

1. Applicability

This sector profile is designed to help fund managers quickly familiarise themselves with the most frequent and important environmental, social and governance (ESG) aspects of investments in the telecommunications sector. It aims to be a starting point for thinking about ESG risks and opportunities, and not a detailed technical guidance document.

- [Using this sector profile](#)

A company can be affected by non-sector specific issues such as impacts on Indigenous Peoples and cultural heritage. Therefore, each company must be carefully considered based on its specific characteristics and circumstances including scale of operation, location, technology utilised, management capacity, commitment and track record, and supply chains. Additionally, environmental and social (E&S) impacts, risks and opportunities in a particular company or sector can change over time for a number of reasons (e.g. changes in the applicable laws, or expansion of a company’s activities or assets). Fund managers should have systems in place to identify such changes and manage any associated risks and impacts and, where possible, capitalise on new opportunities.

This sector profile draws on internationally recognised good practice standards and guidance, particularly the [International Finance Corporation \(IFC\) 2012 Environmental and Social Performance Standards](#) and the [World Bank Group Environmental, Health and Safety \(EHS\) Guidelines](#). The Profile identifies key standards that are generally applicable to the 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 all be taken into account and compliance with them should be regarded as the minimum acceptable performance standard.

See [Environmental and social checklist](#) and [Governance and business integrity checklist](#) for questions that a fund manager should ask when evaluating a telecommunications investment from an ESG perspective.

- 2. [Scope of this sector profile](#)

This telecommunications sector profile sector covers the operation and maintenance of

telecoms infrastructure, including:

- Fixed line communications and wireless voice and transmission infrastructure (e.g. terrestrial and submarine cables).
- Television and radio broadcasting systems.

The sector profile does not cover the production of films, broadcast material or advertising. It also does not address issues arising in the manufacture of cellular telephones or hardware associated with telecom services. Unless otherwise stated, this sector profile is only applicable to the operational phase of business activities. For consideration of general risks and impacts arising from construction of base stations refer to the [CDC Project Design and Construction Guide](#).

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 issues 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 E&S practices are likely to improve a company's reputation, access to investors and overall performance.

- [Management commitment, capacity and track record \(CCTR\)](#)
Companies need management's commitment and sufficient capacity to ensure that the necessary resources are available to appropriately implement and maintain E&S management. Refer to [CDC guidance: Assessing companies' commitment, capacity and track record](#).
- [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 [CE&S topic: Environmental and social management systems \(company-level\)](#).
- [Labour and working conditions](#)
Note - Occupational, health and safety is covered separately below.

Companies shall operate in accordance with applicable labour laws and regulations and ILO Fundamental Conventions. Please refer to [E&S topic: Labour standards](#).

- [Occupational, Health and Safety \(OHS\)](#)

Risks for the business

- Companies may face prosecution or fines (or have their licences revoked in extreme cases) if workers or contractors are injured or killed.
- Damage to/loss of the company’s assets with potentially costly transmission outages.
- Increased insurance premiums and potential legal claims can result from poor OHS practices.
- Low workforce morale and erosion of trust or industrial action as a result of poor practices can lead to higher staff turnover, additional training and recruiting costs and reputational damage.
- Use of security forces can present a risk for workers and local communities if security personnel are not carefully selected, trained and monitored. This can affect the company’s operations and reputation.
- 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.
- Quality of service can be improved and insurance premiums for workers’ and compensation payments reduced.

Opportunities for the business

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 level of risks.

If contractors are involved in operation and maintenance activities, companies should implement measures to ensure contractors work in accordance with applicable regulations and Good International Industry Practice (GIIP). Such measures should be covered in companies’ OHS and emergency preparedness and response management systems.

Specific OHS risks in the telecommunications sector can include:

- Physical hazards (e.g. elevated and overhead work during assembly of towers or

installation of antennae, work in confined spaces for underground fixed line installation, falls from height and motor vehicle safety).

