

# PROJECT DESIGN & CONSTRUCTION GUIDE

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**Key ESG aspects: Mitigation hierarchy | Labour conditions | Health, safety & security | Resource efficiency & pollution prevention | Land access, use & acquisition | Biodiversity conservation & ecosystem services | Supply chains | Business integrity**

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## 1. APPLICABILITY

This Guide is designed to help fund managers quickly familiarise themselves with the most frequent and important environmental, social and governance (ESG) aspects of the Project design and construction phase of the investment process. It aims to be a starting point for thinking about ESG risks and opportunities, and not a detailed technical guidance document.

### 1.1 Using this Sector Profile

This Guide draws on internationally recognised good practice standards and guidance, particularly the [International Finance Corporation's \(IFC's\) 2012 Environmental and Social Performance Standards](#) and the [World Bank Group's Environmental, Health and Safety \(EHS\) Guidelines](#). The Guide identifies key standards that are generally applicable to each sector (refer to the 'Standards, guidelines and other resources' section below). It is not a substitute for such standards, which should take precedence as authoritative sources and basic technical references. Applicable laws and regulations must be taken into account and compliance with them should be regarded as the minimum acceptable performance standard.

Most new Projects will usually have required the completion of a detailed Environmental and Social Impact Assessment (ESIA) prior to the start of construction. Based on the risks and impacts identified in the ESIA, a Project's design may need to be adjusted, or alternative siting or routing options may be required. Those responsible for ensuring the ESIA's recommendations are implemented should do so following a mitigation hierarchy (i.e. to first anticipate and avoid any risks or impacts, and if avoidance is not possible seek to minimise them, and if residual impacts remain then compensate or offset the risks and impacts).

See [CDC Environmental and Social Checklist](#) and [CDC Governance and Business Integrity Checklist](#) for questions that fund managers should consider when evaluating investments from an ESG perspective.

### 1.2 Scope of this Sector Profile

*Note - While this Guide refers to 'Projects', this term includes any significant construction or expansion activities associated with a company's operations.*

This Project design and construction guide covers:

- Design and construction of new brownfield or greenfield facilities of any kind; and
- Medium/large scale expansion, renovation or modernisation of existing facilities.

Business activities that fall within the scope of this Guide include:

- Project design, including feasibility studies and Environmental and Social Impact Assessments (ESIA).
- Surveying greenfield sites.
- Construction-related activities including land clearing, earthmoving, excavation and actual construction.
- Demolition of existing facilities as part of new build or expansion/renovation activities.

For ESG risks and impacts associated with the extraction of construction materials, additional information may be found in the [CDC Sector Profile: Mining](#). For additional consideration of risks

and impacts associated with operation and maintenance of infrastructure and power assets, refer to the [CDC Sector Profile: Infrastructure](#) and [CDC Sector Profile: Power Generation, Transmission and Distribution](#).

Mining, agriculture and aquaculture, and forestry activities related to exploration, land clearing/preparation and/or planting are covered in [CDC Sector Profile: Mining](#), [CDC Sector Profile: Agriculture and Aquaculture](#) and [CDC Sector Profile: Forestry and Plantations](#).

## 2. KEY ENVIRONMENTAL AND SOCIAL ASPECTS

This section outlines some of the specific risks and impacts that emerge from poor ESG practices. Weak management of these aspects may lead to reputational damage, have an impact on a company’s capacity to raise funding (debt and equity) and, more broadly, negatively impact a company’s financial performance. Conversely, sound ESG practices are likely to improve a company’s reputation, access to investors and overall performance.

### 2.1 Management commitment, capacity and track record (CCTR)

Companies need management’s commitment and sufficient capacity to ensure that the necessary resources are available for sound E&S management. Refer to [CDC Guidance: Assessing Companies’ Commitment, Capacity and Track Record](#).

Contractors are critical in construction activities. Therefore the sponsoring company (or ‘Project sponsor’) should consider potential contractors’ ESG management of CCTR prior to appointment. Companies must ensure contractors understand the applicable ESG requirements and discuss how appropriate ESG management plans will be implemented.

### 2.2 Environmental and social management system (ESMS)

Companies should develop and implement an ESMS commensurate with the level of risks and impacts associated with its activities. For further advice refer to [CDC E&S Briefing Note: Environmental and Social Management Systems \(company-level\)](#).

Contractors are critical in construction activities. Therefore the Project sponsor should discuss the implementation of any ESMS prior to their appointment to ensure that appropriate standards are met.

