required for the carbon footprint measurement tool include (AFD, 2011): <ol style="list-style-type: none"> i. Total capital expenditures; ii. Operating expenses in first full year of operation; iii. Final-year operating expenses; iv. Emissions sources; v. Date of start of construction work;

	<ul style="list-style-type: none"> vi. Duration of construction phases; and vii. Duration of operational phase. • Details on the level of expertise and time required to undertake the screening were not publicly available.
Which tools are being widely used (and by what types of actors) or not, and why?	<ul style="list-style-type: none"> • The carbon footprint measurement component of the 2012-2016 Climate Action Plan applies to all projects financed by AFD (AFD, 2011). • All operations financed by AFD Group are required to comply with the national regulations of the country where the operation is implemented, including for environmental and social issues. However, as regulations in the countries where AFD Group operates are sometimes incomplete or being developed, AFD Group uses a number of rules, good practices and directives produced by international standard-setting organizations as a reference (see list above).
Where data available, which tools are most highly rated or evaluated (by region and key user group)?	<ul style="list-style-type: none"> • No information was found on this question.
Is the tool rated by an independent third party?	<ul style="list-style-type: none"> • None of the documents reviewed suggest that the Climate Action Plan has been rated by an independent third party.

B.5 European Bank of Reconstruction and Development

Overview

The European Bank of Reconstruction and Development (EBRD) has stakeholders across the European Union, therefore its policies and procedures for work undertaken in these countries are aligned to the European Directives (in particular the EIA Directive). For countries outside of the EU, the Bank is driven by international guidance. EBRD's objective is to achieve 40% of its investments in 'green projects' by 2020, the majority of which include climate change mitigation and adaptation in some form.

EBRD is governed by an Environmental and Social Policy, and have report to instill sustainability into their operations. It undertakes environmental and social impact assessments of all of its projects and integrates climate risk assessments and adaptation measures in their investment operations.

Review

Table 1 outlines the findings from the desk based literature review of EBRD's Environmental and Social Risk Management screening tools. For a full list of the information sources, see Section 5.

Table 9: Review of EBRD's climate, sustainability and resilience risk screening

Analysis Criteria	Analysis
Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?	<ul style="list-style-type: none"> • No separate tools for assessing climate, sustainability and resilience risks are available on the Bank's publicly published information. Risk is assessed on a case-by-case basis by drawing on sectoral guidance and country-level information. • EBRD's risk analyses are informed by country level and sector strategies that refer to climate change; each country and sector strategy provides information on the requirements and also key climate change risks, thus providing a clear guide for its staff. • EBRD's Environmental and Social (E&S) Policy makes a few references to climate change concerning the need to address both the causes and the consequences of climate change in its countries of operation and identifying opportunities to reduce emissions (EBRD, 2014). In assessing the environmental and social impacts of a project, the Bank categorizes each project to determine: the nature and level of environmental and social investigations; information disclosure; and stakeholder engagement required. Each project is ranked A to C. 'A' projects will potentially

	<p>have significant adverse future environmental and/or social impacts and thus require a formalized and participatory ESIA process; whereas ‘C’ projects are likely to have minimal or no potential adverse future environmental and/or social impacts, and can readily be addressed through limited environmental and social appraisal.</p> <ul style="list-style-type: none"> • The E&S Policy outlines a set of specific Performance Requirements (PRs) that projects are expected to meet—which are related to climate, sustainability and resilience risks—are as follows (EBRD, 2014): <ul style="list-style-type: none"> – PR 1 - Assessment and Management of Environmental and Social Impacts and Issues; – PR 3 - Resource Efficiency, Pollution Prevention and Control; – PR 6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources. • There are two explicit mentions of climate change in EBRD’s E&S Policy: once in PR1, stating climate change is a risk to a project, and thus an assessment should be undertaken; and second, in PR6, where it states climate change and adaptation should be taken into account in baseline assessments for projects (EBRD, 2014). • A detailed overview of the Bank’s ‘Environmental and Social Exclusion List’ can be found in Appendix 1 of its E&S Policy; however, neither list makes a direct reference to climate change.
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • All projects (no matter where they are located geographically) undergo environmental and social appraisal to help EBRD decide if the project should be financed and, if so, the way in which environmental and social issues should be addressed in its planning, implementation and operation. The environmental and social appraisal and monitoring of projects is integrated into EBRD’s overall project cycle and decision making process; all projects seeking finance must undergo this review (EBRD, 2014). • Assessments are required to be robust enough to characterize the impacts—based on their likelihood and the significance and severity of impact—and reflect the concerns of potentially affected communities and, where relevant, other stakeholders (EBRD, 2014).
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> • The scope of EBRD’s environmental and social appraisal of projects will be defined on a case by case basis depending on the nature of the project (EBRD, 2014). <p>Additional information:</p> <ul style="list-style-type: none"> • EBRD’s E&S Policy establishes three key elements to be considered in the environmental and social appraisal of projects: <ul style="list-style-type: none"> – The environmental and social impacts, issues, risks and opportunities associated with the project; – The capacity and commitment of the client to implement the project in accordance with the relevant PRs; and, – To the extent appropriate, the environmental and social impacts and risks related to facilities and activities that are associated with the project, but are not financed by EBRD. • Furthermore, it calls for the consideration of potential landscape level impacts, as well as impacts on the ecological integrity of the ecosystems, independent of their protection status and regardless of the degree of their disturbance or degradation.
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> • EBRD’s E&S Policy uses a precautionary approach to the protection, conservation, management and sustainable use of living natural resources and requires relevant projects to include measures to safeguard and, where feasible, enhance ecosystems and the biodiversity they support (EBRD, 2014). • Projects involving the use of living natural resources are required to assess the sustainability of the resource, as well as account for the potential impacts on ecosystems and the biodiversity they support considering the following principles: <ul style="list-style-type: none"> – The use of any living natural resource needs to be considered in the context of the core ecological functions it provides within the ecosystem; – Consideration of direct, indirect and cumulative impact; – The use of the living natural resource will follow the mitigation hierarchy approach and seek to optimize benefits for other users; and, – The production and/or use of species or populations that are not natural to the location and not tested for their invasiveness and/or dominance over local species should be restricted or be subject to adequate studies and approval by the relevant national competent authorities, prior to production or use (EBRD, 2014).

	<ul style="list-style-type: none"> • Biodiversity assessments, and the categorization of habitats are undertaken. (EBRD, 2014). • There is a standard approach for assessing climate change vulnerability, which was developed in conjunction with EIB (i.e. European Financing Institutions Working Group on Adaptation to Climate Change (EBRD, 2016). This does not only cover the assessment of climate change vulnerability, it also covers how climate resilience may be integrated into the entire project cycle.
Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?	<ul style="list-style-type: none"> • At an early stage of project development, EBRD technical experts visit the client's site to carry out water and energy audits, or climate resilience audits, which provide a basis to identify, propose and discuss with the client possible technical and investment solutions. • In instances where assessments have identified potential project-related impacts to biodiversity, the clients are required to manage its risks in accordance with the mitigation hierarchy and good international practice. EBRD's E&S Policy calls for adoption of a precautionary approach and the application of adaptive management practices in which the implementation of mitigation and management measures are responsive to changing conditions and the results of project monitoring throughout the project life cycle (EBRD, 2014).
At what stage in the infrastructure development process are these tools typically used?	<ul style="list-style-type: none"> • The E&S Policy calls for the identification and characterization of the potential-related opportunities, risks and impacts on biodiversity early in the project life-cycle (EBRD, 2014). <ul style="list-style-type: none"> – Environmental and social issues and impacts are expected to be analyzed during relevant stages of the project cycle. These stages may include preconstruction, construction, operations and decommissioning or closure and reinstatement. Where relevant, the appraisals also consider the role and capacity of third parties, such as local and national governments, contractors and suppliers, to the extent that they may influence the project, recognizing that the client's ability to address these risks and impacts will depend on its control and influence over the third party actions (EBRD, 2014). • EBRD support its clients in the project scoping and financing phases; it would therefore be involved in the 'Design' and 'Financing' stages of the infrastructure development process (EBRD, 2014). • Where further investigations are needed to provide greater certainty of the significance of potential impacts, the client is expected to carry out additional studies and/or monitoring before undertaking project-related activities that could cause irreversible impacts (EBRD, 2014). • Appraisals of impacts associated with supply chains central to the project's core functions will be considered where the resource utilized by the project is ecologically sensitive, are to consider potential transboundary and global issues, such as impacts from effluents and emissions, increased use or contamination of international waterways, GHG emissions, climate change mitigation and adaptation issues and impacts on endangered species and habitats (EBRD, 2014).
How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?	<ul style="list-style-type: none"> • The approach is very comprehensive, outlining guidance related to ecosystem sustainability, because it considers various aspects that are important to ecosystem services. The <i>Performance Requirements</i> span an array of topic areas that are tied to: climate, sustainability, and resilience risks associated to ecosystem services. The E&S Policy strives to (EBRD, 2014): <ul style="list-style-type: none"> – Protect and conserve biodiversity; – Avoid, minimize and mitigate impacts on biodiversity and offset significant residual impacts, where appropriate, with the aim of achieving no net loss or a net gain of biodiversity to protect and conserve biodiversity; – Promote the sustainable management and use of natural resources; – Ensure that Indigenous Peoples and local communities participate appropriately in decision-making; – Provide for fair and equitable sharing of the benefits from project development and arising out of the utilization of genetic resources; and, – Strengthen companies' license to operate, reputation and competitive advantage through best practice management of biodiversity as a business risk and opportunity.
Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?	<ul style="list-style-type: none"> • The assessments should consider (but will not be limited to): loss of habitat, degradation and fragmentation, invasive alien species, overexploitation, migratory corridors, hydrological changes, nutrient loading and pollution, as well as impacts relevant to climate change and adaptation—this is applicable to all projects, not just infrastructure. (EBRD, 2014).

What kinds of inputs (time, data and expertise) are required for using each tool?	<ul style="list-style-type: none"> No publicly available information found.
Which tools are being widely used (and by what types of actors) or not, and why?	<ul style="list-style-type: none"> EBRD has stakeholders across the European Union; therefore, its policies and procedures for work undertaken in these countries are aligned to the European Directives (in particular the EIA Directive). For countries outside of the EU, the Bank is driven by international guidance, such as the European Financing Institutions Working Group on Adaptation to Climate Change (EBRD, 2016) or the <i>Joint MDB Approach for defining Mitigation and Adaptation</i>.
Where data available, which tools are most highly rated or evaluated (by region and key user group)?	<ul style="list-style-type: none"> No publicly available information found.
Is the tool rated by an independent third party?	<ul style="list-style-type: none"> No publicly available information found.

B.6 European Investment Bank

Overview

The European Investment Bank (EIB) adopted its Climate Strategy in 2015, which draws on the EU's climate policy objectives, and putting them into practice. The Climate Strategy identifies three key strategic areas around which EIB will focus its efforts. These strategic areas include:

- Reinforcing the impact of climate investment – as part of which, the bank will dedicate 25% of its lending to climate action projects;
- Building resilience to climate change, with a commitment by the bank to adopt best practice in adaptation and enhance project risk screening; and
- Integrating climate change considerations across all EIB standards, methods and processes, by amongst others extending the coverage of sector policies and improving climate risk and vulnerability assessment.

Review

Table 10 outlines the findings from the desk based literature review of EIB's *Climate Strategy* and climate change risk screening methodologies. For a full list of the information sources, see Section 5.

Table 10: Review of EIB's climate change risk screening

Analysis Criteria	Analysis
Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?	<ul style="list-style-type: none"> The <i>Climate Strategy</i> is broadly integrated with other sustainability goals. For example, the Sustainable Development Goals provide 'high-level references' that anchor the Climate Strategy in the 'broader policy sphere' (EIB, 2015). The <i>Climate Strategy</i> includes a number of separate tools (e.g. climate sensitive sector screening, carbon pricing and green bonds), some of which (e.g. carbon pricing) include social as well as environmental considerations (EIB, 2015). EIB has developed an <i>Environmental and Social Handbook</i> (ESH) that provides its staff with advice on the planning and management of the environmental and social appraisal, and the monitoring of EIB operations in accordance with the established EIB environment and social policy framework. Screenings are undertaken at different stages of the project financing cycle (EIB, 2013). <u>1. Pre-Appraisal:</u>

	<p>Before EIB proceeds with full due diligence, an E&S screening shall be carried out for all projects. There is a simple checklist the Bank uses to assess each project in terms of: E&S issues; Biodiversity, Climate Change. There are also screenings for:</p> <ol style="list-style-type: none"> i. Legislative Compliance; ii. Social Issues iii. Climate Mitigation and Adaptation <ul style="list-style-type: none"> ▪ Carbon Credit Potential Assessment ▪ Vulnerability Assessment ▪ Carbon Footprint <p><u>2. Appraisal:</u></p> <p>Detailed E&S due diligence assessments are undertaken, which encompasses: environmental, social, biodiversity, climate mitigation and adaptation. The level of detail of the assessment depends on the categorization of the project.</p>
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • The tools outlined in the <i>Climate Strategy</i> apply to projects being financed “in all regions of operation” (EIB, 2015). EIB’s regions of operation lie within the EU, and globally. • The detailed E&S impact assessments undertaken in the appraisal of a project do look at the wider impacts of the project. However, the climate sensitive sector screening and carbon pricing tools are applied only on the project (EIB, 2013).
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> • The assessments are only undertaken on the element of the project being financed by the Bank. • At a broad level, the <i>Climate Strategy</i> recognizes the co-benefits associated with action on climate change. For example, investing in the low-carbon economy is anticipated to create ‘new jobs in key industries’ (EIB, 2015). • In addition, in considering enhancements to climate change resilience, EIB takes into account the social dimension of adaptation issues.
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> • During the pre-appraisal stage assessment of a project the impacts it may have on biodiversity and ecosystem services are taken into account. These are also taken into account during the detailed ESIA assessments, with the main focus on: Degradation of ecosystem services (including impact on processes important for creating and/or maintaining ecosystems); Loss and degradation of habitats (including the Natura 2000 network, habitat fragmentation and isolation); Loss of species diversity (including species protected under the Habitats Directive and the Birds Directive); and Loss of genetic diversity (EIB, 2013). <p>Additional supporting information</p> <ul style="list-style-type: none"> • Climate risk is assessed using various tools: <ol style="list-style-type: none"> i. A screening tool, developed and piloted by EIB, which allows the bank to assess “direct risks to bank-supported activities linked to climate change” (EIB, 2015). The tool is due to be mainstreamed, although it is unclear to what extent this has occurred. ii. A climate risk and vulnerability assessment, carried out by the project promoters, where it is justified by the results of the screening tool described above (EIB, 2015). Based on this assessment, physical or soft measures can be put into place at the design, planning and implementation stages of a project.
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> • There is broad recognition that resilience is a critical issue in sectors like water, food, energy and health, without a specific link being made to livelihoods, sustained ecosystem functioning and ecosystem service delivery.
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • Tools like the (pilot) screening tool and climate risk and vulnerability assessment appear to be carried out at the project identification and project feasibility stages. • Carbon pricing applies at the project appraisal stage (EIB, 2015). • More generally, the <i>Climate Strategy</i> applies across EIB’s operations.