- Electrocution (e.g. exposure to live power lines/sources during maintenance and operation activities).
- Exposure to electromagnetic fields (EMF) (e.g. working close to transmitting antennae emitting radio waves and microwaves).
- Exposure to noise (e.g. from backup power generators).
- Exposure to optical hazards (e.g. risk of permanent eye damage due to exposure to laser light during fibre optic cable connection activities,).
- Travel and work in remote sites (e.g. where base stations are located in remote sites, lacking basic infrastructure, locations that may sometimes require significant travel by dangerous roads/means).
- Fire risks (e.g. presence of flammable materials in high-powered laser installation areas).
- Security (e.g. telecommunications infrastructure is often a strategic asset for a country and is protected in order to prevent sabotage and fuel theft (this can be a very high risk in some geographies). Measures should be implemented to ensure that security forces are appropriately trained in the use of force and to respect workers' rights).

For further sector-specific guidance refer to the [World Bank Group EHS Guidelines for Telecommunications](#).

For further general guidance on GIIP relating to OHS, refer to [E&S topic: Occupational health and safety](#), [IFC Performance Standard 2: Labor and Working Conditions](#), [World Bank Group General EHS Guidelines](#) and [CDC Good Practice: Preventing Fatalities and Serious Accidents](#).

- [Resource efficiency and pollution prevention](#)

Risks for the business

- Fines and penalties can be imposed for non-compliance with national pollution prevention standards, especially for hazardous materials/waste management and air emissions.
- Excessive expenditure on energy supply.
- Excessive expenditure on management of solid waste.
- Lower operating costs, reduced environmental footprint and better preparedness for resource shortages or increased price of resources can result from the implementation of good practice design of telecoms facilities and through the adoption of energy efficiency measures and or the installation of renewal energy (e.g. solar photovoltaic panels).

Opportunities for the business

- The introduction of remote control systems for fuel consumption can help to monitor and optimise energy consumption and also identify oil theft at communication towers (as towers are numerous and wide spread, it is not always possible to have 24/7 security at each tower).
- In some instances, telecommunications companies can investigate take back/reuse/recycling programs for consumer equipment such as cellphones and their batteries.

Energy efficiency: Where possible companies should seek to introduce energy efficiency measures as they can substantially reduce operating costs. Through improved net energy conservation ratio (i.e. energy output per unit of energy/fuel input). This can also help to future proof companies against increasing stringent global air emission regulations.

When evaluating the design, financing and operation of telecoms facilities companies should seek to explore the business opportunities that arise from the use of cleaner technologies and the adoption of energy efficiency measures as a means to reduce operating costs and anticipate regulatory changes.

There are increasing opportunities to use renewable energy in the telecoms sector, particularly through the installation of solar photovoltaic panels in telecommunication towers. Using solar photovoltaic panels not only reduces GHG emissions, it also reduces the need to transport fuel to remote areas, so reducing the risk of spills, fire and theft (of oil or diesel). However some precautions may need to be taken to prevent the theft of solar panels.

Air emissions: The primary sources of air emissions in the telecommunications sector are the exhaust fumes from vehicle fleets and power generation where diesel

generators are used. Telecommunications companies should ensure that any new equipment purchased meets international phase-out requirements for hazardous emissions, and that the disposal of existing equipment is in line with the good practice outlined below.

Waste management: The telecommunications sector does not directly generate significant waste material. However, the batteries from power generation and electronic processes as well as waste oils and the components of irreparable transformers and cooling equipment, which are by-products of the sector, are hazardous waste and require careful handling.

Companies must ensure that even small volumes of potentially hazardous waste (e.g. used oil, circuit boards etc.) are stored, handled, transported and disposed of according to GIIP and in a manner that prevents environmental contamination or danger to workers or nearby communities. Telecommunications companies should investigate introducing take back/reuse/recycling programs for consumer equipment such as cellphones and their batteries.