### 2.3 Relevance of the mitigation hierarchy in Project design and construction phases

<p><b>Risks for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Loss of social licence to operate if social impacts are not fully assessed or mitigated.</li> <li>• Project development and execution delays, legal risks, poor efficiency and quality levels can result from an incomplete or incorrect assessment of impacts.</li> <li>• Higher costs can be incurred to manage longer term and/or more significant E&amp;S impacts that could have been avoided or minimised through appropriate design.</li> <li>• Project developers and construction contractors can face reputational risks from not addressing impacts viewed by stakeholders as avoidable through better design or construction management or consideration of alternatives (i.e. an Alternatives Analysis).</li> </ul>
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<p><b>Opportunities for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Reduction of costs by avoiding or minimising impacts through adequate Project design e.g. more significant operating impacts usually require additional permits and more expensive management measures). Additionally, the risks of potential delays due to E&amp;S issues can be eliminated or reduced.</li> <li>• For companies directly involved in construction, access to markets and finance can be enhanced if the company achieves certain standards and/or related certifications covering E&amp;S management (e.g. ISO 14000) or energy efficiency/sustainable construction certification.</li> <li>• Project design and management companies and their principle contractors can explore opportunities to build up the capacity of smaller contractors and subcontractors in managing E&amp;S elements such as construction material or waste management.</li> </ul>
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**Identification of risks and impacts:** Project sponsors should ensure all possible E&S risks and impacts arising from the construction and operation of the planned facility are identified through an impact assessment during the Project feasibility and design phase. Risks and impacts should be considered with regard to labour and working conditions, pollution prevention and resource efficiency, community safety and livelihoods, biodiversity conservation, protection of Indigenous People and cultural heritage. Where possible, any E&S impacts should be avoided by careful consideration of design elements. If avoidance is not possible, then the design should aim to minimise negative impacts, or at least compensate or offset E&S risks and impacts. Typically, more significant operating impacts (e.g. pollution) will require additional permits and more expensive management measures and therefore avoiding or minimising E&S impacts at the design phase can reduce operating costs and inefficiencies.

**Management of risks and impacts:** Once the Project design has addressed all possible E&S risks and impacts, the construction and operation phase will require careful E&S management plans to mitigate those factors. Mitigation measures should be monitored during the construction phase and strengthened where necessary. The Project sponsor should ensure that all contractors operate in accordance with both local regulations and Good International Industry Practice (GIIP) with regard to labour and working conditions, occupational health and safety, resource sourcing and use, and pollution prevention. Contractors should use the outcomes of the ESIA to develop and implement a construction environmental and social management plan (ESMP) which also aligns with the mitigation hierarchy mentioned above. Construction companies should always ask to review outcomes and recommendations of the ESIA in order to develop an appropriate site specific ESMP. Project sponsors should engage construction companies, prior to contracting, about their approach to planning for an ESMP.

Guidance on good practice relating to assessing and managing E&S risks and impacts at design and construction are provided by [IFC Performance Standard 1](#) and the [World Bank Group General EHS Guidelines and sector specific EHS Guidelines](#).

## 2.4 Labour and working conditions

*Note - Occupational health and safety is covered separately below.*

<p><b>Risks for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Financial, reputational, and legal risks, execution delays, lower construction efficiency and construction quality can all potentially result from poor morale, industrial action, high staff turnover and deterioration of employees’ health (e.g. excessive working hours or working in extreme or remote locations) as well as costs associated with Project delays.</li> <li>• Increased costs will be incurred for the recruitment and training of new workers if poor labour standards and working conditions lead to high turnover.</li> </ul>
<p><b>Opportunities for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Costs can be managed and construction efficiency enhanced by good labour and working conditions. It can also help to attract and retain motivated and competent workers.</li> <li>• Access to markets and finance can be enhanced if the company achieves certain standards and/or related certifications covering labour and working conditions (e.g. SA 8000).</li> <li>• Project sponsors and principle contractors can explore opportunities to build the capacity of smaller contractors and subcontractors as this can help to further reduce labour risks.</li> </ul>

**Contractors:** The construction sector is reliant on contractors. Project construction typically involves engaging a principal contractor along with several subcontractors. This may include large-scale international contracting companies (with locally engaged labour) as well as small-scale local specialist subcontractors. The Project sponsor should ensure that all contractors operate in accordance with local regulations and GIIP. All contractors should implement an ESMP for each Project which should reflect the outcomes and recommendations of the ESIA. Project sponsors should engage construction companies at the tender stage (prior to contracting) about their approach to site management planning and how they intend to minimise E&S risks and impacts. In addition, a contractor’s CCTR with regard to E&S performance should be assessed.

**Wages and working hours:** Construction activities are a major employer of low-paid and often unskilled labour, including temporary or seasonal labour and migrant workers. Furthermore, working hours are typically long. Workers should be paid at least the minimum statutory wage for the sector and working hours should be in accordance with applicable laws and sector regulations/agreements. Companies should not use third party contractors as a means of exceeding working hour regulations or avoiding minimum wage payments.

**Freedom of association and collective bargaining:** Relations with unions and the rights of workers to enter free and voluntary collective bargaining arrangements with management (and the rights to form unions and to strike) can be an issue in construction Projects. There are many instances where the principles of Freedom of Association have not been respected during Project construction. State involvement and restrictive legislation also dominates the construction sector particularly in emerging markets or where public private partnerships or tendering processes aim to encourage the participation of local companies. The company should require all contractors to adopt GIIP as this can help to manage costs relating to recruitment, training and talent retention and maintain or enhance efficiency and service quality.

**Child labour and bonded/forced labour:** Forced/bonded or child labour is not acceptable under international standards but remains evident in the construction sector. Forced and/or bonded labour is sometimes sourced for construction of Projects in some emerging market countries where public private partnerships or regime policies may dictate certain employment practices or where cost overruns can result in pressures to cut employment costs. Non-compliance with [ILO Core Labour Conventions on Child Labour/Minimum Age and Forced Labour](#) is not acceptable under international standards. Measures to eradicate these forms of labour should be implemented as a matter of priority.

**Equal opportunities and non-discrimination:** Discrimination over wages or terms and conditions can be prevalent in the construction sector, particularly towards migrant labour and vulnerable local communities. Companies should address discrimination by identifying key issues (through consultation with affected workers) and putting in place policies that deter discrimination. Such steps can help to manage recruitment and training costs, improve worker retention, and maintain or enhance productivity.