<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> • EIB's ESH provides a detailed overview of what is required at each stage of the E&S assessment. It does not provide a step by step breakdown of the methodology followed by the bank's staff, but it does detail on the different stages of the assessment and what information is required. • The screening tool and climate risk and vulnerability assessment both appear to be at a pilot stage – no additional information was publicly available at the time of writing. • Other tools are accompanied by more extensive guidance. For example, EIB's carbon pricing approach is outlined in chapter 4 of <i>Economic Appraisal of Investment Projects at EIB</i> and the Bank's <i>Induced GHG Footprint</i> guidelines (EIB, 2013) (EIB, 2014). • The bank also provides further information on the projects that are considered eligible for financing under its 25% lending target (EIB, 2015).
<p>Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?</p>	<ul style="list-style-type: none"> • Protecting natural capital is one of EIB's overarching environmental commitments, however there is no explicit mention of how infrastructure, specifically, depends on natural capital in the documents reviewed. • Climate resilience assessments are undertaken in the pre appraisal stage of the financing project cycle via the climate change screening assessment. <p>Additional information:</p> <ul style="list-style-type: none"> • The bank has developed a number of innovative financial tools and mechanisms which aim at catalyzing and mobilizing private finance into low carbon and adaptation projects. For the conservation of natural capital and adaptation measures, EIB has the Natural Capital Financing Facility– however these are not specific to infrastructure projects (EIB, 2015).
<p>What kinds of inputs (time, data and expertise) are required for using each tool?</p>	<ul style="list-style-type: none"> • The ESH outlines the E&S elements of a project that need to be taken into account/ assessed during the impact assessments. • In terms of requirements for the other tools to be used – no publicly available information was available.
<p>Which tools are being widely used (and by what types of actors) or not, and why?</p>	<ul style="list-style-type: none"> • Every project seeking finance from the bank has to undergo an E&S assessment, which includes a climate change assessment as one of the steps; with the detail of the review depending on the initial classification of the project. Although not explicitly mentioned in the documents, it is assumed this tools are widely used across the Bank. <p>Additional information:</p> <ul style="list-style-type: none"> • However, EIB notes that the green bonds market, and in particular Climate Awareness Bonds, raised nine billion euros across ten different currencies between 2007 and end-June 2015 (EIB, 2015). This may indicate that green bonds are being widely used by investors and other climate actors.
<p>Where data available, which tools are most highly rated or evaluated (by region and key user group)?</p>	<ul style="list-style-type: none"> • N/A – no specific data are provided in EIB's <i>Climate Strategy</i> report (EIB, 2015).
<p>Is the tool rated by an independent third party?</p>	<ul style="list-style-type: none"> • No publicly available information was found to suggest this is the case.

B.7 Inter-American Development Bank

Overview

The Inter-American Development Bank (IDB) is the largest source of development financing for Latin America and the Caribbean; supporting economic development, social development, and regional integration through lending to governments, government agencies, and State corporations. The finance company was established in 1959 with a membership of 48 countries and about 2,000 staff members. IDB launched its first *Sustainable Energy and Climate Change Initiative* in 2007 and in 2011, approved an *Integrated Climate Change Mitigation and Adaptation Strategy* to address financial gaps in the climate change space.

Review

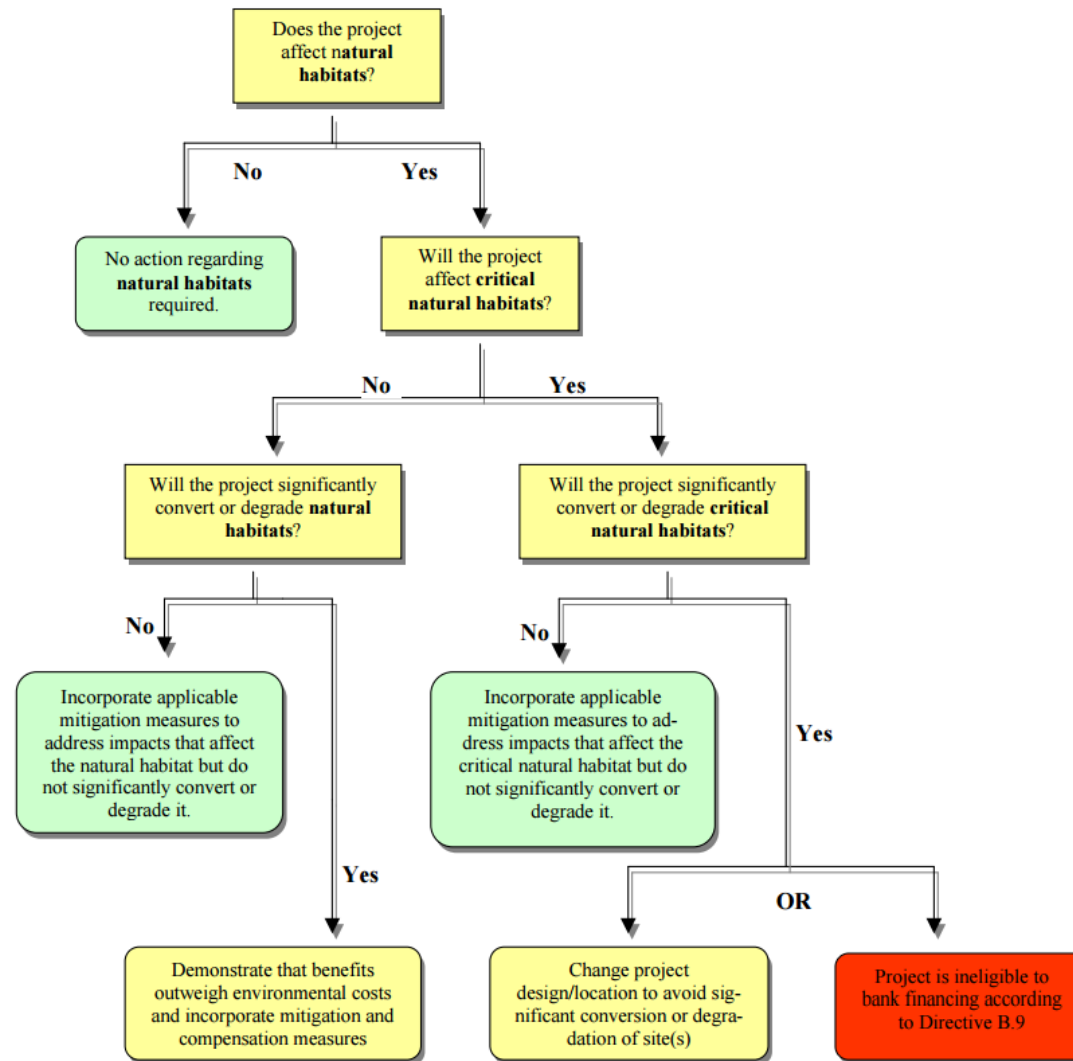
Table 11 outlines the findings from the desk based literature review of IDB’s climate and sustainability screening tools. For a full list of the information sources, see Section 5.

Table 11: Review of IDB’s climate and sustainability risk screening

Analysis Criteria	Analysis
<p>Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?</p>	<ul style="list-style-type: none"> • To work towards more sustainable investments, IDB has its environmental and social safeguard policies, standards and guidelines. Each policy promotes sustainability through a two-pronged approach (IDB, 2017): <ol style="list-style-type: none"> i. It enhances outcomes by mainstreaming environmental and social concerns, an approach that promotes environmental and social aspects as central considerations for all project activities. ii. Minimizes negative impacts by applying safeguards, including identification, monitoring and mitigation of issues throughout a project’s lifecycle. • All its projects are screened for climate related disaster risks, mainly from a hazard perspective at the moment, and in accord with the Bank’s <i>Environmental and Safeguards Compliance Policy</i> and <i>Disaster Risk Management Policy</i> (IDB, 2006) (IDB, 2007). • The Bank’s <i>Environmental and Safeguards Compliance Policy</i> is integrated in the context of the project cycle is as follows; <ol style="list-style-type: none"> i. Design / Screening Phase <ul style="list-style-type: none"> ▪ To screen and classify the project (assign it a risk category) on the basis of its potential environmental impact. ▪ To identify additional risks factors ▪ To determine the environmental assessment requirements for operations (based on their classification and level of risk. ii. Project preparation phase <ul style="list-style-type: none"> ▪ To verify the project’s compliance with IDB policies. ▪ Assess the transboundary impacts of the project. ▪ Assess impacts on natural habitats and cultural sites. • The environmental classification process that takes place, categorizes projects as ‘A’, ‘B’ or ‘C’; for former are likely to cause significant negative environmental and associated social impacts, or have profound implications affecting natural resources, and the latter having minimal or no negative environmental and associated social impacts. • The bank has a list of excluded activities that it will not finance – this forms part of the initial screening phase. <p>Additional information:</p> <ul style="list-style-type: none"> • IDB works to meet the goals of its <i>Climate Change Strategy</i> (i.e. strengthening the Bank’s knowledge base, strengthening institutional capacity in the private and public sector, developing instruments to mainstream climate change mitigation and increasing resilience of Bank-funded projects, identifying and developing lending and technical assistance for climate action in key sectors, scaling up investments, addressing financial gaps and leveraging private sector investments) (IDB, 2013) • Another overarching objective of the bank is to achieve sustainable growth whilst reducing poverty and inequality
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • IDB focuses on Latin America and the Caribbean, given the region’s high vulnerability to impacts as a result of climate change. All projects requesting financing from IDB must undergo the initial screening phase, and a more detailed E&S assessment, if deemed necessary.

	<ul style="list-style-type: none"> • The environmental assessment process will identify and address, early in the project cycle, transboundary issues associated with the operation. The environmental assessment process for operations with potentially significant transboundary environmental and associated social impacts, such as operations affecting another country's use of waterways, watersheds, coastal marine resources, biological corridors, regional air sheds and aquifers, will address the following issues (IDB, 2007): <ul style="list-style-type: none"> i. Notification to the affected country or countries of the critical transboundary impacts; ii. Implementation of an appropriate framework for consultation of affected parties; and iii. Appropriate environmental mitigation and/or monitoring measures, to the Bank's satisfaction.
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> • During the environmental impacts screening process of a project, consideration of potential negative environmental impacts whether direct, indirect, regional or cumulative in nature, including environmentally related social and cultural impacts, of the operation and of its associated facilities (if relevant), will be carried out.
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> • During the screening process, an IDB project team verifies that the project does/ does not degrade or significantly convert critical natural habitats (which incorporate ecosystems). This process is sometimes undertaken in consultation with an environmental specialist. The team will undertake the following reviews: <ul style="list-style-type: none"> i. Pre-screening / Screening Phase: early in the project preparation phase the project team in the bank, together with the borrower, will identify whether or not critical natural habitats might be affected by the operation. At this stage the bank project team will determine if additional analysis is required; ii. Environmental Assessment: If the initial screening indicates that the project is likely to affect critical natural habitats, an environmental assessment will need to be carried out to determine whether or not the project will significantly convert or degrade these areas; iii. Mitigation Measures: If the project is not likely to significantly convert or degrade the critical natural habitat, but might still negatively impact it, the borrower will be required to develop mitigation and monitoring measures, acceptable to the project team, to mitigate such impacts. • Figure 6 outlines IDB's natural habitats decision making process.

Figure 6: IDB Natural Habitats and Critical Natural Habitats Impacts Decision-making Tree



Source: (IDB, 2007)

- IDB are also part of the *Multilateral Financing Institutions Biodiversity Working Group & Cross Sector Biodiversity Initiative* that have developed guidance documents such as [Good Practices for the Collection of Biodiversity Baseline Data](#) or [Good Practices for Biodiversity Inclusive Impact Assessment and Management Planning](#).

	<ul style="list-style-type: none"> The IDB has also developed a specific guidance note on Assessing and Managing Biodiversity Impacts and Risks in Inter-American Development Bank Supported Operations.
Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?	<ul style="list-style-type: none"> A reference to resilience linked to future livelihoods and sustained ecosystem functioning is not mentioned in IDB's environmental and safeguards compliance policy.
At what stage in the infrastructure development process are these tools typically used?	<ul style="list-style-type: none"> All IDB financed operations will be screened and classified according to their potential environmental impacts. Screening will be carried out early in the preparation process. The screening process will consider potential negative environmental impacts whether direct, indirect, regional or cumulative in nature, including environmentally related social and cultural impacts, of the operation and of its associated facilities, if relevant (IDB, 2006). Detailed assessments are then undertaken in the <i>Project Appraisal</i> phase, i.e. whether financing is approved/rejected. In terms of the infrastructure development process, this would take place in the design and financing stages. IDB will only finance operations and activities that comply with its Environmental and Safeguards Compliance policy and directives (IDB, 2006).
How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?	<ul style="list-style-type: none"> IDB has a detailed process in their <i>Environment and Safeguards Compliance Policy</i> that outlined the decision making steps and provide an overview of the level of information required for each assessment. No online tool or software was found in the review.
Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?	<ul style="list-style-type: none"> All projects (including infrastructure) undergo the initial E&S screening, and detailed environmental impacts assessment, if deemed necessary. Although natural capital is not explicitly mentioned, an assessment on the project impact on natural habitats and ecosystems is undertaken. See response to earlier question regarding the decision making tree.
What kinds of inputs (time, data and expertise) are required for using each tool?	<ul style="list-style-type: none"> Preparation of environmental assessments, the associated management plans and their implementation are the responsibility of the borrower. The Bank will require compliance with specified standards for EIAs, Strategic Environmental Assessments (SEAs), <i>Environmental and Social Management Plan</i>, and environmental analyses. Details of these assessments and the requirements are outlined in the Bank's guidelines (IDB, 2006). The project team within the bank will review the results (IDB, 2007). IDB's Guidance document outlines the high level requirements for each assessment, but it does not outlined the time or level of expertise required.
Which tools are being widely used (and by what types of actors) or not, and why?	<ul style="list-style-type: none"> IDB's safeguards and policies are applied to all projects seeking financing. Safeguards are used to add development value (i.e. environmental, resettlement, disaster risk management, gender equality, indigenous peoples, access to information) EIAs are undertaken of projects that are categorized as 'A' or 'B' during the initial screening process. GHG footprints are also calculated for the Bank's investments to deliver a reduction in emissions generated and to increase avoided emissions; however it is unclear if this is used as a screening mechanism, or post decision making.
Where data available, which tools are most highly rated or evaluated (by region and key user group)?	<ul style="list-style-type: none"> No publicly available evaluation was found as part of the review.
Is the tool rated by an independent third party?	<ul style="list-style-type: none"> EIAs are reviewed by bank staff on completion by the borrower; however no other mention of third party reviews was found in the review <p>Additional information:</p> <ul style="list-style-type: none"> The Natural Capital Project and The Nature Conservancy created a document specifically for IDB explaining what steps can be properly taken for road development projects in Latin America and the Caribbean to conserve natural capital and ecosystems. It highlighted that the benefits of ecosystems often are not taken into account when making decisions about where and how to improve roadways (NCP

and NC, 2016). The document lists actions that the IDB has taken, but not a direct approach of how to use the tools; nor does the report provide a review of the IDB tools.