For further sector-specific guidance, refer to the [World Bank Group EHS Guidelines for Telecommunications](#).

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

- [Community health, safety and security](#)

Risks for the business

- Social license to operate can be put at risk if social impacts and/or community relations are not well managed, particularly regarding information around the perceived health impacts of electric and magnetic fields or around the visual impacts of cellphone towers and noise from backup generators.
- Reputational damage and significant management costs can be incurred to address social opposition and criticism from perceived risks.
- Inadequate use of security forces could trigger social tensions, which could significantly impact a company's reputation and operations.

Opportunities for the business

- Engaging with the community and addressing community impacts at the initial design phase and in the siting and management of telecommunications services can help ensure long term successful operation of the facility including protection of infrastructure.

Emergency preparedness and response: Companies must implement emergency preparedness and response systems to respond to accidental and emergency situations associated with the company’s activities in a manner appropriate to prevent and mitigate any harm to people and/or the environment. Companies should develop these systems in collaboration with appropriate and relevant third parties (e.g. local authorities).

Health: Risks of exposure to electromagnetic fields raise the most high-profile public concern in the telecoms sector in terms of the potential health effects. Telecommunications companies should follow the results of emerging authoritative research results with regard to health effects and adopt a preventive and risk minimisation strategy (see [World Health Organization](#)). Community consultations should be undertaken to agree antenna towers sites and good engineering practice should be used for the installation of directional links.

Safety: Masts and towers and associated power supplies should be secured to prevent public access and illegal power connections. Fences, signs and security guards can be used to ensure that sites are secure. Mast design should incorporate anti climbing devices and follow GIIP. Mast design should also consider potential natural hazards and proximity to airports and flight paths. Refer to the standards recommended for steel antennae towers by the [Telecommunications Industry Association](#).

Security: Telecommunications infrastructure often needs to be protected to prevent illegal power connections, the theft of components/fuel and of sabotage or access by external parties for safety reasons. Companies should be guided by principles of proportionality and good international practice in relation to hiring, rules of conduct, training, equipping, and monitoring of any workers and by applicable law. These practices are consistent with the standards and principles set out in the general guidance documents referenced throughout this document.

Noise: Back-up power generators are a source of noise for surrounding communities. Telecommunications service providers should seek to ensure that design and operation of base stations will minimise noise by the careful positioning of generators (e.g. away

from residential areas) and through the deployment of noise suppression shields.

For further sector-specific guidance, refer to the [World Bank Group EHS Guidelines for Telecommunications](#).

For further general guidance on GIIP relating to community health, safety and security, refer to [E&S topic: Community health, safety and security](#), [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 [Voluntary Principles on Security and Human Rights](#).

7. [Land access, use and acquisition](#)

Telecommunication towers typically require the acquisition of small (but sometimes numerous) plots of land (mainly for tower installation and also for associated facilities such as access roads. Telecommunication towers are often regarded as critical national infrastructure (CNI). Therefore an expropriation process could be triggered, though usually companies and governments will seek to negotiate with affected communities before triggering an expropriation process.

For further general guidance on GIIP relating to land access, use and acquisition refer to [CDC Project Design and Construction Guide](#) and [E&S topic: Land acquisition and involuntary resettlement](#) and [IFC Performance Standards 5: Land Acquisition and Involuntary Resettlement](#).

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 [Business integrity](#).

- [Business integrity issues specific to the telecommunications sector](#)

The telecommunications industry is particularly vulnerable to corruption because of its complex governance structures and the significant interaction between public and private entities. Licensing processes, regulation and price setting are areas which are

particularly prone to corruption. Conflicts of interest and hidden ownership by government officials are also known risks in the sector.

Petty corruption in customer services is also an identified risk and the sector is also subject to increased scrutiny regarding potential data security risks.

Companies should have strong systems in place for managing engagement with government officials and customers. These systems should also be independently audited.

For further guidance please refer to [Transparency International – Overview of corruption in the telecoms sector](#).

