

Physical risk assessment guide

The steps for conducting a physical climate risk assessment at screening and due diligence are detailed in the tables below.

Steps for conducting a physical risk screening

Steps	Outcomes	Actions	Recommended resources / tools
<p>Step 1: Develop understanding of the asset's / business' exposure, and sensitivity to climate-related hazards</p>	<p>Understanding of sector, sub-sector and geographic location</p>	<ul style="list-style-type: none"> • Determine sector and/or sub-sector of target • Determine geographic location of assets or business activity (e.g., latitude/longitude of an asset or city, province or country) 	<ul style="list-style-type: none"> • For sector-specific climate sensitivities to climate-related hazards please see, for instance, CDP's Water Watch that can help understand the water intensity profile of different industries and thereby their relative likelihood to be adversely affected by water scarcity and droughts if not adaptation measures are taken.
<p>Step 2: Identify key climate hazards that may affect the performance of the asset / business directly or indirectly</p>	<p>Determining the climate hazards most relevant to the asset / business given its geographic context of operation and industry sector</p>	<ul style="list-style-type: none"> • Understand historical climate of the relevant geographic location for the asset/business and how this may evolve in the future under varying climate scenarios; This includes identifying the most climate hazard metrics most relevant for the asset / business' activities (e.g., temperature extremes for temperature sensitivity activities such as agriculture or temperature thresholds of processing equipment) 	<ul style="list-style-type: none"> • Reports on sector and geography-specific sensitivities to climate change. See the List of physical and transition risk assessment tools for further information

		<ul style="list-style-type: none"> Understand if the asset / business has already been impacted by such events and, if so, how it responded. 	<ul style="list-style-type: none"> <u>ThinkHazard!</u> should be considered as a minimum
<p>Step 3: Develop and rank identified climate hazards for further analysis</p>	<p>Prioritised list of physical climate risks drivers that may impact a transaction</p>	<ul style="list-style-type: none"> Develop a list of physical climate risks drivers that may adversely affect the performance of the asset / business for further investigation during due diligence. Risks should then be ranked according to significance and based on the intersection of likelihood and consequence. It should be aligned, as far as possible to the fund manager's risk management methodology 	<p>Climate change risk template</p>

Steps for conducting a physical risk assessment at due diligence¹

The objective of this step is to perform a detailed analysis of the current and projected impacts of climate variability and change on an asset(s) / counterparty (as applicable) to:

- Determine the materiality of physical climate risks drivers** identified by during screening

¹Additional relevant resources for conducting a physical climate risk assessment include:

- HOW TO PREPARE A CLIMATE RISK ASSESSMENT [EU Guidance] - [How to perform a robust climate risk and vulnerability assessment for EU taxonomy reporting?](#)
- ENERGY - HYDROPOWER: [International Hydropower Association Climate Resilience Guide](#)
- TRANSPORT – PORTS: [Climate Risk and Ports: A Practical Guide on Strengthening Resilience](#)
- WATER INFRASTRUCTURE: [Resilient Water Infrastructure Design Brief](#)
- HEALTHCARE - [Health Care Facilities](#)
- FINANCIAL IMPACTS: [Physical Climate Risk Assessment Methodology \(PCRAM\) - Guidelines for Integrating Physical Climate Risks in Infrastructure Investment Appraisal](#)

2. **Identify and assess required climate adaptation and resilience measures** in the short, medium vs. longer term i.e., the most effective technical and management improvements that could help avoid or mitigate identified risks that may affect the operational and in turn financial performance of the counterparty or an asset during its expected lifetime.
3. **Draft an adaptation action plan to manage any residual risks**, including by ensuring the implementation of a dynamic physical climate risk assessment and management given uncertainties.

Steps	Outcomes	Actions	Recommended Resources / Tools	Examples
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<p>Step 1: Develop a deeper understanding about the asset's / business' exposure and sensitivity to the prioritized material climate-related hazards</p>	<p>Deeper understanding of the asset's / business' sensitivity and exposure to climate-related hazards</p>	<ul style="list-style-type: none"> • Develop deeper understanding about the asset and its related boundaries or business' activity, including its value chain to understand possible indirect risk drivers. Goal is to determine <ul style="list-style-type: none"> ○ Which activity(ies), assets, components of asset should be analysed ○ Relevant interdependencies with the context in which the physical asset / business operates • Develop deeper understanding about the geographical context of the asset / business activities (e.g., nearby water bodies; surrounding land use) and its supply chain and market served and related exposure to climate-related hazards. 	<ul style="list-style-type: none"> • Google Maps • Investment memorandums • Direct engagement with company • Publicly available company information 	<ul style="list-style-type: none"> • Direct physical risk drivers: manufacturing processes highly dependent on water operating in a drought-prone context • Indirect physical risk driver: Business' reliance on a single supplier operating in a flood prone context; a port's infrastructure reliant on a single road highly prone to flood for distribution of goods which, in turn, may affect business continuity.
<p>Step 2: Understand the asset's / business' vulnerability</p>	<p>Understanding of asset's / business' ability to withstand identified</p>	<ul style="list-style-type: none"> • Evaluate the asset / business capacity to prevent, respond to and recover from the adverse consequences of climate-related events. This can be achieved by interviewing 	<p>Physical risk due diligence questions</p> <p>Refer to the List of physical and</p>	<p>If a target business in the agriculture sector operates in a context with a trend of increasing</p>