B.8 KfW Development Bank

Overview

On behalf of the German Federal Government, KfW Development Bank (KfW) provides funds to partner countries, with the objective of promoting sustainable development. One building block is the E&S responsibility assessment and the “climate test” of a project, which is carried out before actual implementation starts. It aims to identify possible negative effects of the project at an early state and to prevent them (and if necessary with additional measures), or reduce them to an acceptable degree (KfW, 2014). The aim is to pursue the financing of projects that: 1) avoid, reduce, or limit environmental pollution and damage including climate-damaging emissions and pollution; 2) consider probable and foreseeable impacts of climate change including utilizing the potential to adapt to climate change (long-term variability and long-term climate change; 3) and support climate impacts as well as risks.

Review

Table 12 outlines the findings from the desk based literature review of KfW’s screening tools. For a full list of the information sources, see Section 5.

Table 12: Review of KfW Development Bank climate, sustainability and resilience risk screening

Analysis Criteria	Analysis
Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?	<ul style="list-style-type: none"> • KfW's Sustainability Guideline states that all activities funded by the bank are subject to an internal Environmental and Social Due Diligence (ESDD) and a climate assessment (KfW, 2016). The following steps cover the whole project, not just the components financed by KfW: <ul style="list-style-type: none"> i. A preliminary appraisal, called screening, to determine the environmental, social and climate relevance and environmental, social and climate risks of an investment; ii. The design and implementation of an ESDD, in-depth climate adaptation assessment and/or in-depth climate mitigation assessment in order to examine all or individual aspects of the investment, including participatory approaches to involve affected local groups and keep the public in the partner country informed. • There is no separate tool for assessing both sustainability and climate risk and resilience. The <i>Sustainability Guideline</i> is intended to support both (sustainability and climate risk and resilience) and among all sectors, with greater focus of sustainability (KfW, 2014). • The toolkit has four main sections that focus on the concepts, methods and examples of sustainable procurement, and then delves into five sector-specific sustainability criteria for: 1) water infrastructure (wastewater and drinking water); 2) energy with a focus on renewables; 3) information and communication technology; 4) structural engineering; and, 5) Transport (road construction). • In-depth climate assessments must be considered with regard to reducing GHG emissions, increasing adaptive capacity of the target groups and ecosystems as well as the use of the positives impacts of climate change for development (KfW, 2016). • KfW follows the World Bank’s standards (i.e. for public agencies the <i>Environmental and Social Safeguards</i> of the World Bank and IFC <i>Performance Standards</i> for cooperation with the private sector) and their general and sector-specific <i>Environmental, Health and Safety (EHS) Guidelines</i> as well as the <i>Core Labor Standards</i> of the <i>International Labor Organization</i>.

<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> The <i>Sustainability Guideline</i> and application of all tools are required in each country of KfW operation. <p>Additional information:</p> <ul style="list-style-type: none"> The <i>Sustainability Guideline</i> recommends the use of ecolabels to evaluate products and services and concepts of life cycle costing (LCC) and life cycle assessment (LCA) as possibilities for evaluating systems or part of them. LCA evaluations, particularly, assess the inherent ecological impact of products and services from extraction of raw materials to manufacture, transport, utilization and recycling—this method is little used to date (KfW, 2014). As a general rule, KfW bases the project assessments on the regulations that apply in the country which the project is to be implemented; however, the regulations must be consistent with international environmental, social, health, safety and labor standards.
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> The cumulative impacts and risk of a project on a KfW region should also be included in assessments (KfW, 2016). The in-depth climate adaptation assessment and consideration of the aspects related to climate change adaptation (climate resilience) are recommended to ensure that the desired developmental impacts of a KfW measure are not endangered despite the forecasted effects of climate change. <ul style="list-style-type: none"> Assessments are required to analyze whether the partner country's capacity for adaptation can be further increased in the framework of KfW measure. Consideration for both direct effects (e.g. more frequent flooding or drying out of agricultural areas) and indirect effects of climate change (e.g. revenue losses in agriculture) are required. The examinations of the longer targeted period of impacts beyond the formal implementation period of KfW measure are recommended. On this basis, options should be developed and implemented to increase the capacity of the target groups or ecosystems to adapt, which are compatible with the climate strategy of the country, e.g. the <i>National Adaptation Plan</i> as part of the United Nations Framework Convention on Climate Change (KfW, 2016). The in-depth climate mitigation assessment focuses on the potential for GHG reduction (Emission Saving) and serves to avoid substantial GHG emissions and to tap potentials for reducing GHGs. Planned KfW measures are assessed for their ability to contribute to higher or lower GHG emissions, whether the project is compatible with the climate strategy of the country, e.g. the Nationally Determined Contribution (NDC) and, where necessary, if there are potentials for reducing GHG emissions. On this basis, options to contribute to GHG reduction will be developed and if applicable (taking into consideration the development impacts and costs) integrated into the KfW measure (KfW, 2016).
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> Within the assessments for the climate change adaptation relevance, analyses are carried out to determine: 1) whether the intended development policy impact of KfW measure depends largely upon climate parameters; and, 2) whether KfW measure can contribute towards significantly enhancing the adaptive capacity of target groups or ecosystems—primarily on the capacity for ecosystems to adapt (KfW, 2016).
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> There is consideration of the scope and forecast for costs over a certain time (for the life cycle costing evaluation); however, the duration is not clearly stated (KfW, 2014).
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> The tools are used in the planning, pre-qualification, pre-selection of bidders phase, the evaluation phases and the contractual provisions (including contract management) phase. The toolbox focuses on water, wastewater/waste management, (renewable) energy sectors, as well as transport and communications; the methods and concepts can equally be applied to other sectors (KfW, 2014).
<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> The <i>Sustainability Guideline</i> approaches are comprehensive and include a series of data gathering. There are sector-specific sustainability criteria that are tailored to range of development projects.

Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?	<ul style="list-style-type: none"> The <i>Sustainability Guideline</i> considers the consumption of natural resources and weather conditions (KfW, 2014). No further information was publicly available to expand upon how natural capital and climatic conditions are explicitly considered, but there is mention of these considerations in the guideline.
What kinds of inputs (time, data and expertise) are required for using each tool?	<ul style="list-style-type: none"> The inputs are dependent on the type of development project, for example for transportation road construction projects, the guidelines note that projects for new construction should use energy and resource-efficient practices along with environmentally friendly building materials. The effect protection of flora and fauna and measures to secure hazardous waste are some pinnacle requirements (KfW, 2014).
Which tools are being widely used (and by what types of actors) or not, and why?	<ul style="list-style-type: none"> All projects being financed by the KfW undergo a screening process to determine its relevance in terms of environmental and social impacts and risks, as well as in terms of substantial GHG reduction potential and substantial need for adaptation to possible climate change. The screening process is designed to identify and appraise the type and scale of any adverse environmental and social impacts or risks that may arise from the planned investment measure, potential for reducing GHG emissions and possible climate change impacts on the investment measure that may impair the achievement of objectives. Projects are classified into one of three categories: 'A', 'B' or 'C', according to the relevance of their potentially adverse environmental and social impacts and risks. 'A' projects have diverse, significant adverse impacts and risks on environmental and social conditions of the affected population; whereas 'C' projects, are expected to have no or only minor impacts.
Where data available, which tools are most highly rated or evaluated (by region and key user group)?	<ul style="list-style-type: none"> No information on this question.
Is the tool rated by an independent third party?	<ul style="list-style-type: none"> Typically the KfW's clients appoint an independent expert and (in consultation with KfW IPEX-Bank) commissions the expert to perform the monitoring to assess the client's own monitoring. The overall monitoring is also conducted in close cooperation with the <i>Competence Centre for Environment and Climate</i> of KfW Group (KfW, 2016).

B.9 World Bank (IBRD and IDA)

Overview

The World Bank - comprising the International Bank for Reconstruction and Development (IBRD) and the International Development Agency (IDA) – approved its new *Environmental and Social Framework*⁸ ('the framework') in 2016. The framework will replace the existing *Safeguard Policies* in 2018.

The framework is made up of the World Bank's vision for sustainable development, policies relating to sustainable development and ten *Environmental and Social Standards* that set out mandatory requirements for the World Bank and for borrowers in relation to projects funded through *Investment Project Financing*. The ten standards include:

- Standard 1: Assessment and management of environmental and social risks and impacts**
- Standard 2: Labor and working conditions**
- Standard 6: Biodiversity conservation and sustainable management of living natural resources**
- Standard 7: Indigenous peoples/sub-Saharan African historically underserved traditional local communities**

⁸ Note: the updated Environmental and Social Framework is not applicable to the World Bank Group widely i.e. it is not applicable to the International Finance Corporation, the Multilateral Investment Guarantee Agency and the International Centre for Settlement of Investment Disputes.

- **Standard 3: Resource efficiency and pollution prevention and management**
- **Standard 4: Community health and safety**
- **Standard 5: Land acquisition, restrictions on land use and involuntary resettlement**
- **Standard 8: Cultural heritage**
- **Standard 9: Financial intermediaries**
- **Standard 10: Stakeholder engagement and information disclosure**

The framework will apply to all new investment projects when it is launched in 2018. However, current safeguards will run in parallel to the new framework for seven years to govern projects approved before the framework’s implementation.

Review

Table 13 outlines the findings from the desk based literature review of the World Bank’s *Environmental and Social Framework*. For a full list of the information sources, see Section 5.

Table 13: Review of the World Bank’s Environmental and Social Framework

Analysis Criteria	Analysis
<p>Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?</p>	<ul style="list-style-type: none"> • It is not clear from publicly available information whether separate tools are used to assess sustainability and climate risk and resilience under the <i>Environmental and Social Framework</i> (the framework). However, the documentation available (World Bank, 2017) suggests that, as part of the framework, the World Bank will issue various tools or procedures, including: <ul style="list-style-type: none"> i. An <i>Environmental and Social Procedure</i>, which will outline mandatory E&S procedures and describe how the World Bank will conduct due diligence on projects seeking World Bank support; and ii. Guidance and information tools that will support borrowers in implementing the framework. • In addition, the <i>Environmental and Social Standards</i> stipulate the requirements that borrowers and the World Bank must meet over the course of a project’s life cycle. For example, <i>Environmental and Social Standard 1 (ESS1)</i> requires borrowers to carry out an integrated environmental and social assessment to identify project risks. • The <i>Environmental and Social Framework</i> does not reference climate risk or climate resilience explicitly. • However, the <i>Environmental and Social Policy for Investment Project Financing</i> requires the World Bank to take into account environmental risks and impacts related to climate change during due diligence on projects (World Bank, 2017). • Climate change is also referenced in ESS1, ESS3, ESS4 and ESS6 (World Bank, 2017). • The World Bank has also developed an <i>Infrastructure Prioritization Framework</i> that’s is a multi-criteria decision support tool designed to assist governments with the planning and prioritization of infrastructure projects, i.e. the selection of infrastructure projects on a systematic basis, reflecting full economic and financial costs and benefits including environmental and social costs and benefits (World Bank, 2016) (World Bank, 2017). Its key purpose is to provide a “stopgap approach to project prioritization that serves as an interim decision structuring tool until more sophisticated pre-selection analyses are available. This ‘stepping stone’ approach: <ul style="list-style-type: none"> i. Informs decision-making on project prioritization; ii. Compares projects that have passed strategic pre-screening and have been subject to basic appraisal; iii. Makes space for technical deliberation; iv. Structures the decision space when capacity and information is limited but nevertheless sufficient for systematic comparison; v. Encourages better appraisal by fostering discussion of key decision factors for which project data should be improved or gathered in the future.