**Accommodation:** Where the Project sponsor and/or the main contractor undertakes to provide (either directly or through subcontractors) workers’ accommodation, it should include basic services and take into account the principles of non-discrimination and equal opportunity. The Project sponsor and/or main contractor should develop and implement policies on the quality and management of the accommodation in accordance with the principles included in [IFC Performance Standard 2](#).

All contractors should be encouraged to develop and apply family-friendly employment policies. Good practice in this area can help to manage costs relating to recruitment, training and talent retention and maintain or enhance productivity.

For further general guidance on Good International Industry Practice (GIIP) relating to labour standards and working conditions in line with the [International Labour Organization’s \(ILO’s\) Core Conventions](#), refer to [CDC E&S Briefing Note: Labour Standards](#), [IFC Performance Standard 2: Labor and Working Conditions](#), [IFC/EBRD Guidance Note Workers’ Accommodation: Processes and Standards](#) and [IFC Good Practice Note: Non-Discrimination and Equal Opportunity](#).

**2.5 Occupational health and safety (OHS)**

<p><b>Risks for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Plans for any new or expanded Project or facility should incorporate life, fire and safety aspects into the design and construction phases.</li> <li>• Companies may face prosecution or fines if workers or contractors are injured or killed due to poor Project design or construction practices.</li> <li>• Damage to/loss of the company’s assets, loss of production, loss of clients/business, increased insurance premiums and legal claims (both in the short and long term) can result from poor OHS practices.</li> <li>• Low workforce morale and erosion of trust or industrial action as a result of poor practices can lead to higher staff turnover, lower productivity, additional training and recruiting costs, and reputational damage.</li> </ul>
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<p><b>Opportunities for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Considering Life and Fire Safety aspects of Projects can prevent accidents during the operational phase, support legal compliance and improve worker morale.</li> <li>• Proactively involving workers and contractors in key decisions can help to identify and maintain good OHS practices, and improve their acceptance if new or significantly different to previous practices.</li> <li>• Regular and repeated OHS training and drills as well as incentivising no lost time can contribute to a safe working culture and minimise the risk of injuries and fatalities.</li> <li>• Productivity can be improved and insurance premiums for workers' compensation payments can be reduced.</li> <li>• Effective fire safety and emergency response standards are critical to avoid issues such as operational shut down.</li> </ul>
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OHS is an important consideration for any business, regardless of sector. All companies must have in place appropriate OHS and emergency preparedness and response management systems, commensurate with the level of risks.

OHS risks are particularly relevant in construction activities and robust systems should be implemented. Since contractors would typically be involved in design and construction activities, Project sponsors must have systems to ensure that contractors work in accordance with applicable regulations and GIIP.

Specific OHS risks during Project design and construction include those in connection with:

- Physical hazards (e.g. injury or death due to falls from height, strain injuries from heavy lifting, hazards related to working on scaffolding or suspended harnesses, risks of slips and falls, use of large scale fixed and mobile equipment, work in confined spaces and use of high pressure equipment including water jets and cement pouring).
- Exposure to heat (e.g. from working in close proximity to hot drilling equipment).
- Risks related to working long hours outdoors (e.g. risk associated with prolonged exposure to high and low temperatures and/or sunlight).
- Hazardous substances (e.g. fuels or remnant chemicals such as asbestos revealed during demolition or excavation).
- Exposure to excessive dust and particulate matter (e.g. due to vehicle movement or during land clearing, demolition and excavation activities).
- Risk of electrocution (e.g. excavation exposing existing or surface utilities, or during electrical installations at new sites).
- Exposure to noise and vibration (noise and vibration sources include fixed and mobile equipment, such as excavators, drills, dump trucks and crushers).
- Biological hazards, particularly in regions with highly contagious diseases.
- Fire and blasting (the use of explosives is very common in construction activities).
- Travel and work in remote sites (where construction is located in remote sites lacking basic infrastructure and requiring temporary accommodation). Remote locations may require extensive travel sometimes by dangerous means.
- Security. Construction sites should be appropriately protected to ensure only accredited people can access the site. Measures should be implemented to ensure that security forces are appropriately trained in the use of force and that they respect workers' rights at all times.



For further general guidance on GIIP relating to OHS, refer to [CDC E&S Briefing Note: Occupational Health and Safety](#), [IFC Performance Standard 2: Labor and Working Conditions](#), [World Bank Group General EHS Guidelines](#), [CDC Good Practice: Preventing Fatalities and Serious Accidents](#), and [IFC/EBRD Guidance Note Workers' Accommodation: Processes and Standards](#).