4. Advice for Fund Managers

See also the [Environmental and social checklist](#) and [Governance and business integrity checklist](#) and [Investment cycle](#).

- [Sector risk overview](#)

There are a number of ESG issues that may be material to the long-term value of telecommunication companies. These risks will vary depending on the specific circumstances and geographies of each company. Fund managers should expect to find that while ESG risks and impacts can be complex, they can usually be addressed through the application of widely used, proven techniques and management practices (although this will need to be assessed on a case-by-case basis). External consultants can be engaged to advise on ESG matters, depending on inter alia the nature, scale and location of a company’s operations, its track record and the fund manager’s expertise and capacity to conduct appropriate E&S due diligence.

It should be noted that the telecommunications industry is particularly vulnerable to corruption because of its complex governance structures and the significant interaction between public and private entities. Fund managers should ensure that adequate systems to mitigate these risks are implemented by companies.

- [Scoping considerations](#)

In addition to the aspects highlighted above relating to a company’s assets, activities

and workers, fund managers should also take into account the following during the life of the investment, from screening to exit:

- **Associated facilities:** (e.g. access roads, transmission lines to electrify the towers).
 - **Contractors:** Whose operations present significant issues which could have an impact on the business (e.g. construction contractors, land clearing, security services).
 - **Supply chains:** Where these could present significant E&S risks. Even where a company cannot directly address risks because it lacks leverage or commercial influence, it is important that fund managers are aware of the risks. For further guidance on supply chains refer to [E&S topic: Supply Chains](#).
- [Situations requiring extra attention](#)
Extra attention, longer timescales and enhanced ESG due diligence may be required in more complex situations. This will ordinarily involve engaging consultants (see CDC Guidance: Working with Consultants) to conduct a gap analysis against the applicable local and international E&S standards (e.g. [IFC Performance Standards](#) and [World Bank Group EHS Guidelines](#)).

Examples of activities or situations in the telecoms sector which require extra attention include:

- **New Projects/Expansions:** Greenfield construction/major expansion Projects, particularly where the site is in a sensitive area (e.g. close to housing).
- **Associated Facilities:** In some cases associated facilities (e.g. access roads) present additional E&S risks and impacts which need to be assessed.
- **Security:** Given the strategic nature of the telecommunications sector, assets will typically require the implementation of significant security measures. This is often exacerbated in areas with high security risks. Additionally fuel theft in telecommunication towers can be a major concern in some regions.
- **Privacy and security concerns:** These may be raised by customers with significant

impacts on business success. Investors should ensure that telecommunications operators engage with host governments to clearly establish their responsibilities in areas such as security, anti-terrorism and appropriate content for children. They should also collaborate with suppliers and partners to tackle privacy and security issues in new service areas such as cloud security and mobile applications.

- Transactions/geographies with high business integrity risks: It should be noted that the telecommunication sector is considered particularly vulnerable to corruption because of its complex governance structures and the need for significant interaction between public and private entities.
- Any activities 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 Guideline(s).

- [Applicable IFC Performance Standards](#)

The IFC Performance Standards most commonly applicable to investments in this 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.](#)

Other IFC Performance Standards may be applicable depending on the specific characteristics of the investee company. 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 the IFC Performance Standards.

- [Applicable World Bank Group EHS Guidelines](#)

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

- [World Bank Group General EHS Guidelines.](#)
- [World Bank Group EHS Guidelines for Telecommunications.](#)

- [Additional references, standards and guidelines](#)

Additional reference, guidelines and resources:

- [International Commission on Non Ionizing Radiation Protection.](#)
- [Telecommunications Industry Association.](#)
- [Occupational Safety and Health Administration \(OSHA\) Telecoms Standards.](#)
- [World Health Organization - Electromagnetic fields.](#)
- [Transparency International - Overview of corruption in the telecoms sector.](#)
- [Good Practice: Managing Road Safety in Emerging Markets](#)