	<p>Conversely, the approach does not:</p> <ul style="list-style-type: none"> i. Deliver a definitive list of projects for selection; ii. Replace best practices in project appraisal, particularly Social Cost-Benefit Analysis; or iii. Take current data deficiencies as acceptable for the long term.” (World Bank, 2016) <ul style="list-style-type: none"> • <i>Infrastructure Prioritization Framework</i> appears to be for the use of national governments and not for financing decisions by the bank.
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • The framework is a project-level policy. It applies to projects receiving support through Investment Project Financing in particular. • The E&S risks accounted for in the framework include “climate change and other transboundary or global risks and impacts” (World Bank, 2017). • It is applicable to all projects, thus applies to all countries receiving World Bank support.
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> • Cumulative impacts of multiple developments and drivers of change are considered at various points in the framework. • ESS1 makes provision for environmental and social assessment that considers cumulative impacts on biodiversity and habitats, as well as direct and indirect impacts. • As part of ESS1, borrowers have some flexibility in the type of environmental and social assessment they carry out. The assessment selected will depend on the ‘nature and scale’ of the project (World Bank, 2017). Cumulative Impact Assessment is included among the environmental and social assessments that borrowers are able to employ. Regional and Sectoral ESIA’s are also included. These types of ESIA’s pay ‘particular attention to potential cumulative risks and impacts of multiple activities’ in a region or a sector of the economy (World Bank, 2017).
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> • Ecosystem services are accounted for in several of the standards included in the framework, including ESS1, ESS3, ESS4 and ESS6. <ul style="list-style-type: none"> i. Under ESS1, E&S assessments should take into account environmental risks and impacts “related to ecosystem services.” (World Bank, 2017) ii. Under ESS4 (which relates to community health and safety), borrowers are required to identify a project’s “potential risks and impacts on ecosystem services that may be exacerbated by climate change.” (World Bank, 2017) iii. Under ESS6 (which relates to biodiversity conservation and sustainable management of living natural resources), ecosystem services are considered indirectly through a provision requiring borrowers to comply with the objectives of protected areas. Protected areas are defined as spaces “dedicated and managed...to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (World Bank, 2017) • No publicly available information provided a strong answer on how climate risk and/or resilience are assessed. • However, the framework will ‘foster resilience by requiring emergency preparedness measures to guard against unexpected shocks and by considering climate change impacts and requiring measures to address them’ (World Bank, 2016).
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> • No publicly available information provided a strong answer on links between resilience and future livelihoods, sustained ecosystem functioning and delivery of ecosystem services.
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • It is unclear from publicly available information at what stage of the (project) development process the Environmental and Social Framework applies. (Note that the framework applies to any project receiving funding from the World Bank, not just infrastructure projects.)

	<ul style="list-style-type: none"> • However, it appears that the framework requires borrowers to “conduct environmental and social assessment of projects ‘proposed for bank support.’” (World Bank, 2017) • In addition, the bank requires borrowers to ‘prepare and implement projects so that they meet the requirements of the <i>Environmental and Social Standards</i> in a manner and a timeframe acceptable to the bank’ (World Bank, 2017).
How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?	<ul style="list-style-type: none"> • The framework is comprehensive in the range of environmental and social issues it considers, especially in the ten <i>Environmental and Social Standards</i>. • The requirements outlined in each of these standards are relatively prescriptive. For example, under ESS1, borrowers are required to, amongst others: <ol style="list-style-type: none"> i. “Assess, in an integrated way, all relevant direct, indirect and cumulative environmental and social risks and impacts throughout the project life cycle...” ii. “Examine project alternatives, [and] identify ways of improving project selection, siting, planning, design and implementation”; iii. Conduct a stakeholder engagement as part of the environmental and social assessment; iv. Retain independent specialists to conduct the environmental and social assessment on ‘high’ or ‘substantial’ risk projects; and v. Apply a mitigation hierarchy as part of the environmental and social assessment, under which significant residual impacts are avoided through a mitigation process.
Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?	<ul style="list-style-type: none"> • The framework applies to all projects proposed to receive funding from the World Bank, rather than infrastructure projects specifically. • Nevertheless, the framework does consider links between climate (change) and infrastructure. For example, ESS4 aims to promote “considerations relating to climate change, in the design and construction of infrastructure, including dams” (World Bank, 2017). • Furthermore, ESS4 states that the structural design of infrastructure will “take into account climate change considerations” (World Bank, 2017). • No references to natural capital were found in the publicly available documents reviewed.
What kinds of inputs (time, data and expertise) are required for using each tool?	<ul style="list-style-type: none"> • No publicly available information was found to answer this question.
Which tools are being widely used (and by what types of actors) or not, and why?	<ul style="list-style-type: none"> • The <i>framework</i> is due to take effect in 2018 (World Bank, 2016). It is therefore not possible to answer this question at this stage.
Where data available, which tools are most highly rated or evaluated (by region and key user group)?	<ul style="list-style-type: none"> • The <i>framework</i> is due to take effect in 2018 (World Bank, 2016). It is therefore not possible to answer this question at this stage.
Is the tool rated by an independent third party?	<ul style="list-style-type: none"> • No publicly available information provides a clear answer to this question. • However, the <i>framework</i> was developed after the publication of a report in 2010 from the World Bank’s <i>Independent Evaluation Group</i> (IEG) (World Bank, 2017).

B.10 International Finance Corporation

Overview

The International Finance Corporation (IFC) is the private lending arm of the World Bank Group that works in more than 100 countries across: Africa, Asia, the Caribbean, Europe, Latin America and the Pacific. Membership to the FI is open to all member countries of the World Bank (World Bank, 2016). IFC's Sustainability Framework articulates the Bank's strategic commitment to sustainable development, which came into effect in 2012. The Sustainability Framework consists of (IFC, 2012):

- The *Policy on Environmental and Social Sustainability*, which defines IFC's commitments to environmental and social sustainability.
- The *Performance Standards*, which define clients' responsibilities for managing their environmental and social risks.
- The Access to Information Policy, which articulates IFC's commitment to transparency

Review

Table 14 outlines the findings from the desk based literature review of IFC's *Environmental and Social Standards and Sustainability Framework*. For a full list of the information sources, see Section 5.

Table 14: Review of IFC's Environmental and Social Standards and Sustainability Framework

Analysis Criteria	Analysis
<p>Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?</p>	<ul style="list-style-type: none"> • IFC's <i>Policy on Environment and Social Sustainability</i> contains relatively few references to climate risk and resilience. The main reference states: "IFC, in its efforts to support its climate-related commitments, will build on its experience in energy efficiency, cleaner production, renewable energy and carbon markets as well as in the development of GHG accounting and approaches to climate change risk assessment, to produce instruments and develop practices that allow its clients to consider climate-related risks and opportunities in their investment decisions" (IFC, 2012) • The Bank's <i>Performance Standards</i> establish standards that the client is to meet throughout the life of an investment by IFC. The standards cover environmental and social risks and impacts across the following 8 standards (IFC, 2012): <ol style="list-style-type: none"> Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts Performance Standard 2: Labor and Working Conditions Performance Standard 3: Resource Efficiency and Pollution Prevention Performance Standard 4: Community Health, Safety and Security Performance Standard 5: Land Acquisition and Involuntary Resettlement Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources Performance Standard 7: Indigenous Peoples Performance Standard 8: Cultural Heritage <p>The <i>Performance Standards</i> contain a few references to climate change, including standard 4 on <i>Community Health, Safety and Security</i> which states that "Where appropriate and feasible, the client will identify those risks and potential impacts on priority ecosystem services that may be exacerbated by climate change" (IFC, 2012). However, climate risk and resilience are not fully embedded within these standards. The accompanying <i>Guidance Note</i> does however contain a large number of references to addressing climate change risks, such as "The identification process should (i) identify potential direct and indirect climate-related adverse effects that may affect the project during its life-cycle, (ii) identify potential direct and indirect climate-related adverse effects</p>

	<p>that may be exacerbated by the project and (iii) define monitoring program and mitigation and adaptation measures, as appropriate” (IFC, 2012).</p> <ul style="list-style-type: none"> • In 2010 IFC published <i>Climate Risk and Business: Practical Methods for Assessing Risk</i>; this document was however not referenced in either the performance standards or the <i>Policy on Social and Environmental Sustainability</i> (IFC, 2010). • IFC’s <i>Climate Implementation Plan</i>, published in 2016, includes “Accounting for climate risk – the physical risk of climate impacts and the carbon asset risk in IFC’s investment selection” as one of the four objectives under IFC’s <i>Climate Implementation Plan</i>. The Plan also states that IFC is developing a process to screen climate impact risk in its investments. This process was approved by the Corporate Operations Committee, based on recommendations from the Climate Risk Working Group. The process includes a risk screening tool that will be rolled out as a pilot on the following sectors: ports, waterways, forestry, pulp & paper and insurance. The climate risk assessment is not intended to be the basis for a go/no-go decision, but an additional data point in the decision making process (IFC, 2016). The plan states that IFC expects to test and validate the outputs on the first set of sectors by September 2016, although no information was found to determine if this has/is occurring.
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • IFC’s standards and sustainability framework is applicable to all the counties and projects the Bank finances. • Predominantly site based, but guidance notes do contain a couple of references to assessing project related impacts on those in downstream catchment areas and outside the boundaries of the proposed site.
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> • The <i>Guidance Note</i> contains a relatively detailed section on dealing with cumulative impacts: “Multiple environmental and social impacts from existing projects, combined with the potential incremental impacts resulting from proposed and/or anticipated future projects may result in significant cumulative impacts that would not be expected in the case of a stand-alone project or business activity” (IFC, 2012). • Amongst the guidance on how the impacts should be considered, it states: “The determination of the project’s area of influence should take into consideration the findings and results of any related cumulative, regional, sectoral, or SEAs that may have been undertaken by a government authority. In situations where multiple projects occur in, or are planned for, the same geographic area, as described above, it may also be appropriate for the client to conduct a Cumulative Impact Assessment as part of the risks and impacts identification process” (IFC, 2012).
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> • IFC Performance Standard 4 (Community Health, Safety and Security) states that “<i>Where appropriate and feasible, the client will identify those risks and potential impacts on priority ecosystem services that may be exacerbated by climate change</i>”, and Performance Standard 6 (Biodiversity conservation and sustainable management of living natural resources) is also heavily concerned with maintaining ecosystem services (IFC, 2012). • The guidance notes also significant information on how impact on ecosystems should be accounted for, such as: “The assessment should determine if the project is incrementally responsible for adversely affecting an ecosystem component or specific characteristic beyond an acceptable predetermined threshold (carrying capacity) by the relevant government entity, in consultation with other relevant stakeholders” (IFC, 2012).
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> • There are numerous examples within the guidance notes linking ecosystems and future livelihoods – for example on fostering the natural resources that Indigenous people depend upon. The guidance note also includes specific guidance to assess: “indirect project impacts on biodiversity or on ecosystem services upon which Affected Communities’ livelihoods are dependent” (IFC, 2012). There are no specific references regarding what time scales should be considered.
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • IFC’s Sustainability Framework, which includes the Performance Standards, applies to all investment and advisory clients whose projects go through IFC’s initial credit review process. The standards apply across the lifecycle of the project and to all activities funded under the project. • In terms of the infrastructure development process, the performance standards are applied at the financing stage.

<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> • The publicly available information within IFC's policy documents and standards is generic guidance, - there is no specific software tool or step by step guidance. • IFC does however encourage the use of other tools such as the World Bank's <i>Climate and Disaster Risk Screening Tool</i>, <i>Global Risk, Resilience and Impacts Toolkit</i> (GRRIT) and <i>AgroClimate</i>, all of which were suggested in IFC's 2016 though leadership briefing note: <i>How new data tools can assess climate risks</i> (IFC, 2016).
<p>Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?</p>	<ul style="list-style-type: none"> • No references are made to natural capital in the standards themselves or the Sustainability policy document; however there are multiple references within the guidance document, highlighting the importance of the concept of natural capital, particularly from an economic point of view, that "flows of ecosystem services can be seen as the dividend that society receives from natural capital, and that maintaining stocks of natural capital allow the sustained provision of future flows of ecosystem services, and thereby help to ensure enduring human well-being" (IFC, 2012). • The standards, guidance document and policy document all contain a number references to assessing the impact of future climatic conditions, but none of these are specifically about infrastructure.
<p>What kinds of inputs (time, data and expertise) are required for using each tool?</p>	<ul style="list-style-type: none"> • The standards provide a guide for the types of assessments a projects will undergo; although the documentation does not provide a prescriptive list of all the data required for the review, it does outlined a high-level indication. • Details on the level of expertise and time requirements were not publicly available.
<p>Which tools are being widely used (and by what types of actors) or not, and why?</p>	<ul style="list-style-type: none"> • IFC's standards are the most widely used assessment standard in international development financing. The standards were revised in 2012 and since then they have also included extensive human rights aspects which are embedded in all eight Performance Standards. The have been widely used and adopted by other financial institutions and governing principles (e.g. the Equator Principles).
<p>Where data available, which tools are most highly rated or evaluated (by region and key user group)?</p>	<ul style="list-style-type: none"> • No publicly available information found.
<p>Is the tool rated by an independent third party?</p>	<ul style="list-style-type: none"> • No publicly available information found on whether the standards or policy had been independently reviewed.

B.11 BREEAM Infrastructure

Overview

Building Research Establishment Environmental Assessment Method (BREEAM) was first published in 1990 by the Building Research Establishment (BRE) for assessing, rating and certifying the sustainability of buildings, infrastructure and master planning projects. It addresses a number of lifecycle stages such as: new construction, refurbishment and in-use. Globally there are more than 561,700 BREEAM certified developments, and almost 2,265,200 buildings registered for assessment since it was first launched in 1990. The BREEAM assessment process evaluates the procurement, design, construction and operation of a development against targets that are based on performance benchmarks. Assessments are carried out by independent, licensed assessors, and developments rated and certified on a scale of: *Pass, Good, Very Good, Excellent* and *Outstanding* (BRE, 2017).

Review

Table 15 outlines the findings from the desk based literature review of the BREEAM standard. For a full list of the information sources, see Section 5.

