European Bank
for Reconstruction and Development

Sub-sectoral Environmental and Social Guidelines: Telecommunications (including radio, television services, production studios, broadcasting stations, satellite stations, etc.)

PROCESS DESCRIPTION

Telecommunications is the assisted transmission of signals over a distance for the purpose of communication.

A basic telecommunications system consists of three elements:

- A transmitter that takes information and converts it to a signal (for example, in a radio broadcast the broadcast tower is the transmitter);
- A transmission medium that carries the signal (air in the case of radio waves or mobile phone signals; or cables, wires or optical fibres in the case of internet or phone signals)
- A receiver that receives the signal and converts it back into usable information (phones, radios, computers)

Environmental and social impacts can be associated with these three steps of the value chain.

Manufacture of telecommunications equipment (cables, data servers, satellites, computers, phones etc.)

Scope – This sub-sector guideline does not deal with the impacts associated with the manufacture of telecommunications equipment since these are covered by other sub-sector guidelines. Please refer to the relevant sector guidelines such as the *Electronic and Electric Equipment* and the *Metal Industries* guidelines.

Key environmental impacts for this value chain step would include; energy and water use; mining impacts on land use and biodiversity; hazardous chemicals use; and, air and water emissions. Social impacts would include; labour standards; metals mining impacts on local communities; and, bribery and corruption.

Installation, construction and set-up of telecommunications systems (antenna/mast erection, cable laying, telegraph poles, satellite launch, construction of exchange buildings etc.)

Scope – This sector guideline covers the laying of cables (overhead and underground). However it does not deal with impacts associated with the construction of buildings (for instance, exchange buildings and radio towers), antenna/mast erection, and the launching of satellites.

Construction activities are covered by the *Construction* sub-sector guidelines. The main impacts associated with construction are; land use change, biodiversity and adverse visual impacts; resource use (water, energy, wood, silica in cement etc.); air and water pollution; and, soil contamination. Labour standards and occupational health and safety are also important considerations.

Impacts associated with the launching and positioning in orbit of satellites are also out of scope. The main impacts would include; fuel use and impacts on climate change; air pollution; and, disposal of used/obsolete launching and satellite components.

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Operation, maintenance and disposal/decommissioning of telecommunications systems (energy consumption, maintenance of telephone exchange systems and cables, disposal of obsolete data servers etc.)

Scope – This guideline covers the operation and maintenance of telecommunications systems, including end-of-life impacts of equipment used. However, the end-of-life impacts of construction and satellites are out of scope.

Recommendation: Consult *Cable Television*, *Mobile Phone Systems* and other sub-sector guidelines as appropriate for comprehensive guidance.

KEY ENVIRONMENTAL, HEALTH AND SAFETY RISK/LIABILITY FACTORS

Energy use and climate change impacts

The Information and Communications Technology (ICT) sector is a major energy consumer. For instance, it is estimated that ICT equipment accounts for roughly 10% of the UK's total electricity consumption. Globally, ICT accounts for approximately 2% of all carbon emissions, which is similar to the emissions of the airline industry. The telecommunications sector is responsible for half of this climate change impact through energy use associated with its products, data centres and routers.

Companies can help reduce their contribution to this issue by developing or purchasing low energy products (laptops, mobile phones, servers), by implementing energy efficiency measures in operations (switching off equipment not in use, optimal temperature levels and ventilation in data centres, server virtualisation etc.), and by reducing energy intensity (by switching to renewable sources of energy for instance).

Habitat alteration and disruption to local flora/fauna

The laying of underground/underwater cables and the construction of infrastructure such as overhead cables has a direct impact on the immediate environment. In addition, roads may need to be developed to allow access to infrastructure located at previously undeveloped land. Care must be taken not to disrupt critical ecosystems (such as coral reefs) and existing transport/utility corridors should be used if possible. Re-vegetation of disrupted land must be undertaken once installation work has been completed. Overhead cables and transmission towers could cause physical harm to birds, through collisions for instance.

Hazardous substances and disposal of waste

Operations do not typically require significant use of hazardous materials. However, if the scale of operations is large or if major renovations are undertaken the impacts could be significant. For example, data centres sometimes store significant quantities of fuel (such as diesel) for back up generators.