<p>profile to determine if and how most material climate hazards may affect its performance in the short, medium, and longer term</p>	<p>material climate hazards based on its specific characteristics and circumstances</p>	<p>management and/or engaging third-party specialized consultants to understand:</p> <ul style="list-style-type: none"> ○ If and to what extent historical weather events have adversely impacted the asset’s performance or business’ operations and value chain and if any measure(s) that may have been taken as a result to avoid or reduce risks and impacts should another similar or more frequent and intense weather event strike. ○ If and to what extent future climate-related hazards could affect the performance of the asset / business over its expected lifespan. This implies evaluating if the critical operational thresholds of an asset / business’ activity would fail and lead to operational and financial impacts under varying frequency and intensity of climate-related hazards (climate scenarios). <p>Financial impacts on the investment, should be at least</p>	<p>transition risk assessment tools for further information. As a minimum the <u>World Bank Climate Change Knowledge Portal</u> should be used as the source for understanding potential future climate-related hazards under varying scenarios and timeframes</p>	<p>temperature, heatwaves and wildfire events, determine possible impacts on agricultural produce in terms of quality and yields and associated financial impacts if not managed through climate adaptation and resilience measures.</p> <p>The financial impacts could include lost revenues, reduced price of shares and potential reputational risks. A percentage reduction in yield or failure of an entire year’s crop could be quantified to illustrate the potential financial impact.</p>
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qualitatively described or where feasible, quantified using conventional risk types (e.g., impact in terms of probability of loss, loss given default for credit risk)

If assessing a water infrastructure asset, determine if critical components to its operational efficiency (e.g., mechanical, electrical, and structural elements) would lead to failure should a climate-related hazard event e.g. flood, drought, or high-wind event occur? E.g., can the intake and its pump operate if water drops beyond certain levels due to droughts? (pumps require certain min water levels to operate properly). The financial impacts can be determined based on downtime or damages, and

			<p>translate into increased maintenance costs, performance costs; life cycle costs or reduction in asset's value.</p>
<p>Step 3: Identify and assess required climate adaptation and resilience measures to be implemented at the asset / business level</p>	<ul style="list-style-type: none"> • Identify climate adaptation and resilience measures in place (or not) vis-à-vis required to prevent or reduce the material physical climate risks drivers identified. This includes considering both structural and/or non-structural measures such as flood barriers, design criteria to be integrated in greenfield assets, but also systems, processes, and capabilities. Regarding non-structural measures, it is suggested to evaluate: <ul style="list-style-type: none"> ○ Governance structures in place to identify, assess and manage climate-related risks on an ongoing basis. ○ Know-how of those tasked with climate-risk management roles and responsibilities. This includes evaluating management's 	<p>Useful resources include</p> <ul style="list-style-type: none"> - Hydropower: <u>International Hydropower Association Climate Resilience Guide or</u> - Ports: <u>Climate Risk and Ports: A Practical Guide on Strengthening Resilience</u> 	<p>Examples of structural measures includes infrastructure and engineering design criteria, nature-based solutions such as wetlands for managing flood risks or flood barriers (e.g., floodwalls or levees) around the plant.</p> <p>Examples of non-structural measures includes actions related to strengthening of governance, training staff, developing climate risk</p>

	<p>understanding of physical climate change risks.</p> <p>The risk management processes and to what extent it integrates climate risks including</p>	<p>management contingency and preparedness plans and policies.</p>
<p>Step 4: Develop an adaptation action plan to manage any residual risks and support investment decision-making</p>	<ul style="list-style-type: none"> • Decision on significance of climate risks • Incorporation of climate Adaptation Action Plan into ESAP • The investment team should present the findings of the due diligence to the Investment Committee. The most material risks should be presented along with the adaptation measures to understand where the greatest residual risk lies and how they will be managed. For these areas, the potential financial impact can be shown, either qualitatively or quantitatively to enable the investment committee to decide on whether the level of risk is acceptable and if further analysis and adaptation and resilience measures is required to secure the asset / business performance under a changing climate • Environmental and Social Action Plan (ESAP): Based on the areas of the investment that have the greatest levels of physical risk exposure and vulnerability, the ESAP should be created listing the appropriate climate adaptation actions to be carried out to manage identified physical climate risks. This could include additional detailed 	<p>Climate change memorandum for investment committee</p> <p>Climate-related metrics table</p> <p>Key recommended elements an Adaptation Plan within the ESAP are (i) short, medium and longer-term climate adaptation actions the investee will commit to take, (ii) governance and accountability mechanisms that support delivery of the Adaptation Plan;</p>

climate risk assessment work and, as needed, (iii) periodic
new adaptation measures to be reporting
implemented. The ESAP should detail actions
to be implemented in the first 100 days
(100-day plan) as well as longer-term goals
and ambitions. The ESAP should clearly
detail the metrics to be tracked to enable
effective monitoring and reporting to the
fund manager and help it to support
investments in climate adaptation and
resilience building measures as needed.