Table 15: Review of the BREEAM standard

Analysis Criteria	Analysis
<p>Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?</p>	<ul style="list-style-type: none"> • BREEAM measures sustainable value in a series of categories, ranging from energy to ecology. Each of these categories addresses the most influential factors, including low impact design and carbon emissions reduction; design durability and resilience; adaption to climate change; and ecological value and biodiversity protection. Within every category, developments score points (credits) for achieving targets, and their final total determines their rating (BRE, 2017). • The categories covered in the assessment include (BRE, 2017): <ol style="list-style-type: none"> i. Energy, which encourages the specification and design of energy efficient buildings solutions, systems and equipment that support the sustainable use of energy in the building and sustainable management in the building's operation. Issues in this section assess measures to improve the inherent energy efficiency of the building, encourage the reduction of carbon emissions and support efficient management throughout the operational phase of the building's life. ii. Health and wellbeing, which encourages the increased comfort, health and safety of building occupants, visitors and others in the vicinity. Issues within this category aim to enhance the quality of life in buildings by recognizing those that encourage a health and safe internal and external environment for occupants. iii. Innovation, which provides opportunities for exemplary performance and innovations to be recognized. iv. Land use, which encourages sustainable land use, habitat protection and creating and the improvement of long term biodiversity for the building's site and surrounding land. Issues in this category relate to the reuse of brownfield sites or those of low ecological value, mitigation and enhancement of ecology and lone term biodiversity management. v. Materials, which encourages steps taken to reduce the impact of construction materials through design, construction, maintenance and repair. Issues in this section focus on the procurement of material that are sourced in a responsible way and have a low embodied impact over their life including extraction, processing and manufacture and recycling. vi. Management, which encourages the adoption of sustainable management practices in connection with design, construction, commissioning, hand-over and aftercare activities to ensure that robust sustainability objectives are set and followed through into the operation of the building. Issues in this category focus on the embedding of sustainability action through the key stages of design, procurement and initial occupation, from the initial project brief stage to the appropriate provision of aftercare. vii. Pollution, which addresses the prevention and control of pollution and surface water run-off associated with the building's location and use. Issues within this category aim to reduce the buildings impact on surrounding communities and environment arising from light-pollution, noise, flooding and emission to air, land and water. viii. Transport, which encourages better access to sustainable means of transport for building users. Issues in this category focus on accessibility of public transport and other alternative transport solutions (cyclist facilities, provision of amenities local to a building) that supports reductions to car journeys and, therefore, congestion and CO₂ emissions over the life of the building. It also addresses the design and provision of transport and movement infrastructure to encourage the use of sustainable modes of transport long-term stewardship of the development. ix. Waste, which encourages the sustainable management (and reuse where feasible) of construction, operational waste and waste through future maintenance and reporting associate with the building structure. By encouraging good design and construction practices, issues in this category aim to reduce the waste arising from construction and operation of the building, encouraging its diversion from landfill. It includes recognition of measures to reduce future waste as a result of the need to alter the building in light of future changes to climate.

	<ul style="list-style-type: none"> x. Water, which encourages sustainable water use in the operation of the building and its site. Issues in this section focus on identifying means of reducing potable water consumption (internal and external) over the life time of the building and minimizing the losses through leakage. • During the assessment process, each category is sub-divided into a range of issues, which promotes the use of new benchmarks, aims and targets. When a target is reached credits are awarded. Once the development has been fully assessed, depending upon the total number of credits awarded, a final performance rating is achieved (BRE, 2017). • In 2011 BREEAM launched, <i>BREEAM Communities</i> an expanded environmental assessment method “to more holistically approach sustainability with greater consideration of the social and economic impacts of development.” BREEAM Communities is described as “an independent, third party assessment and certification standard based on the established BREEAM methodology. The scheme addresses key environmental, social and economic sustainability objectives that have an impact on large-scale development projects” (BREEAM, 2016)
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • BREEAM has been applied in 78 countries, particularly in Europe, North and South America. Five European countries - Netherlands, Spain, Norway, Germany and Sweden- have also developed country specific BREEAM schemes. France, Belgium and Sweden are the top users of BREEAM. • The scale depends on the standard selected: <ul style="list-style-type: none"> i. <i>Communities Technical Standard</i> – covers master planning of new communities or regeneration projects (medium to large scale developments). ii. <i>Infrastructure Standard</i> – civil engineering projects iii. <i>New Construction Standard</i> – for new buildings • BREEAM has expanded from its original focus on individual new buildings at the construction stage to encompass the whole life cycle of buildings from planning to in-use and refurbishment. • The publicly available information did not refer to upstream or downstream considerations of the project.
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> • A BREEAM guidance note states that cumulative impacts are not typically considered by all BREEAM standards: “Multiple Building Criteria is an extension to the Single Building Criteria model where there are multiple buildings (not necessarily similar) built on the same site. A set of criteria is created for each building separately.” (BREEAM, 2013). However, they are considered in the <i>BREEAM Communities Standard</i>, which focusses on the master planning of whole communities and of certifying the sustainability of large-scale development plans, suggesting that cumulative impacts are considered. • However, the BREEAM Communities standard focusses on the master planning of whole communities and of certifying the sustainability of large-scale development plans, suggesting that cumulative impacts are considered.
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> • Ecology is one of a series of key sections included across all of the BREEAM schemes, which relates to master planning, infrastructure and buildings. In the UK, BREEAM developed a <i>Strategic Ecology Framework</i> (SEF), which has been developed to help inform and guide the future direction of ecological and related assessment criteria in BREEAM schemes. Where relevant, outputs of this work may also be used to inform development of international versions of the BREEAM schemes. • The SEF will guide and inform BREEAM criteria development, with the aim of achieving the following (Yates, Abdul , & Buchanan, 2016): <ul style="list-style-type: none"> i. Understand the existing ecological value and condition of a site and its associated areas, in order to identify appropriate objectives. ii. Identify, protect and enhance key existing ecological features. iii. Remove or limit as far as possible, existing features identified as having negative impacts on the ecological value of the site. iv. Mitigate unavoidable impacts and compensate against residual impacts. v. Enhance the broader ecological value of the site and its links to associated areas through the creation and/or management of ecological features on or near the site. vi. Secure ongoing management and maintenance to ensure intended outcomes are realized over the life of the site.

	<ul style="list-style-type: none"> • The BREEAM communities' manual includes a step to ensure that 'the development is resilient to the known and predicted impacts of climate change' (BREEAM, 2012). The following is required to demonstrate compliance to the criteria: <ol style="list-style-type: none"> i. Evidence has been used from the local authority and statutory bodies to understand the known and predicted impacts of climate change on the site. ii. Credits can be awarded based upon the degree to which the masterplan takes account of evidence of the impacts of climate change <p>The manual also includes a step to ensure that the ecological value of the development is maximized through enhancement</p>
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> • According to the BRE website, "tailored BREEAM schemes, both international and UK based ...integrate resilience against the global effects of climate change in ways that are appropriate to differing local contexts." The website claims: "Through the consideration of issues such as GHG emission reduction, climatic modelling, flood risk management, air and water quality and designing for resilience, BREEAM project teams are being challenged and upskilled to deliver and adapt a built environment fit for the climates of the future" (BRE, 2016) • Some BREEAM schemes incorporate future resilience into assessments. For example, on materials, given 'changes in climate are expected to impact on the rate at which construction materials degrade', the BREEAM new construction and refurbishment schemes "advocate that exposed building elements should be designed to limit effects such as fading, rotting and salt crystallization, thereby reducing the frequency of replacements, repairs and maintenance through the lifecycle of the building." On flooding, "Buildings that are within areas considered to be at high risk from flooding must build ground floor heights and access levels above the predicted flood levels. Measures must also be taken to improve the resilience and resistance of the building to flood events through a range of measures appropriate to the context of the site" (Williams & Clear, 2015).
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • BREEAM covers the planning (planners, local authorities, developers and investors), design and construction of an infrastructure development process • BREEAM has also recently produced a New Construction Infrastructure (pilot) methodology (BREEAM, n.d.). This is described as "a way for clients to measure and certify the social, economic and environmental impact of new infrastructure assets by integrating sustainable approaches into the design and construction process. The scheme provides clients with a framework to reduce the impacts of a project and in doing so create higher value, lower risk assets. Certification using this methodology assesses the sustainability of the asset based on input from all stakeholders involved in the delivery of the project." • The website goes on to state that "BREEAM Infrastructure assessments can be undertaken for the new construction of both large assets (such as Nationally Significant Infrastructure Projects) and simpler assets. The scope section of the technical manual explains in more detail how BREEAM Infrastructure can be used to assess all types of infrastructure, including transport, energy, data, marine, structures, water etc."
<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> • For the BREEAM communities tool, there are three steps involved in the assessment of sustainability at the master planning level (BREEAM, 2012): <ol style="list-style-type: none"> i. Following site selection there is a process whereby the developer must show the suitability and need for specific types of development on the site as part of a planning application. Strategic plans for the wider area, usually contained within the local authority's planning policy documents, should indicate the housing, employment or services that are required. The new development will need to respond to these local requirements in order to receive planning permission. In this scheme the process described above is assessed under Step 1: Establishing the principle of development. During this step, the BREEAM Communities framework emphasizes the opportunities to improve sustainability at the site-wide level, such as community-scale energy generation, transport and amenity requirements. All issues within this step contain a mandatory element reflecting what should be considered standard practice for developments which aspire to high sustainability standards. ii. Step 2: Determining the layout of the development includes detailed requirements regarding how people will move around and through the site and where buildings and amenities will be situated.

	<p>iii. Step 3: Designing the details involves more detailed design of the development including: the design and specification of landscaping, sustainable drainage solutions, transport facilities and the more detailed design of the built environment (but excluding detailed building design).</p>
Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?	<ul style="list-style-type: none"> One of the steps in the communities' tool deals with green infrastructure (BREEAM, 2016). Credits are given based on the criteria met. The criteria however do not mention climatic conditions or natural capital specifically.
What kinds of inputs (time, data and expertise) are required for using each tool?	<ul style="list-style-type: none"> BREEAM is a third party assessment and certification scheme. It is the BREEAM Assessor who determines the BREEAM rating. According to the BREEAM UK new Construction technical manual, "it is the role of the assessor to gather project information and use it to assess performance against the BREEAM scheme in a competent and impartial manner" (BREEAM, 2014). BREEAM aims to avoid being prescriptive on the type of evidence required, although the technical manual includes an extensive list of the types of documents/evidence that could be required.
Which tools are being widely used (and by what types of actors) or not, and why?	<ul style="list-style-type: none"> The 2015 Royal Institution of Chartered Surveyors report '<i>Going for Green</i>' found that BREEAM has an 80% market share across Europe for sustainable building certification (RICS, 2015)
Where data available, which tools are most highly rated or evaluated (by region and key user group)?	<ul style="list-style-type: none"> No publicly available information found on this question.
Is the tool rated by an independent third party?	<ul style="list-style-type: none"> "The operation of BREEAM (and indeed all our assurance activities) is overseen by an independent Governing Body and a Standing Panel for peer and market review. The Governing Body represents stakeholder interests to ensure, amongst other things, that BRE Global are acting independently and impartially, that we are operating our processes correctly, and that we are treating our customers fairly." (BREEAM, n.d.)

B.12 CEEQUAL

Overview

CEEQUAL is an international sustainability assessment, rating and award for civil engineering, infrastructure, landscaping and public realm projects. It promotes and celebrates the achievement of high environmental and social performance. CEEQUAL aims to deliver improved project specification, design and construction of civil engineering works. The assessment rewards project and contract teams in which clients, designers and contractors go beyond the legal and environmental and social minima to achieve distinctive environmental and social performance in their work. There are five different assessments to select:

- Whole team award
- Client & Design Award
- Design Award
- Design & Construction Award
- Construction Award

In addition to its use as a rating system to assess performance, it also provides significant influence to project or contract teams as they develop, design and construct their work, because it encourages them to consider the issues in the question set at the most appropriate time (CEEQUAL, 2017).

CEEQUAL was acquired by Building Research Establishment (BRE) in 2015. The move represents a shared ambition to bring together two successful sustainability rating schemes – BREEAM and CEEQUAL – to create a single, science-based best practice standard and certification tool for civil engineering and other infrastructure projects in the UK and around the world. For the time being, both BREEAM and CEEQUAL remain in operation.

Review

Table 16 outlines the findings from the desk based literature review of the CEEQUAL. For a full list of the information sources, see Section 5.

Table 16: Review of CEEQUAL

Analysis Criteria	Analysis
<p>Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?</p>	<ul style="list-style-type: none"> • The CEEQUAL assessment is used to review a “project/ contract performance on management and a range of environmental and social issues of concern” (financial does not appear to be taken into account); it can be used to complement the planning system and clients’ financial and economic models. It is split into ten steps. The assessment will involve a review of nine sections: <ul style="list-style-type: none"> – Section 1: Project/Contract Strategy (<i>optional</i>) – Section 2: Project/Contract Management – Section 3: People & Communities – Section 4: Land Use (above & below water) & Landscape – Section 5: The Historic Environment – Section 6: Ecology & Biodiversity – Section 7: Water Environment (Fresh & Marine) – Section 8: Physical Resources Use & Management – Section 9: Transport • Climate change risk and resilience are not a standalone features in at assessment; elements are incorporated in the sections above, for example: flood risk in <i>Land use and Landscape</i>; the project’s impacts on and protection of the water environment in Section 7; and life-cycle analysis, energy and carbon emissions in use, energy and carbon performance on site, minimizing material use and waste, responsible sourcing of materials including selection of timber, using re-used and/or recycled materials, in <i>Section 8 – Physical resources</i> (CEEQUAL, n.d.).
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • There are two versions of the assessment: UK and Ireland projects (Projects Manual refers to English, Welsh, Scottish and Irish law/guidance), and International projects (which would refer to the local law/guidance). CEEQUAL’s move to create an International Edition was driven by overseas enquiries and a desire by UK users with international interests to use the CEEQUAL Assessment Methodology on, and secure its beneficial influence on performance for, their projects beyond the UK & Ireland. • The extend of what is covered in an assessment depends on the type of award that is selected: <ul style="list-style-type: none"> – Whole team award (covers client, designer and principal contractor(s)) – Client & Design Award (joint application by the client and designer. This can be achieved before construction has started) – Design Award (covers Principal designer(s) only) – Design & Construction Award (joint application by the contractor and their designer) – Construction Award (for the Principal contractor(s) only) • Users are able to undertake an assessment of the whole project, or sections of a project. During such assessments, the impacts on water environment (fresh and marine) and ecology and biodiversity are considered, but it is unclear from the publicly available information the extent of this assessment (i.e. how far upstream and downstream is considered in the review or if watershed connections are taken into account). (CEEQUAL, 2017) <p>Additional information</p> <ul style="list-style-type: none"> • There is no current consensus in the engineering and construction industry on how to perform risk assessment for climate change. Some of the tools evaluated are used by individual firms on a case-by-case basis, usually based on discussions with the client, but the standard of practice in the industry is still evolving.
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of</p>	<ul style="list-style-type: none"> • For most projects that apply for a CEEQUAL Award, the usual Whole Team Award that assesses the role of the client, designer and principal contractor is sufficient to give an overall score. Multi-package assessments with separate scores and awards for each package are used when it would, for a number of reasons, be impractical to assess a large and complicated project with one assessment. The multi-package assessment