Fuel and batteries (which may contain lead, nickel or cadmium) might be used in back-up power systems and generators. Transformer equipment may potentially contain

Polychlorinated Biphenyls (PCBs) as coolants/lubricants. These and other wastes (servers, optical fibres) should be disposed of according to national and international standards. If they are improperly disposed of by dumping in landfills these toxic compounds could leach into the soil and cause contamination. The EU Waste Framework and Hazardous Waste Directives are examples of legislation that aim to control the composition and volume of waste streams in the EU. National legislation will differ in terms of requirements on companies that manufacture and use telecommunications equipment.

Occupational Health and Safety

Depending on the nature of the employee's role health and safety issues could include:

- Manual handling of equipment;
- Electrical equipment related hazards;
- Trips and falls;
- Ergonomic stress (from sitting at desks all day); eye strains and headaches (if employee uses a computer);
- Eye damage (exposure to laser light while working with optical fibres);
- Accidents from machine and tool use (during installation of cables);
- Vehicle use;
- Exposure to hazardous substances (during disposal phase of equipment).

Electrical safety – Telecommunications companies use significant quantities of ICT equipment in their operations. This would include data servers, electrical wiring and cabling and computer systems. If proper precautions are not taken these electrical systems could pose a threat to workers who are either working with or around the systems, or workers who are responsible for maintaining, installing and upgrading the systems. Workers may also be exposed to danger by coming in contact with live wires during laying or maintenance of cables.

Health and safety issues associated with construction can be found in the *Construction* sub-sector guideline.

Electromagnetic fields (EMF) and employee health – Transmission of signals and use of telecommunications devices emit electromagnetic radiation known as radiofrequency (RF) fields. There are concerns that prolonged exposure to RF fields could lead to serious health issues such as different types of cancer, reproductive problems, congenital anomalies and epilepsy. The World Health Organization (WHO) has found that there is no evidence to demonstrate that exposure to low level RF fields (such as those associated with base stations and mobile devices) leads to these health issues. However, this is an area that the WHO and other bodies continue to research. Companies should monitor RF field levels to ensure that employees and communities are not exposed to health risks. International exposure guidelines have been developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP).

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OTHER POTENTIAL ENVIRONMENTAL ISSUES

Vehicle fleet impacts on air quality and climate change

Telecommunications companies typically have large fleets in order to undertake maintenance activities, service customers and provide company cars. This impacts air quality (particulate matter, SOx, NOx etc.) and climate change (carbon dioxide emissions). The degree of impact would depend on size of fleet, age of fleet, vehicle type, fuel use and average number of miles travelled.

Visual impacts

Overhead cables and transmission towers may have an affect on the physical scenery. The degree of impact will depend on the type of land (rural vs. urban), surrounding land use (nature reserve, housing, commercial etc.), and local attitudes.

Air emissions

Chlorofluorocarbons (CFCs) can be used as coolants in the telecommunications industry and halons as fire suppressants. International and national agreements are in place to plan the phasing out of these ozone depleting substances (ODSs). The Montreal Protocol is the international treaty that governs this effort globally and countries have individual targets for the phasing out of substances under the treaty.

Responsible timber sourcing

Over-ground cable routes frequently use timber for cable supports, and timber can be used for telegraph poles. Care should be taken to ensure that timber supplies are sourced from sustainably managed forests and are not associated with illegal logging.

KEY SOCIAL, LABOUR AND COMMUNITY RISK/LIABILITY FACTORS

Community health

As with occupational health and safety (see above), there is concern that radiofrequency (RF) fields will have an impact on the health of communities. This could be as a result of proximity to a base station, or from the use of devices. Companies should monitor RF field levels based on the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines and engage openly with communities on the subject.

Community engagement

Consultation with local communities is important while exploring sites for new base stations. In the case of underwater cable work, potential impacts on fishery activities during the cable work should be discussed with concerned and affected stakeholders involved in the fishery sector. This can help ease obtaining planning permission and build the company's 'licence to operate' within the community. Unless an open consultation process is undertaken, community attitudes towards the company and its local operations might be negative, which could have

an impact on employee recruitment/morale and the reputation of the company. Continued consultation and communication is required during construction and installation phases. Ongoing engagement with the community is also desirable to understand and respond to concerns as they arise (on issues of electromagnetic radiation for instance).