## 2.6 Pollution prevention and resource efficiency

<p><b>Risks for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Fines and penalties can be imposed for non-compliance with national pollution prevention standards, especially with respect to dust suppression and hazardous materials/waste management both during construction (i.e. the responsibility of building contractors) or during ultimate operation of the facility. Pollution prevention of the operating business should be a key consideration during design of the business.</li> <li>• In extreme cases, companies can get their licenses temporarily or permanently revoked.</li> <li>• National pollution prevention standards may become more stringent over time in markets where the current legislation is not aligned with international best practice, requiring expensive retrofitting if legislation change is not considered during Project planning.</li> <li>• Excessive expenditure on energy and water supply.</li> <li>• Excessive expenditure on management of emissions, solid waste and wastewater quality, and spill containment and remediation.</li> <li>• The provision of inadequate finance or time for site remediation in the event of discovery of contaminated land.</li> </ul>
<p><b>Opportunities for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Lower operating costs, reduced environmental footprint and better preparedness for resource shortages, or increased cost of resources can result from addressing energy efficiency, water efficiency and cleaner production measures during the design-phase.</li> <li>• Good design and construction can prevent/reduce the risk of some environmental accidents/issues (e.g. concrete secondary containment systems may present fractures if not properly built and this could lead to contamination incidents).</li> <li>• Better preparedness for potentially costly regulatory changes such as implementation of a carbon tax which would affect sourcing of materials such as cement during construction, and sourcing of raw materials during operation of the business.</li> <li>• Participation in carbon/Clean Development Mechanism markets if the opportunity arises.</li> </ul>

**Energy efficiency and air emissions:** Initial Project design should focus on incorporating energy efficiency measures and building resilience to risks from climate change. Sponsor companies should incorporate energy efficiency and pollution prevention into Project design. Careful consideration should be given to power supply and fuel source reliability and resilience and where possible the use of renewable sources should be encouraged. Process design and

layout elements should take energy conservation as well as pollution prevention into account e.g. through insulation, co-generation, loop systems to heat other process stages with by-product heat, process equipment and efficiency in the context of emissions generation). Overall siting and orientation of facilities should also focus on energy conservation (e.g. aspect with relation to sun/latitude; height of the building or facility (e.g. temperature control in a small footprint high rise facility versus a low rise larger footprint); heating/cooling/ventilation aligned with the number and aspect of the windows and prevailing winds; and building height relative to actual Project site and existing built or natural environment). Project design should consider building materials to be used in the context of energy efficiency. Certain materials can offer improved or diminished insulation (e.g. smooth surface or glass versus rough surface or concrete/stone). The sourcing of such materials and potential supply chain impacts should also be taken into account.

The main sources of air emissions during construction are dust generation and exhaust gases of heavy mobile and fixed equipment, including temporary power generation sources (generators), and from the burning of waste materials.

Site clearing, including demolition and excavation, as well as onsite storage of construction materials can result in significant quantities of dust. Management of dust is critical during construction to avoid impacts to neighbouring sites and communities. Timing of dust generating activities, and planning of activities and construction to minimise (both spatially and temporally) the exposure of bare soil should be a key part of construction management. Clearing and rapid resurfacing or re-vegetating, enclosure and covering of open areas and storage piles, and dust suppression techniques including damping down should be encouraged.

Sponsor companies should explore business opportunities associated with the adoption of cleaner technology/energy efficiency measures in the use, maintenance and purchase of heavy equipment and the sourcing of raw materials such as cement. Sponsor companies should give due consideration to how the best available techniques (BAT) for management of emissions may be applied, including where site clearing is undertaken by contractors or where heavy equipment is leased.

**Water management:** Construction activities can use significant quantities of water, e.g. in the mixing of raw materials (particularly cement), dust suppression activities, soil stabilisation and cleaning activities in the actual building as well as in the plant. Sponsor companies should engage with contractors to explore opportunities to reduce water consumption (e.g. use of closed-loop water systems in dust suppression). This is particularly relevant when water consumption is significant and/or water availability is restricted. Water use efficiency measures can have positive effects in terms of reducing the amount of wastewater generated by the site, and therefore any potential wastewater treatment costs and/or discharge fees.

Wastewater flows can have a high solid content due to site surface erosion and dust. Other effluent is generated from sanitary wastewater (from the site office/temporary worker washroom facilities/accommodation). Adequate temporary sanitation facilities should form part of site management and sanitation should require treatment prior to discharge.

**Waste management:** Waste management should be considered at the design phase of any Project. The local context of the operation should be taken into account, as some waste disposal or recycling facilities may not be available (e.g. certain hazardous waste facilities) or waste disposal may be difficult in remote locations (e.g. a run of the river hydro Project which typically generates significant spoil). Early planning and consideration of these issues can help identify cost effective disposal options that might even include construction of a dedicated disposal facility.

Solid waste streams specific to construction activities include excess fill materials, scrap wood and metals such as steel girders and scaffolding, domestic waste (from site offices, temporary washrooms and accommodation), waste construction material arising from poor handling or storage, as well as material from demolition activities and machinery maintenance. All require specific care in disposal to prevent environmental contamination or community health and safety risks. Where possible re-use or recycling of waste materials should be encouraged and careful site management including waste segregation and collection should avoid the need for double handling of raw materials and resulting waste.

Where any chemical or oil spill or clean-up has occurred, care should be taken in the disposal of clean up materials, which will also be classified as hazardous waste. Where even relatively small volumes of potentially hazardous wastes are generated (e.g. waste containing asbestos, used machinery oils, lubricants, solvents, paints or cleaners) the construction company must ensure that these are stored, handled, transported and disposed of according to good international industry practice, in a manner that prevents environmental contamination or danger to handling workers or communities nearby.

Obligations for handling of such materials should extend to all contractors and suppliers. Many emerging market countries have guidelines, organisations or facilities focused on collection and disposal of used oil. They also often have specific licensing requirements for hazardous waste handling by contractors and disposal-permitting requirements at registered landfills. Stringent regulations also apply for trans-boundary movement of hazardous waste.