<p>change? If so, how (e.g. scenarios)?</p>	<p>process enables separate CEEQUAL assessments of individual packages of works to be completed. The individual package scores are then aggregated on the basis of the individual package contract values to give an overall Whole Team Award for the project (CEEQUAL, 2017). There are five reasons why the use of multi-package assessments is most beneficial:</p> <ol style="list-style-type: none"> i. In a long duration project where the project is undertaken in phases, some stages are completed even before others are started. A multi-package approach separates these phases making the assessment process easier. For example, projects do not need to retain details/evidence from early phases until the end to enable an overall assessment/score to be derived (CEEQUAL, 2017). ii. The overall project may involve different teams of designers and contractors, working on different areas of works or phases. A multi-package approach makes evidence collection from these different supply chains more straightforward as each package team provides evidence that is appropriate to its own contract or phase of work. As each designer and/or contractor is responsible for their own evidence, the process is easier in relation to contractual responsibilities and confidentiality (CEEQUAL, 2017). iii. Multi-package assessments help where the scope of the works, and therefore the scoping-out in the CEEQUAL assessment are significantly different for the different packages (CEEQUAL, 2017). iv. Multi-package assessments help where, even if an overall assessment could be undertaken despite there being different designers and/or contractors involved, there is concern that one or more members of the overall supply chain may not ‘pull their weight’ on the issues in the CEEQUAL assessment. This could lower the score achieved in a single project assessment because when scoring the questions the Assessor has to take a “lowest common denominator” approach to the scoring (CEEQUAL, 2017). v. If using a multi-package approach and there is an issue around a legal non-compliance, then the score would only be reduced on the one package where it occurred (CEEQUAL, 2017).
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> • Ecosystem (and their services) related elements covered by the standard/assessment, include: <ul style="list-style-type: none"> – Land use and Landscape covers issues affecting land above and below water such as design for optimum land take, legal requirements, flood risk, previous use of the site, land contamination and remediation measures, and applies to conventional land use, and to use of the seabed, and the beds of estuaries, rivers and lakes. This part of an assessment also covers consideration of landscape issues in design, amenity features, local character, loss and compensation or mitigation of landscape features, implementation and management and completion and aftercare. – Ecology and Biodiversity covers impacts on sites of high ecological value, protected species surveys, conservation and enhancement, habitat creation measures, monitoring and maintenance. – Water Environment (fresh & marine) covers control of a project or contract’s impacts on, and protection of, the water environment, legal requirements, and enhancement of the water environment wherever practical.
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> • No publicly available information could be found to answer this question.
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • The CEEQUAL assessment covers two stages of the infrastructure development process: <ol style="list-style-type: none"> i. Design – implementation of this standard has seen: increased Scrutiny of designs and processes through value engineering to ensure efficiency and sustainability; ensured that sustainability is an important design consideration from the outset and that design decisions take into account sustainability outcomes; the identification and implementation of enhanced opportunities (CEEQUAL, 2017). ii. Construction - project contractors implementing the standard have reportedly seen: cost savings driven by sustainability considerations such as reduced resource consumption and alternative material choices; Improved project management, providing a systematic approach to tracking management activities and associated sustainability effects within an overall framework of best sustainability practice; and

	<p>increasing competitiveness between project and contract teams. It is also being used as a robust tool to analyze and evaluate sustainability throughout the construction phase (CEEQUAL, 2017).</p>
<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> • There is a step by step approach (made up of approximately 200 questions) that each assessor must follow to gather the appropriate evidence; thus ensuring their application is accepted by a CEEQUAL-appointed Verifier, and then ratified by the CEEQUAL Scheme Management. The detailed approach is not publicly available, as this is the intellectual property of CEEQUAL (/BRE). • Assessors are required undergo specific CEEQUAL training prior to undertaking the assessment.
<p>Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?</p>	<ul style="list-style-type: none"> • Ecosystems are considered as part of the review (see response above); however natural capital is not explicitly mentioned in the assessment.
<p>What kinds of inputs (time, data and expertise) are required for using each tool?</p>	<ul style="list-style-type: none"> • Assessors have to undergo specific CEEQUAL Assessor training to be qualified / accredited to complete the assessment on behalf of a project. • CEEQUAL uses a self-assessment process in which CEEQUAL trained-Assessors rigorously assess project or contract strategy and performance on a range of environmental and social issues, arranged in nine sections (a breakdown of what is required under the nine sections was not publicly available). Assessors use the appropriate CEEQUAL Manual to score performance against questions relevant to their project or contract. Assessors must do this by collecting evidence to support their scores for each question, using the Online Assessment Tool for capturing those scores and evidence commentary [<i>Not publicly available</i>] (CEEQUAL, 2017). • No indication was given on the length of time of the assessment process.
<p>Which tools are being widely used (and by what types of actors) or not, and why?</p>	<ul style="list-style-type: none"> • Yes, the tool is widely used, but more in the UK than internationally. • Actors that use the standard, include (CEEQUAL, 2017): <ul style="list-style-type: none"> – Public sector clients, such as Government departments, local and regional authorities, executive agencies of Government, and arm's length utilities procuring and operating assets for the public good. – Private sector clients, such as water companies, power companies and ports operators and developers (who can use CEEQUAL to assess infrastructure associated with building developments). – Designers, including mainstream civil engineering designers, architects for building developments with significant associated infrastructure, landscaping designers, utilities designers and electrical and mechanical engineering design companies involved in infrastructure projects and contracts. – Contractors, including but not confined to mainstream civil engineering, landscaping and utilities contractors and electrical and mechanical engineering contractors involved in infrastructure. • Projects suitable for assessment using CEEQUAL include: Roads, Dams, Business parks, Canals, Bridges, Coastal defense works, Ports, Flood alleviation, Reservoirs, Major highways, Park & ride schemes, Pipelines, Power generation, Wind Farms, Public realm works, Pumping stations, Railway works, Transmission systems, Wastewater treatment works, River engineering, Sports stadia and other venues, Transmission systems, Waste transfer & recycling facilities, Remediation works, Sea locks, Urban regeneration schemes, Water treatment works, Anaerobic digesters, including others (CEEQUAL, 2017).
<p>Where data available, which tools are most highly rated or evaluated (by region and key user group)?</p>	<ul style="list-style-type: none"> • CEEQUAL has been used by some of the UK's most successful infrastructure projects like Crossrail, London 2012 Olympics, Network Rail developments etc.; however no formal evaluation of the assessment could be found.
<p>Is the tool rated by an independent third party?</p>	<ul style="list-style-type: none"> • Yes - CEEQUAL uses a self-assessment process undertaken by a CEEQUAL trained-Assessors. Upon completion of each assessment, it is externally verified by a CEEQUAL-appointed Verifier, and then ratified by the CEEQUAL Scheme Management.

B.13 SuRe® Standard

Overview

The Standard for Sustainable and Resilient Infrastructure® (SuRe Standard) is a global voluntary standard that integrates ‘sustainability and resilience aspects into infrastructure development and upgrades’ (GIB, 2017). The SuRe Standard aims to establish a common language and basis of understanding between project developers, financiers and public sector institutions in respect of sustainable and resilient infrastructure. It also aims to increase the flow of financing from multilateral and private investors, by improving the attractiveness of sustainable and resilient infrastructure (GIB, 2017). The SuRe Standard relies on “independent verification and certification of infrastructure projects throughout their life cycles” (GIB, 2017). It is applicable during the design, construction and operation phases of an infrastructure project, and also applies across sectors in the developed, developing and emerging world.

Review

Table 17 outlines the findings from the desk based literature review of the SuRe Standard. For a full list of the information sources, see Section 5.

Table 17: Review of the SuRe® Standard sustainability assessment

Analysis Criteria	Analysis																											
<p>Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?</p>	<ul style="list-style-type: none"> It appears sustainability and climate risk and resilience are assessed concurrently under the SuRe Standard certification. The SuRe Standard consists of 63 criteria against which an infrastructure project is assessed. These criteria span environmental, social and governance issues, as highlighted in Figure 7. The SuRe Standard certification process uses accredited third parties to carry out independent audit and verification of projects against the 63 assessment criteria. Projects have to achieve ‘minimum compliance’ or better with these criteria. Of the 63 criteria, 22 are mandatory (referred to as “Safeguarding Red Criteria”), meaning minimum compliance is required to achieve certification. <p>Figure 7: SuRe Standard assessment criteria</p> <table border="1" data-bbox="689 963 1476 1394"> <thead> <tr> <th>3 Dimensions</th> <th>14 Themes</th> <th>63 Criteria</th> <th>+ 2</th> </tr> </thead> <tbody> <tr> <td rowspan="4">ENVIRONMENT</td> <td>Climate</td> <td rowspan="4">19</td> <td rowspan="14">Materiality Assessment Reporting & Impact Assessment</td> </tr> <tr> <td>Biodiversity and Ecosystems</td> </tr> <tr> <td>Environmental Protection</td> </tr> <tr> <td>Natural Resources</td> </tr> <tr> <td rowspan="5">SOCIETY</td> <td>Land Use and Landscape</td> <td rowspan="5">25</td> </tr> <tr> <td>Human Rights</td> </tr> <tr> <td>Labour Rights and Working Conditions</td> </tr> <tr> <td>Customer Focus and Inclusiveness</td> </tr> <tr> <td>Community Impacts</td> </tr> <tr> <td rowspan="4">GOVERNANCE</td> <td>Socioeconomic Development</td> <td rowspan="4">19</td> </tr> <tr> <td>Management and Oversight - Financial Sustainability</td> </tr> <tr> <td>Sustainability and Resilience Management</td> </tr> <tr> <td>Stakeholder Engagement</td> </tr> <tr> <td></td> <td>Transparency and Accountability</td> <td></td> </tr> </tbody> </table> <p>Source: (GIB, 2017)</p>	3 Dimensions	14 Themes	63 Criteria	+ 2	ENVIRONMENT	Climate	19	Materiality Assessment Reporting & Impact Assessment	Biodiversity and Ecosystems	Environmental Protection	Natural Resources	SOCIETY	Land Use and Landscape	25	Human Rights	Labour Rights and Working Conditions	Customer Focus and Inclusiveness	Community Impacts	GOVERNANCE	Socioeconomic Development	19	Management and Oversight - Financial Sustainability	Sustainability and Resilience Management	Stakeholder Engagement		Transparency and Accountability	
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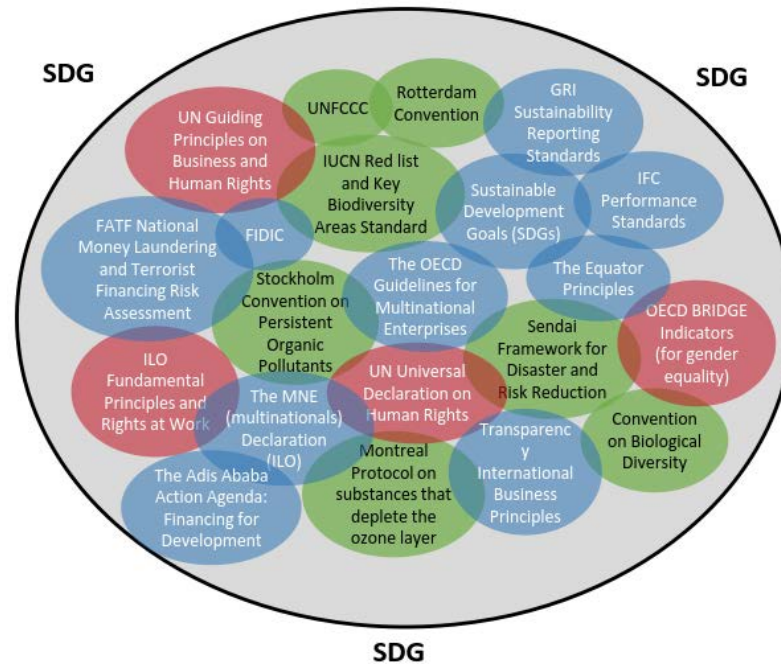
	<ul style="list-style-type: none"> In addition, the SuRe Standard requires that sustainability and resilience are embedded at the core of infrastructure projects (GIB, 2016). In particular, the SuRe Standard addresses resilience planning through a vulnerability assessment, and also aims to ensure that 'projects shall be designed and operated to avoid negative impacts on climate change' (GIB, 2016).
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> The SuRe Standard applies to infrastructure projects, either at the development stage or at the refurbishment and upgrading stage, in the developed, developing and emerging world. Infrastructure projects that are eligible to apply for SuRe Standard certification include, but are not limited to providing the following services (GIB, 2017): <ul style="list-style-type: none"> Water (including harvesting, storage, management, distribution, treatment and recycling); Energy (including generation, storage and distribution); Solid waste management (including collection, distribution, processing, recycling and storage); Transport networks, nodes and fleet (including pedestrian, bicycle, vehicular, rail, water-borne and air transportation); Communication networks (including voice, video and data); Social infrastructure (including education, healthcare, sports and recreation, law enforcement, fire and emergency services); Food systems (including storage, processing and distribution); Mining and extractive industries (including mines and processing facilities). There is no evidence to suggest that SuRe Standard considers upstream and downstream effects, or whole watershed connections.
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> The SuRe Standard does include consideration of cumulative impacts of multiple drivers of change. One of the 63 assessment criteria included in the SuRe Standard is 'cumulative impacts', which requires a project 'owner' to consider 'cumulative impacts of project activities on the environment and manage them appropriately' (GIB, 2016). The SuRe Standard also requires that measures to address cumulative impacts should be implemented in accordance with recognized guidance such as IFC's <i>Good Practice Handbook on Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets</i>' (GIB, 2017). An example of the way cumulative impacts are assessed is provided in GIB (2016). Cumulative impacts for an underground logistics network in Switzerland were identified, and mitigation and avoidance measures identified.
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> The SuRe Standard aims to integrate Natural Capital, Ecosystem Services and Nature-Based Solutions concepts into infrastructure planning and design. Ecosystem services are accounted for in one of the SuRe Standard's 63 assessment criteria. In particular, the standard requires that infrastructure projects are 'designed as far as possible in a way that integrates ecosystem services as a part of the planned infrastructure function and avoids negative impacts on biodiversity and ecosystems' (GIB, 2016). Where impacts on ecosystem services are unavoidable, the SuRe Standard requires that the "project owner shall seek to minimize impacts and implement restoration measures in accordance with a zero net-loss approach..." [Climate] resilience is also considered in the SuRe Standard's assessment criteria. 'Sustainability and resilience management' is one of the broad themes included in the governance aspects of the standard. More specifically, "climate resilience and infrastructure adaptability" is included in the list of assessment criteria. This criterion requires that for projects "at risk due to climate change impacts," the project owner "shall demonstrate the project design's ability to withstand, within reason, identified climate change risks and hazards in different yet plausible scenarios" (GIB, 2016).
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> It does not appear that resilience is linked to future livelihoods in any of the assessment criteria include in the SuRe Standard. In addition, sustained ecosystem functioning and the delivery of ecosystem services are not explicitly referenced in guidance documents for the SuRe Standard (GIB, 2016).

	<ul style="list-style-type: none"> • Instead, resilience is defined more broadly as ‘the capacity of socio-ecological systems to function so that the people living and working in them – particularly the poor and vulnerable – survive and thrive no matter what stresses or shocks they encounter’ (GIB, 2016). • Furthermore, resilience is referenced in relation to climate change risks and hazards, including extreme weather events and sea-level rise.
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • The SuRe Standard is applicable during the design, construction and operation phases (GIB, 2017). • Project developers are encouraged to use the SuRe Standard as early as possible in the project life cycle, although the standard can be applied during refurbishments or upgrades of existing infrastructure (GIB, 2016).
<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> • The standard appears to be relatively detailed and/or prescriptive. The certification approach adopted uses a significant number of assessment criteria (63 in total), which are independent of one another and span environmental, social and governance issues. Figure 8 shows how projects might be evaluated against some of these criteria. <p>Figure 8: SuRe Standard certification process</p>

	<p>Source: (GIB, 2016)</p> <ul style="list-style-type: none"> • The 63 assessment criteria are split into performance-oriented criteria and management-oriented criteria. <ul style="list-style-type: none"> i. Performance-oriented criteria constitute one-third of the assessment criteria and are evaluated against three performance levels, from minimum compliance to superior performance (GIB, 2016). ii. Management-oriented criteria constitute the remaining two-thirds of the assessment criteria and are evaluated against one performance level only, minimum compliance. • Projects have to satisfy minimum compliance thresholds that are based on the 63 assessment criteria. Of these, 21 criteria are mandatory requirements. Opt-outs from any of the 63 criteria are not allowed except in 'special cases' (GIB, 2016). • Different levels of certification are based on the project scores achieved (GIB, 2017): <ul style="list-style-type: none"> i. Bronze certified projects – go beyond the local industry norms and have thoroughly identified and mitigate key Environmental, Social and Governance risks. ii. Silver certified projects – demonstrate implementation of the best a local and international projects, and are in line with international frameworks and conventions, such as UNFCCC, the Sendai Framework, International Labor Organization (ILO) core conventions, Convention for Biodiversity and the Sustainable Development Goals. • Gold certified projects – demonstrate significant innovative practices, which bring about significant benefits to society and the environment.
<p>Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?</p>	<ul style="list-style-type: none"> • The SuRe Standard does include the consideration of natural capital and climatic conditions: <ul style="list-style-type: none"> i. Resilience to climatic conditions is included under “climate resilience and infrastructure sustainability” in the assessment criteria. ii. Natural capital is included in “habitat and ecosystem conservation,” under which project owners are required to “seek to protect natural capital, including habitats and ecosystems...” (GIB, 2016).
<p>What kinds of inputs (time, data and expertise) are required for using each tool?</p>	<ul style="list-style-type: none"> • The SuRe Standard assessments should be carried out by accredited third parties (GIB, 2016). • There is a suggestion that the SuRe Standard certification will take one to two months (GIB, 2017). •
<p>Which tools are being widely used (and by what types of actors) or not, and why?</p>	<ul style="list-style-type: none"> • The SuRe Standard’s added value to the three groups of stakeholders it is focused on is: <ul style="list-style-type: none"> i. Project developers – “SuRe® provides a decision-making and management tool to design, build and operate more sustainable and resilient projects and to optimize the use of resources. SuRe® contributes to the efficient management of related issues throughout the supply chain and in close collaboration with stakeholders. The certification helps to communicate related benefits to potential investors and public sector decision-makers. This in turn can favorably support access to financing and the project’s license to construct or operate, helping to channel greater financial flows, especially from the private sector, into sustainable infrastructure and alleviate the large investment gap for infrastructure faced globally by municipalities and communities” (GIB, 2017). ii. Infrastructure financiers - “the Standard provides a tool to identify sustainable and resilient infrastructure investment opportunities. SuRe® supports the early consideration of environmental, social and governance (ESG) aspects and thus serves as an instrument for risk mitigation and cost reduction by anticipating and avoiding potential negative impacts of infrastructure development. The early consideration of economic/governance, social and environmental challenges thus serves as an instrument for risk mitigation and cost reduction, by anticipating and avoiding potential negative impacts of infrastructure development” (GIB, 2017).

- iii. Public sector institutions - “SuRe® helps to set procurement criteria, project requirements and selection criteria for the preparation of guidelines for the public procurement process and the initial design requirements of sustainable and resilient infrastructure projects. It also provides a tool for comparing and selecting projects which in turn supports a more efficient use of limited public resources. In countries with weaker enforcement capacities, applying SuRe® can help to enforce the implementation of legal requirements” (GIB, 2017).
- It has been developed in line with existing international frameworks and agreements on environmental, social and governance topics, as highlighted in Figure 9:

Figure 9: SuRe Standard's incorporation of existing International Frameworks



Additional information:

- The ESG performance of various infrastructure projects has been assessed by the Global Infrastructure Basel (GIB) Foundation. These projects include, amongst others:
 - i. Urban planning for the city of Dhaka, Bangladesh;
 - ii. An airport in Ecuador;
 - iii. A marine harbor in Haiti; and
 - iv. An underground logistics system solution in Switzerland.

<p>Where data available, which tools are most highly rated or evaluated (by region and key user group)?</p>	<ul style="list-style-type: none"> • The methodology for the standard is undergone a second round of public consultation in its design. The GIB Foundation also conducted a stakeholder mapping exercise to identify groups of project developers, infrastructure financiers and public sector institutions (i.e. the end users of the standard) to review the Standard methodology (Version 0.4 at the time of writing this study report) (GIB, 2017). • The SuRe Standard is compatible with recognized standards used in finance such as the Equator Principles, the IFC's Performance Standards, UN Principles for Responsible Investment (PRI) and other guidelines and safeguards developed by Multilateral Development Banks (MDBs). • No publicly available information could be found to answer this question.
<p>Is the tool rated by an independent third party?</p>	<ul style="list-style-type: none"> • The SuRe Standard methodology is reviewed by selected parties, and is also available for public consultation (GIB, 2017). • However, the SuRe Standard certification process is based on "independent audits and verification carried out by third parties" (GIB, 2016). • In addition, the SuRe Standard directly references other international conventions, standards and guidelines in the assessment criteria, including amongst others: <ul style="list-style-type: none"> i. The Global Reporting Initiative's Sustainability Reporting Standards; ii. The Construction Sector Transparency Initiative's Infrastructure Data Standard; iii. Transparency International's Business Principles for Countering Bribery; iv. ISO 26000 on Social Responsibility; and v. The International Labor Organization's Declaration on Fundamental Principles and Rights at Work (1998).

B.14 China's Green Guidelines for the Belt and Road Initiative

Overview

The Belt and Road Initiative (BRI) aims to promote policy coordination, facilities connectivity, unimpeded trade, financial integration and people-to-people exchange among the countries along the Belt and Road, promote orderly and free flows of economic factors, efficient allocation of resources and deep integration of markets, and jointly create an open, inclusive and balanced regional economic cooperation framework that benefits all (MoF, 2017). The BRI will cover 64 countries in four continents, with a total population of 4.6 billion (about 62 percent of world's total)—China's grand infrastructure plan could potentially boost development and reduce poverty far beyond its borders (WRI, 2017).

In May 2017 the Chinese Ministry of Environmental Protection, Ministry of Foreign Affairs, National Development and Reform Commission and Ministry of Commerce jointly issued the Guidance on Promoting Green Belt and Road in order to further boost green development along the Belt and Road (PMPRC, 2017). The document demonstrates the importance of building a green Belt and Road development for the Chinese government.

Review

Table 18 outlines the findings from the desk based literature review of the *Green Guidelines* for the BRI. For a full list of the information sources, see Section 5.

Table 18: Review of Green Guidelines for the Belt and Road Initiative

Analysis Criteria	Analysis
<p>Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?</p>	<ul style="list-style-type: none"> • The <i>Green Guidelines</i> for the BRI is not a tool, more a set of options that should be considered during the design, and implementation of infrastructure developments (PMPRC, 2017). It does cover financial, social and environmental considerations; however climate change risk and resilience and not explicitly mentioned. • The <i>Green Guidelines</i> aim to drive BRI development in a resource efficient and environment friendly manner, embed the concept of green into the efforts in policy coordination, facilities connectivity, unimpeded trade, financial integration and people-to-people bonds (MoEP, MoFA, NDRC and MoC, 2017). • According to the <i>Green Guidelines</i>, China will (PMPRC, 2017): <ul style="list-style-type: none"> i. In 3-5 years, establish a pragmatic and efficient system of environmental cooperation and exchange, support and service platforms and industrial and technological cooperation bases, and formulate and implement a series of environmental risk prevention policies and measures; as well as ii. In 5-10 years, set up a full-fledged environmental service, support and guarantee system, and carry out a number of important ecological projects that produce desired results. • Explicit arrangements are also made to strengthen exchange and publicity, guarantee environmental safety of investment activities, build green cooperation platforms, improve policy measures and make use of local advantages (PMPRC, 2017).
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • The <i>Green Guidelines</i> calls on countries along the routes to jointly build the Belt and Road through consultation to meet the interests of all on the basis of equality and mutual benefit. The green guidelines apply to all 64 countries the BRI covers. • The guidelines are intended to be holistic, as well as being project specific (i.e. they can be applied at all stages)
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> • The guidance document states integrated environment impact assessments should be undertaken, however additional detail is not provided.
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> • Ecosystems and their services are not explicitly mentioned; however, this could fall within one of the overarching principles of “Leading role of green development with environmental protection as the support” (MoEP, MoFA, NDRC and MoC, 2017)
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> • Resilience of ecosystem services and link to future livelihoods and sustained ecosystem function were not explicitly mention in the guidance document; however, the guiding principles for the BRI does state development will understand the “eco situation and relevant requirements for environmental protection in project host countries and regions, identify environment sensitive and vulnerable areas, conduct integrated environment impact assessment and rationally arrange cooperation projects on production capacity. We will reinforce cooperation & exchange on environmental emergency and early warning, and sharpen environment risk prevention capability so as to guarantee environment safety for the ‘Belt and Road’ Initiative.” (MoEP, MoFA, NDRC and MoC, 2017)
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • At all stages of the infrastructure development process (Planning, Design, Financing and Construction).
<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> • The <i>Green Guidelines</i> are general at present; they state the Chinese government’s intention to “formulate environmental protection standards and codes for infrastructure construction, increase environment protection service and support for major infrastructure construction projects along the route, popularize energy conservation and environmental protection standards and practice in such sectors as green transport, green building and clean energy, advance environmental protection in areas like water, atmosphere, soil

	<p>and biodiversity, promote environmental infrastructure construction and improve green and low-carbon construction and operation” (MoEP, MoFA, NDRC and MoC, 2017).</p> <ul style="list-style-type: none"> • The government also intends to “advance green trade and promote sustainable production and consumption” and include “environmental protection requirements into FTAs, serve the negotiation for and the implementation of relevant environment and trade agreements and heighten the verification of compliance of environmental measures in trade activities” (MoEP, MoFA, NDRC and MoC, 2017).
Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?	<ul style="list-style-type: none"> • No direct connection/consideration of an infrastructure project and how it depends on natural capital was identified in the review. • No clear climatic considerations have been outlined at this stage. The Chinese government has published its intentions to “encourage the enterprises [involved in the BRI] to priorities low carbon, energy-saving, environment-friendly and green materials and technical processes, reinforce bio-diversity protection, priorities protective measures at or near the site and take good care of ecological rehabilitation. They will also guide the businesses to tighten their R & D efforts on key technologies to address climate change and expand application” (PMPRC, 2017).
What kinds of inputs (time, data and expertise) are required for using each tool?	<ul style="list-style-type: none"> • No tools have been developed at present, therefore no indication of time, data and expertise is provided.
Which tools are being widely used (and by what types of actors) or not, and why?	<ul style="list-style-type: none"> • No tools were identified as part of the literature review, currently there is only high level intention (published by the government) to implement the green guiding principles.
Where data available, which tools are most highly rated or evaluated (by region and key user group)?	<ul style="list-style-type: none"> • Tools have not been formally developed, only principles for future action. These principles have been endorsed by Finance Ministers for all the relevant countries (MoF, 2017)
Is the tool rated by an independent third party?	<ul style="list-style-type: none"> • No tools or detailed methodologies have been developed (or were found during the literature review), therefore no independent third party is required.

B.15 Envision®

Overview

The Institute for Sustainable Infrastructure (ISI) is a non-profit organization structured to develop and maintain a sustainability rating system for civil engineering in the United States called Envision®. Envision® is a rating system and best practice resource for implementing sustainability into infrastructure projects. Envision® provides guidance on sustainable best practices at no cost to users, and serves not only as a planning and design tool, but also as a means of evaluating infrastructure projects once completed. Envision® can be used by anyone involved in the delivery of infrastructure works associated with water storage and treatment, energy generation, landscaping, transportation, and information systems (Clevenger, Ozbek, & Simpson, 2013).

Review

Table 19 outlines the findings from the desk based literature review of the Institute for Sustainable Infrastructure’s Envision® screening tools. For a full list of the information sources, see Section 5.