Land contamination due to historical releases of substances by previous land occupants may be discovered after demolition or during excavation of foundations. Construction companies should ensure a management plan is prepared to identify, delineate, contain and manage the hazardous material, where handling and disposal may require additional permits. Project sponsors should engage with construction companies and developers regarding the likelihood of encountering contaminated land (e.g. investigate land use history and where necessary, undertake pre-development soil sampling) in order to avoid significant delays once construction has commenced.

**Resource use:** Sourcing building materials from sustainable sources should be considered during the design phase, and encouraged where possible in construction (e.g. sourcing cement from signatories to the Cement Sustainability Initiative). Construction and demolition waste should be reused where possible (e.g. recycling of concrete minimises the cost associated with sourcing new aggregate for construction). Demolition should be preceded by site inventorying and salvage to ensure all benign materials are re-used and recycled, even if only as fill for site levelling. Selection of building materials should be a key component of Project design for enhanced energy efficiency and pollution prevention.

For further general guidance on GIIP relating to resource efficiency and pollution prevention, refer to [CDC E&S Briefing Note: Resource Efficiency](#), [CDC E&S Briefing Note: Pollution Prevention](#), [IFC Performance Standard 3: Resource Efficiency and Pollution Prevention](#) and [World Bank Group General EHS Guidelines](#).

## 2.7 Community health, safety and security

<p><b>Risks for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• The company’s license to operate can be put at risk if community relations are not well managed e.g. due to pollution impacts locally, or through intimidation by company employed security forces. Time and cost can be avoided by developing and maintaining good relations with local communities and will help to manage their expectations and identify concerns. Stakeholder engagement is a key component of the initial environmental and social assessments undertaken during the design and planning phase.</li> <li>• Increased costs and risks due to inappropriate/insufficient emergency response planning (e.g. compensation to local communities due to inadequate management of an emergency situation).</li> <li>• Financial, operational and legal risks due to health and compensation claims from surrounding communities exposed to health and safety risks arising from construction activities (e.g. dust emissions or noise).</li> <li>• Additional costs and reputational risks may result due to the sourcing and transportation of building materials and the need to implement detours, also causing significant time delays to other users.</li> <li>• Additional costs and delays due to situations arising from labour influxes (e.g. tensions with local communities).</li> <li>• Inadequate use of security forces could trigger social tensions, which could significantly impact a company’s reputation and operations.</li> </ul>
<p><b>Opportunities for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Good design can avoid or significantly reduce negative impacts to local communities both during Project operations and in terms of long-term use of resources. It can also bring positive benefits. For example, by designing construction worker accommodation so it can transition into operational workforce accommodation and local community low cost housing.</li> <li>• Preferential local hiring can reduce the impacts on local communities of using migrant labour and any resulting potential conflict.</li> <li>• Good relationships with local communities can provide access to a better and/or bigger labour pool and enhance the protection of sites and machinery/assets.</li> </ul>

Guarding local communities’ health, safety and security is as important during the initial design and siting of a new Project or facility, as it is during construction and ultimate commissioning of buildings or facilities. Community health and safety risks and impacts associated with design and construction include:

**Health:** Increased incidence of communicable and vector diseases related to construction or ultimate operation activities (migrant labour and land clearing/stagnant water) can pose health risks to local communities and to the workforce. Excessive dust generation from land clearing

and excavation and poorly timed execution of works (i.e. premature clearing of land which is not followed immediately by next stage construction) can impact air quality for surrounding communities. Construction site personnel should undertake dust suppression and containment, and the site should be managed (including layout and works planning) to minimise dust generation where possible. Original design should ensure that any dust or emissions generating operational activities take into account prevailing winds and site aspect and are managed to avoid or minimise impacts to communities.

**Safety:** The first issue to be taken into account is Project siting. Where a Project (or an element of a Project) presents significant risks and/or adverse impacts to local communities, the Project sponsor should consider whether the Project (or some elements of the Project) could be relocated (e.g. large oil tanks could be relocated away from residential areas).

The use of large heavy equipment on site and local roads to deliver materials poses threats of traffic accidents and congestion. Facility layout design and construction planning should take seasonal or daily road use fluctuations into account when planning site access and delivery to minimise impacts on the local community. Activities such as awareness programmes, community engagement and signage can minimise the potential for road accidents. Where significant impacts are anticipated, it may be advisable for the Sponsor company and/or the main contractor(s) to appoint a community liaison officer to manage traffic detour planning and site access timing. Emergency preparedness focused on protecting local communities in case of accidents on or near the site should be a priority during design and construction.

**Security:** Most construction sites and certain critical national infrastructure (CNI) sites are protected in order to prevent theft of equipment and materials, or access by external parties for safety reasons. Companies should be guided by principles of proportionality, good international practice and by applicable law in relation to hiring, rules of conduct, training, equipping, and monitoring of security workers. Such principles include practices consistent with the [United Nation's \(UN\) Code of Conduct for Law Enforcement Officials](#) and [UN Basic Principles on the Use of Force and Firearms by Law Enforcement Officials](#). Project design should incorporate security elements to minimise potential negative impacts to local communities.