Table 19: Review of the ENVISION climate, sustainability and resilience risk screening

Analysis Criteria	Analysis
<p>Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?</p>	<ul style="list-style-type: none"> • Envision® is a holistic sustainability rating system for all types and sizes of civil infrastructure. It incorporates climate risk and resilience as part of the evaluation criteria (ISI, 2017). It addresses the full range of environmental, social and economic impacts to sustainability in project design, construction and operation (Envision, 2017). • Envision® is a guide for making better informed decisions about the sustainability of projects. The Envision® toolkit has 60 sustainability criteria, called credits, arranged in five categories that address major impact areas (ISI, 2017): <ul style="list-style-type: none"> – Quality of Life (13 credits): embodies social aspects of sustainability such as appropriateness of project, it is holistically effect on the community, and whether it improves the community’s mobility or access to facilities (Clevenger, Ozbek, & Simpson, 2013). – Leadership (10 credits): measures actual performance of stakeholders in areas such as collaboration, management and planning (Clevenger, Ozbek, & Simpson, 2013). – Resource Allocation (14 credits): applies to the sustainable use materials, water and energy in the project (Clevenger, Ozbek, & Simpson, 2013). – Natural World (15 credits): relates to land issues including siting of project, understanding, preserving and restoring natural ecosystems (Clevenger, Ozbek, & Simpson, 2013). – Climate and Risk (6 credits): addresses emissions and resilience, and looks at quantifying the impact of the project as it relates to harmful emissions and longevity (Clevenger, Ozbek, & Simpson, 2013).
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • Primarily for the U.S. and Canada; however, Envision’s® benefits and criteria could be adapted to other locations as well (ISI, 2017). • The Envision® assessment tends to focus on the site and it’s connectedness to the natural terrain for enhancing sustainability and resilience. For instance, projects can consider floodplain function by avoiding new development and reducing impervious cover on land adjacent to floodplains, the incorporation of plant species that do not require the use of pesticides and fertilizers, or the use of local or non-invasive plant species for landscaped elements (ISI, 2017).
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> • Envision® aims to reach higher levels of sustainability both up-front and during the life of the infrastructure project (PSOMAS, 2015).
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> • Ecosystem services are accounted for and can be rated through the use of Envision®. Envision® looks at the preservation of prime habitats, protection of wetlands and surface water, preservation of farm land (arable land), species preservation and control of invasive species, to name a few. • Climate change foci are focused on the reduction of GHG emissions and of air pollution emissions, climate threat assessments and heat island effects, to name a few.
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> • Envision® is designed to evaluate, grade and give recognition to infrastructure projects that make process and contributions to a more sustainable future.
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • The tool is applicable at any point in an infrastructure project’s life cycle, and it’s used to evaluate and recognize transformational and collaborative approaches that integrate sustainability into a development. It covers roads, bridges, pipelines, railways, airports, dams, levees, landfills, water treatment systems and other civil infrastructure (ISI, 2017).

<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> • Envision® has a step-by-step approach but the main focus is to foster a necessary dramatic improvement in the performance and resiliency of physical infrastructure across the full dimensions of sustainability.
<p>Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?</p>	<ul style="list-style-type: none"> • Envision® does include how an infrastructure project depends on natural capital but it also aims to help conserve and restore natural resources and ecological systems. Specific to biodiversity, Envision® assesses projects ability to (ISI, 2017): <ul style="list-style-type: none"> – Maintain and restore the ecosystem functions of streams, wetlands, water bodies and their riparian areas. – Protect biodiversity by preserving and restoring species and habitats. – Use appropriate non-invasive species and control or eliminate existing invasive species. – Restore soils that were disturbed during construction and previous development to bring back ecological and hydrological functions. • Envision® does consider the climatic condition of an area for infrastructure projects. The climate and risk considers ways in which a project can (ISI, 2017): <ul style="list-style-type: none"> – Avoid traps and vulnerabilities that could create high long-term costs and risks for the affected communities. – Infrastructure systems can be resilient to the consequences of long-term climate change, perform adequately under altered climate conditions, or adapt to other long-term change scenarios. – Increase resilience and long-term recovery prospects of the project and site from natural and human induced short-term hazards. – Minimize surfaces with a low solar reflectance index to reduce localized heat accumulation and manage microclimates.
<p>What kinds of inputs (time, data and expertise) are required for using each tool?</p>	<ul style="list-style-type: none"> • Information on the level of input (i.e. data from the project, time allocations, etc.) was not available. • The tool is free to download and anyone is able to use it, no prior expertise is required. The ISI has developed training material to support users undertake self-assessments. There is also a group of Envision® sustainability professionals, who are credentialed practitioners trained by the ISI in the use of the Envision® rating system. These practitioners work to guide the project team to achieve higher levels of sustainability and to document project sustainability accomplishments. In order to be eligible for an award, a project must be assessed with a practitioner involved in the process (ISI, 2017).
<p>Which tools are being widely used (and by what types of actors) or not, and why?</p>	<ul style="list-style-type: none"> • The tool is being used by designers, community groups, environmental organizations, constructors, regulators and policy makers (ISI, 2017).
<p>Where data available, which tools are most highly rated or evaluated (by region and key user group)?</p>	<ul style="list-style-type: none"> • An evaluation of the Envision® tool was not found during the literature review.
<p>Is the tool rated by an independent third party?</p>	<ul style="list-style-type: none"> • Envision® is a self-assessment tool; the Institute for Sustainable Infrastructure (ISI) do offer an optional independent third party review / verification. The third-party project verification program is offered by ISI to provide a transparent process to confirm that a project meets Envision® evaluation criteria. Only projects verified by the ISI are eligible for Envision® awards (ISI, 2017).

B.16 Equator Principles

Overview

The Equator Principles is a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects. It is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making (Equator Principles, 2017). The framework is applied to four financial products (Equator Principles, 2016):

- Project Finance Advisory Services (where total Project capital costs are US\$10 million or more);
- Project Finance (with total Project capital costs of US\$10 million or more);
- Project-Related Corporate Loans (where the majority of the load is related to a single project, the aggregate load amount is at least US\$100 million, the Equator Principle Financial Institution's commitment is at least US\$50 million and the loan tenor is at least two years);
- Bridge Loans (tenor of less than two years that are intended to be refinanced by Project Finance or a Project-Related Corporate Loan that will meet the criteria above).

Review

Table 20 outlines the findings from the desk based literature review of the Equator Principles risk management framework. For a full list of the information sources, see Section 5.

Table 20: Review of the Equator Principles risk management framework

Analysis Criteria	Analysis
<p>Are there separate tools for assessing both sustainability (financial, social and environmental) and climate risk and resilience? Are they integrated?</p>	<ul style="list-style-type: none"> • The framework is used to assess and manage environmental and social risk, financial risk is not considered. Climate change is taken into account in terms of assessing of the total GHG emissions emitted by the project annually. There is also a consideration made to the “viability of Project operations in view of reasonably foreseeable changing weather patterns/climatic conditions, together with adaptation opportunities.” <p>Additional information:</p> <ul style="list-style-type: none"> • Financial institutions adhering to the Equator Principles will only provide Project Finance and Project-Related Corporate Loans to Projects that meet the requirements of Principles 1-10 (Equator Principles, 2016): <ol style="list-style-type: none"> Principle 1: Review and Categorization – as part of the environmental and social due diligence, projects will be classified ‘A’, ‘B’ or ‘C’ in terms of their potential environmental and social risks and impacts (‘A’ potentially having significant adverse environmental and social risks and/or impacts that are diverse, irreversible or unprecedented; thought to ‘C’ that are projects with minimal or no adverse impacts). Such screening is based on the environmental and social categorization process of IFC. Principle 2: Environmental and Social Assessment – All Category ‘A’ and ‘B’ projects will require the client to conduct an Assessment process to address the relevant environmental and social risks and impacts of the proposed Project. Furthermore, for all projects that are expected to emit more than 100,000 tons of CO₂ equivalent annually (Scope 1 and 2 emissions), an alternatives analysis will be conducted to evaluate less GHG intensive alternatives. Principle 3: Applicable Environmental and Social Standards - All projects must address compliance with relevant host country laws, regulations and permits that pertain to environmental and social issues. For countries with weaker governance and legislative structure, IFC’s Performance Standards on Environmental and Social Sustainability and the World Bank Group Environmental, Health and Safety Guidelines should be adhered to. Principle 4: Environmental and Social Management System and Equator Principles Action Plan - All Category ‘A’ and ‘B’ projects are required to develop or maintain an Environmental and Social Management System. Principle 5: Stakeholder Engagement – a consultation process must be undertaken with affected communities who will be impacted by the potentially significant adverse environmental risks. Principle 6: Grievance Mechanism - For all Category A and, as appropriate, Category B Projects, the establishment of a grievance mechanism to receive concerns and grievances about the Project’s environmental and social performance should be established.

	<ul style="list-style-type: none"> vii. Principle 7: Independent Review - For all Category A and, as appropriate, Category B Projects, an Independent Environmental and Social Consultant, not directly associated with the borrower, will carry out an Independent Review of the documentation produced for the Principles above. viii. Principle 8: Covenants - For all Projects, the borrower will covenant in the financing documentation to comply with all relevant host country environmental and social laws, regulations and permits in all material respects. ix. Principle 9: Independent Monitoring and Reporting - For all Category A and, as appropriate, Category B Projects an Independent Environmental and Social Consultant should be appointed to verify the monitoring information. x. Principle 10: Reporting and Transparency - For all Category A and, as appropriate, Category B Projects, the borrower should make the ESIA available online, as well as publicly report GHGH emissions annually.
<p>What is the geographic scale? Are they only site-based, or do they also consider larger upstream and downstream or entire watershed connections?</p>	<ul style="list-style-type: none"> • The Equator Principles are applied globally and to all industry sectors (Equator Principles, 2016). There are currently 91 financial institutions in 37 countries who have officially adopted the Equator Principles, covering over 70% of international Project Finance debt in emerging markets (Equator Principles, 2017). • The assessment is undertaken on the project seeking finance, there is no suggestion in the publicly available information that consideration is made outside of the project site.
<p>Do they include consideration of cumulative impacts of multiple developments and/or drivers of change? If so, how (e.g. scenarios)?</p>	<ul style="list-style-type: none"> • Cumulative impacts are considered in the Environmental and Social Assessment; the Equator Principles guidance states one of elements of the review should assess “cumulative impacts of existing Projects, the proposed Project and anticipated future Projects” (Equator Principles, 2016). No further guidance was outlined.
<p>How are ecosystems and their services accounted for? How is climate risk and/or resilience assessed?</p>	<ul style="list-style-type: none"> • The Equator Principles outline that the Environmental and Social Impacts assessments undertaken for Category ‘A’ and ‘B’ projects should assess its: <ul style="list-style-type: none"> i. “Protection and conservation of biodiversity (including endangered species and sensitive ecosystems in modified, natural and Critical Habitats) and identification of legally protected areas” ii. “Sustainable management and use of renewable natural resources (including sustainable resource management through appropriate independent certification systems)” • The Equator Principles do outline a range of best practice guidelines that take into account ecosystems and their services, however these are not mandatory to undertake. These include: <ul style="list-style-type: none"> i. Cross-Sector Biodiversity Initiative’s Timeline tool (CSBI, 2013) ii. IPIECA’s Biodiversity and ecosystem services guide (IPIECA, 2011) iii. Business and Biodiversity Offsets Program’s Biodiversity Offset Design Handbook-Updated (BBOP, 2012) iv. ISEAL Alliance’s global association of environmental and social standards (ISEAL, 2016) v. InVEST (Integrated Valuation of Ecosystem Services and Trade-offs)
<p>Is resilience linked to future livelihoods and sustained ecosystem functioning and delivery of ecosystem services, over what time-scale?</p>	<ul style="list-style-type: none"> • The Equator Principle framework does not make a reference to future livelihoods and sustained ecosystem functioning in terms of resilience.
<p>At what stage in the infrastructure development process are these tools typically used?</p>	<ul style="list-style-type: none"> • The Equator Principles are applied at the financing stage of the infrastructure development process. However, there are some cases where the Equator Principles are applied retroactively, for example: to the expansion or upgrade of an existing project where changes in scale or scope may create significant environmental and social risks and impacts, or significantly change the nature or degree of an existing impact. (Equator Principles, 2016).

<p>How detailed or prescriptive is the tool or approach? Is it very general guidance, or an actual step by step approach or software tool?</p>	<ul style="list-style-type: none"> • The framework provides a general overview of the assessments that a borrower/financial institutions must undertake in order to adhere to the Equator Principles. There is no prescribed detailed methodology, but a series of illustrative lists of factors that should be considered in an assessment, for example the "Illustrative List of Potential Environmental and Social Issues to be Addressed in the Environmental and Social Assessment Documentation" in version 3 of the risk management framework. • A supporting document has also been developed comprising of a series of modules containing information to support the implementation of the requirements contained in the Equator Principles (Equator Principles, 2014). • There are a number of suggested tools that can be used, but these do not form part of the mandatory tasks.
<p>Do the tools include consideration of how an infrastructure project depends on natural capital and/or climatic conditions?</p>	<ul style="list-style-type: none"> • Yes, the Equator Principle's Environmental and Social Assessment guidelines suggest consideration should be made in terms of (Equator Principles, 2016): <ol style="list-style-type: none"> i. Natural capital/ecosystem services, an assessment should be undertaken to determine the "protection and conservation of biodiversity (including endangered species and sensitive ecosystems in modified, natural and critical habitats) and identification of legally protected areas" and "sustainable management and use of renewable natural resources (including sustainable resource management through appropriate independent certification systems)." ii. Climatic conditions a review of the "viability of Project operations in view of reasonably foreseeable changing weather patterns/climatic conditions, together with adaptation opportunities."
<p>What kinds of inputs (time, data and expertise) are required for using each tool?</p>	<ul style="list-style-type: none"> • The environmental and social assessment information can be prepared by the borrower, consultants or external experts; no specific expertise has been outlines in the framework. However, the independent reviewer must be an Independent Environmental and Social Consultant. • In terms of data, the framework outlines an illustrative list of potential environmental and social issues to be addressed in the assessments, which gives a guide on the type of information required. No indication of timing was found in the publicly available information.
<p>Which tools are being widely used (and by what types of actors) or not, and why?</p>	<ul style="list-style-type: none"> • There are currently 91 financial institutions in 37 countries that have adopted the Equator Principles, which covers over 70% of international Project Finance debt in emerging markets (Equator Principles, 2017). All financial institutions that have adopted the Equator Principles have committed to only provide Project Finance and Project-Related Corporate Loans to Projects that meet the requirements of Principles 1-10 (Equator Principles, 2016).
<p>Where data available, which tools are most highly rated or evaluated (by region and key user group)?</p>	<ul style="list-style-type: none"> • No publicly available information was found to respond to this question.
<p>Is the tool rated by an independent third party?</p>	<ul style="list-style-type: none"> • No information was found to suggest the Equator Principles risk management framework has undergone a third party review. • In terms of applying the Equator Principles, for all Category A and, as appropriate, Category B Projects, an Independent Consultant, not directly associated with the client, will carry out an independent review of the assessment documentation including the management plans/systems and the stakeholder engagement process documentation to ensure adequate due diligence is undertaken (Equator Principles, 2016).