**Noise and vibrations:** Construction operations can generate significant noise and vibrations particularly during demolition activities, delivery of materials, use of large scale heavy plants on site, cement mixing, concrete pouring, steel pylon erection, jack hammer compression and tile cutting, all of which can negatively impact neighbouring land users and local communities. The design of new facilities should take operational noise into account in the siting and/or insulation of process equipment. Noise/vibration prevention and control measures should be implemented (e.g. selecting equipment with lower sound power levels and restricting noisy activities to reasonable hours) at the design and construction phase.

**Indirect impacts:** New developments under construction may be located in remote areas and their establishment and operation generally includes the development of some associated infrastructure including access roads, waste disposal sites, water abstraction, and sometimes, workforce accommodation. An influx of Project labour can pose risks to local communities such as exposure to communicable diseases, increased competition for natural resources (e.g. water, firewood, and arable land for workforce food supply). There is potential for conflict between local and migrant labour where there is seen to be a lack of local economic benefit from the new development, or where local labour is marginalised, or where migrant labour has been located without family.

**Cumulative impacts:** During the design and construction phase of a Project, cumulative impacts should be assessed as the Project risks and impacts may be exacerbated by the presence of other Projects or existing assets. Please refer to [CDC E&S Briefing Note: Cumulative Impacts](#).

For further general guidance on GIIP relating to community health, safety and security, refer to [CDC E&S Briefing Note: Community Health, Safety and Security](#) and [IFC Performance Standard 4: Community Health, Safety and Security](#), [UN Code of Conduct for Law Enforcement Officials](#), [UN Basic Principles on the Use of Force and Firearms by Law Enforcement Officials](#) and the [Voluntary Principles on Security and Human Rights](#). Where Indigenous Peoples will be affected, Free, Prior and Informed Consent (FPIC) should be obtained as described in [CDC E&S Briefing Note: Indigenous Peoples](#) and [IFC Performance Standard 7: Indigenous Peoples](#).

**2.8 Land access, use and acquisition**

<p><b>Risks for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Resettlement should be avoided wherever possible to avoid related costs and Project delays.</li> <li>• Poor or inadequate community relations can undermine the construction company’s license to operate.</li> <li>• Long timeframes and significant costs can be incurred when securing land and resource rights, especially if resettlement of people and/or significant economic displacement of communities is required.</li> <li>• Additional management costs and reputational damage can result from social opposition and criticism due to inadequate land purchase/access or acquisition practices (e.g. lack of transparency around allocation of development land or unresolved historic land claims). This is particularly the case if the Project is perceived to be a ‘land grab’.</li> </ul>
<p><b>Opportunities for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Significant time and costs can be avoided by conducting an Alternatives Analysis during the design phase to avoid/minimise physical and economic displacement (e.g. designing a transmission line, highway and/or railway to avoid (to the greatest extent possible) impacts on local communities).</li> <li>• Time and costs can be avoided by developing and maintaining good relations with local communities. This can help to manage their expectations and identify concerns (e.g. access to water and other ecosystem services).</li> </ul>

Construction activities may require access to and/or acquisition of large plots of land, which may result in temporary or permanent physical and economic displacement of communities. Companies may negotiate with Affected Communities before triggering the expropriation process as this could expedite the land acquisition process and would allow the company to manage the process (if an expropriation process is triggered, host country authorities would manage the process).

**Alternatives Analysis:** The company should conduct an Alternatives Analysis during planning (as part of feasibility planning and ESIA investigations), in order to try to avoid involuntary resettlement and, if not possible, minimise it..

**Land rights:** It is imperative to ensure that the company has (or is in a position to negotiate) the legal rights to own, access, and/or use the land. Additionally, it should be noted that land tenure and rights of use in emerging markets can be unclear and complex due to a lack of regulation, existence of customary/traditional land tenure and the presence of communities that occupy and use lands, but without a recognisable legal right or claim. Therefore, companies should conduct a robust assessment to identify affected peoples and design a Compensation Framework accordingly.

**Community relations:** It is critical for companies to develop and maintain good relations with local communities. Sufficient time and resources should be made available to consult with Affected Communities in a culturally appropriate manner. Efforts should be made to accommodate their needs and reasonable requests; however, it is important to manage the expectations of local communities, as well as take into account precedents that may have been set. It is important to view stakeholder engagement as an ongoing process and mechanisms should be in place or set up to hear grievances and address complaints.

**Compensation Framework:** Where a company's activities/Projects involve economic and/or physical displacement of local communities, it should develop and follow a Compensation Framework. The Compensation Framework should:

- Identify all affected people;
- provide an inventory of affected assets;
- describe the methods applied for valuing land and other affected assets at full replacement costs;
- indicate the rates of compensation to be paid;
- outline a schedule of land take and compensation payments; and
- describe the process whereby affected people can appeal property valuations they deem to be inadequate.

**Resettlement Action Plan:** Where affected people will be physically relocated, companies should implement a Resettlement Action Plan (RAP) designed to mitigate the negative impacts of displacement. The Plan should include the procedures that the company will follow and the actions that it will take to mitigate adverse effects, compensate losses, and provide development benefits to persons and communities affected by the company.

**Livelihood Restoration Action Plan:** In the case of activities/Projects involving economic displacement only, companies should develop a Livelihood Restoration Plan to compensate affected persons and/or communities and offer other assistance in accordance with good international practice. The Livelihood Restoration Plan should establish the entitlements of affected persons and/or communities and ensure that these are provided in a transparent, consistent, and equitable manner. The mitigation of economic displacement will be considered complete when affected persons or communities have received compensation and other assistance, and are deemed to have been provided with adequate opportunity to re-establish their livelihoods.

**Support for local facilities and infrastructure:** In some cases, companies may be asked to support community development or the provision of public services (e.g. construction or running of schools, clinics or other local services).

These types of efforts should not be used to trade off impacts that could have been avoided,

reduced or mitigated. It is important to follow the mitigation hierarchy (avoid, reduce, mitigate and fully compensate). Ultimately, the goal should be to ensure that community impacts are addressed in the first instance and to deliver additional mutually beneficial support thereafter.

For further general guidance on GIIP relating to land access and acquisition, refer to [CDC E&S Briefing Note: Land Acquisition and Involuntary Resettlement](#) and [IFC Performance Standard 5: Land Acquisition and Involuntary Resettlement](#).

**2.9 Biodiversity and ecosystem services**

<p><b>Risks for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Reputational damage associated with construction activities that directly or indirectly (e.g. contractors) have a negative impact on biodiversity (e.g. wholesale land clearing, access to construction materials or water or firewood).</li> <li>• Delays and significant additional costs in investments which affect protected areas or species, critical habitats or endangered species. Mitigation options may be unavailable, limited or very costly once construction has commenced.</li> </ul>
<p><b>Opportunities for the business/Project</b></p>	<ul style="list-style-type: none"> <li>• Time and cost can be avoided by conducting an Alternatives Analysis during the design phase in order to avoid/minimise impacts on sensitive/critical habitats. This can avoid significant time and costs in (i) getting additional environmental approvals; and (ii) designing, implementing and monitoring potentially complex mitigation and/or offsetting measures.</li> <li>• Increased production/productivity via better management and sustainable access to, and use of, natural resources (especially water).</li> <li>• Enhanced tender or contract positioning by construction companies where proactive management of biodiversity is evident. This may be further enhanced by certification to a credible voluntary standard that provides assurance regarding biodiversity concerns and minimises negative reputation risks.</li> </ul>

As with other E&S risks and impacts, Sponsor companies (and, where relevant, contractors) should always adopt a mitigation hierarchy to anticipate and avoid (or where this is not possible, minimise) impacts. Where residual impacts remain, steps to compensate/offset risks and impacts to the environment should be taken. This hierarchy of conservation measures aims to direct primary exploration and production to areas with the least biodiversity value. Typically, impacts on areas with high biodiversity values (e.g. protected areas) will require additional permits, longer planning and permitting timelines and more expensive management measures. Therefore, avoiding impacts on these areas will reduce the necessary costs of environmental management measures.

**Habitat alteration or degradation:** Habitat alteration or degradation is one direct potential threat to biodiversity associated with Project design and construction. Depending on the type of Project and its location, varying degrees of land clearing, habitat alteration and population immigration can result. All of these may extend beyond the immediate footprint of the Project e.g. through the



development of additional access roads, water and power supply infrastructure, and workforce accommodation.

***Impact on ecosystem services:*** Construction of new developments can also affect the provision of ecosystem services including: (i) soil formation and nutrient cycling; (ii) the provision of freshwater to local communities; (iii) protection from natural risks; and (iv) sacred sites and areas of importance for recreation and aesthetic enjoyment.

If impacts on biodiversity and/or ecosystem services are likely, Project sponsors should develop or ensure that the contractor develops and implements a construction environmental and social management plan (ESMP) in accordance with the mitigation hierarchy mentioned above. Construction companies should always request to review outcomes and recommendations of the Environmental and Social Impacts Assessment (ESIA) in order to develop their ESMP. Project sponsors should engage construction companies about their approach to implementing the ESMP.

For further general guidance on GIIP relating to biodiversity conservation and ecosystem services refer to [CDC E&S Briefing Note: Biodiversity and Ecosystems Services](#) and [IFC Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources](#).

### 3. BUSINESS INTEGRITY CONSIDERATIONS

Fund managers should ascertain and continue to ensure that every company (regardless of sector) complies with the fund's business integrity requirements. For further information see [Governance and Business Integrity](#).

#### 3.1 Business integrity issues specific to Project design and construction

Construction activities are high-risk in terms of business integrity, and construction is one of the most prominent sectors in foreign bribery prosecutions. In addition to standard business integrity concerns, risks that are particularly relevant for Project design and construction include:

- Contract, license and permit acquisition;
- Negotiations with government officials about planning changes and cost overruns.
- Use of agents, consultants and subcontractors.
- Joint ventures with state-owned entities and local companies.

Project sponsors should have robust systems for managing and overseeing interactions with local and national government officials. Third parties are also a known risk in the sector and Project sponsors and/or contractors may be asked by officials to consider specific agents, vendors, and even employees. Thorough screening procedures are required to prevent such risks in procurement and hiring and to ensure that the company only works with the right contractors and partners.

For further information on corruption risks refer to [Transparency International](#).

## 4. ADVICE FOR FUND MANAGERS

See also [CDC Environmental and Social Checklist](#) and [CDC Governance and Business Integrity Checklist](#) and [ESG in the Investment Cycle](#).

### 4.1 Risk overview

Several ESG issues may be material to a Project's long-term value, depending on the specific circumstances and geography. The complexity and materiality of the risks associated with Project design and construction depends on a number of factors including the location, size, nature and inherent risks linked to the asset to be built/expanded, construction duration and the number and type of workers involved in the construction. In general construction activities present medium to high E&S risks and impacts.

It should also be noted that construction activities are linked to high corruption risks. Therefore, it is critical that fund managers assess all business integrity issues during due diligence and insist that companies have strong systems in place to mitigate any operational risks.

Some sectors including infrastructure, power generation, transmission and distribution, heavy manufacturing, real estate mining, agriculture and aquaculture, and forestry activities related to exploration, land clearing/preparation and/or planting typically present complex, significant and diverse ESG risks and impacts that can have material implications for long-term shareholder value. Therefore, addressing ESG matters should be a central element of due diligence, investment structuring and on-going ownership and monitoring. Fund managers should seriously consider using independent ESG experts to support them in transactions in these sectors. More information on the latter three sectors listed here (mining, agriculture and aquaculture, and specific forestry activities) can be found in [CDC Sector Profile: Mining](#), [CDC Sector Profile: Agriculture and Aquaculture](#) and [CDC Sector Profile: Forestry and Plantation](#).

### 4.2 Relevance of the design and construction phase: opportunities

Typically, the feasibility and design phases of a Project are the most effective time to apply the mitigation hierarchy. This can avoid the most significant and costly E&S risks and therefore help to avoid unnecessary additional costs to the Project (e.g. appropriate location selection and/or changes in the design of a hydropower plant can significantly reduce the reservoir area needed). Additionally, the feasibility and design phases of a Project are often the best, and sometimes only, point to identify opportunities to be implemented before they become too complex or costly to implement. Examples include energy efficiency measures linked to the use of specific construction materials and/or building siting, design and construction as highlighted above. The design phase of any new Project or even any expansion or modernisation offers a chance to improve overall process efficiency and to avoid or limit longer term costly impacts. Early engagement with Project developers by fund managers around design elements is key to realising long-term value.

### 4.3 Scoping considerations

In addition to the aspects highlighted above that are linked to the company's assets, activities and workers, fund managers should take into account the following during the life of the investment, from screening to exit:

- **Associated facilities** (e.g. power transmission lines not owned/operated by the Project Sponsor).
- **Contractors** linked to significant E&S risks and impacts (e.g. EPC contractors are key in construction activities).
- **Supply chains** presenting significant E&S risks and/or impacts (e.g. local gravel suppliers for the construction of infrastructure).

#### 4.4 Situations requiring extra attention

Extra attention, longer timescales and more intensive ESG due diligence may be required in more complex situations. This will ordinarily involve engaging consultants to conduct a gap analysis against the applicable local and international E&S standards (typically [IFC Performance Standards](#) and [World Bank Group EHS Guidelines](#)). CDC's guidance on [Working with Consultants](#) may also be useful.

Examples of more complex situations include:

- Greenfield or medium/large scale developments/major expansion Projects involving involuntary economic and/or physical displacement, and/or where the scale of the operation has major pollution potential, and/or where the site is in a sensitive location (e.g. close to protected or critical natural habitats such as *RAMSAR* sites).
- Projects/large expansions presenting significant E&S issues or lacking ESIA compliance with [IFC Performance Standards](#) (or other internationally recognised standards) as this can result in: (i) insufficient/inadequate identification and assessment of the E&S risks, impacts and opportunities; and/or (ii) definition of management measures.
- Projects which may be associated with significant cumulative impacts i.e. The Project could exacerbate impacts generated by other Projects (or existing assets) or vice versa.
- Projects involving significant/numerous small-scale construction contractors, as these are often associated with significant E&S challenges such as poor environmental and (particularly) health and safety practices, heightened security risks to neighbouring communities and operations, and child and forced labour.
- Development Projects in water scarce areas especially where there is the potential for competition/conflict with other water users such as the agricultural sector or local communities.
- Transactions/geographies with high business integrity risks. It should be noted that construction activities present high corruption risks.
- Any other activities/Projects involving involuntary economic and/or physical displacement of communities or significant adverse impacts on biodiversity or ecosystem services, Indigenous Peoples, cultural heritage, or local communities.

## 5. STANDARDS, GUIDELINES AND OTHER RESOURCES

For authoritative guidance, fund managers should consult the applicable IFC Performance Standards and World Bank Group EHS Guidelines.

### 5.1 Applicable IFC Performance Standards

The IFC Performance Standards most commonly applicable to Project design and construction sector are:

- [IFC 2012 Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts.](#)
- [IFC 2012 Performance Standard 2: Labor and Working Conditions.](#)
- [IFC 2012 Performance Standard 3: Resource Efficiency and Pollution Prevention.](#)
- [IFC 2012 Performance Standard 4: Community Health, Safety and Security.](#)
- [IFC 2012 Performance Standard 5: Land Acquisition and Involuntary Resettlement.](#)
- [IFC 2012 Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.](#)

In addition, other IFC Performance Standards may be applicable depending on the specific characteristics and locations of a company's operations. The screening stage of the fund manager's ESG due diligence should always include a routine check for the potential presence of significant impacts covered by all the IFC Performance Standards.

### 5.2 Applicable World Bank Group EHS Guidelines

The most relevant World Bank Group EHS Guidelines for this sector are:

- [World Bank Group General EHS Guidelines.](#)
- Applicable [Industry Sector World Bank Group EHS Guidelines.](#)

### 5.3 Additional references, standards and guidelines

Refer to the relevant [CDC Sector Profiles.](#)