Educating consumers and changing behaviour – Television services and broadcasting companies have access to thousands of viewers. Through the choice of programming content operating companies have the potential to educate viewers on social and environmental issues (such as waste and recycling) and to encourage behavioural change.

Waste disposal in developing countries

Export of waste telecommunications equipment to developing countries has impacts on communities in those countries. There is a waste stream, legal and illegal, that extends from the developed countries to developing countries like China, India, Nigeria and Ghana. These countries often lack the facilities to process these waste streams which leads to dumping without processing. There are often poor working conditions in scrap yards and recycling centres. According to a Greenpeace report, the workers, often children, are exposed to toxic chemicals when waste products are broken down to extract valuable constituent materials (for example copper).

Increasingly legislation seeks to mitigate the negative environmental and social impacts caused by e-waste. Examples of such regulation are the EU Waste Electrical and Electronic Equipment Directive (WEEE) and the Restriction of Hazardous Substances Directive (RoHS).

OTHER POTENTIAL SOCIAL, LABOUR AND COMMUNITY ISSUES

Labour standards

Labour standards are rules that govern working conditions and industrial relations. They may be formal, such as national level regulation and international agreements, or informal, expressed through norms and values. In general, developed countries have more robust labour standards than developing countries where the associated risks are higher. The commonly accepted rights and principles enshrined in the International Labour Organization conventions are the right to collective bargaining, elimination of forced or compulsory labour, abolition of child labour and elimination of all forms of discrimination. In addition fair wages and working hours, and acceptable working conditions should be expected.

If a company does not follow minimum labour standards it could risk damage to its reputation and brand. The scale of the risk would depend on how sensitive key stakeholders (customers, investors, shareholders etc.) are to the issue.

In general labour issues are not a significant risk in the telecommunications sector as the workforce is skilled for the most part. However, with respect to contractors working on installation or maintenance of equipment or call centre workers (if application) care should be taken to ensure that minimum standards are upheld.

Outsourcing and offshoring – Outsourcing could be an issue within the telecommunications sector. There could be backlash in the home country over job losses. Labour standards (working hours, working conditions, wage rates) may be an issue in the target country.

Labour standards should apply to the company's own employees as well as to all contractors and sub-contractors engaged. In addition, labour standards should be expected to be enforced by key suppliers.

Ethics and bribery

Strong governance structures and transparency in reporting are also important, particularly since charges of corruption and bribery can negatively impact a company's reputation and its ability to enter into business relations with partners.

Companies may use unethical means (such as bribery) to gain planning permission or to be given preferential treatment by the government. For instance, leading global telecommunications companies have been implicated in charges of bribery involving government tenders in developing countries.

Unethical practices have become a recent issue for this sector, especially in relation to 'reality TV' programmes. For instance, many such programmes involve viewer voting and there have been allegations of 'fixed' voting, or phone-in lines staying open despite voting closing and therefore incurring costs to the viewer, as well as accusations of unjustifiably high fee rates being charged for calling in. All of the above can give rise to risks of litigation, financial penalties and reputation damage.

Responsible programming – Telecommunications companies need to take care with regard to the content of programming. In particular, it is important to ensure that programmes and advertisements shown are appropriate to audiences and time of day. For example, children should be protected from harmful content by ensuring it is shown only in late evening hours. Other programming issues include content that might be inappropriate on grounds of inciting hatred or violence, or causing offence to certain groups in society. Very often, there exists legislation or guidelines that regulate content and timing of programming. For instance, the EU Television without Frontiers Directive sets out a minimum set of common rules covering aspects like television advertising, production of programmes and protection of minors.

The risks are higher in developing countries where institutional checks and enforcement are weaker. A formal business code of ethics is now standard practice for many companies. Best practice would include a robust whistleblowing process involving guidelines and methods of communication such as an anonymous hotline.

Upstream supply chain risks

Labour standards and human rights violations in the company's supply chain can impact its ability to continue to serve discerning markets. Customers increasingly expect responsible sourcing from companies they buy services and products from. It is therefore incumbent upon telecommunications companies to ensure that ethical practices are followed all through their supply chains. This can be ensured by working with suppliers who demonstrate similar values

and principles (e.g. through supplier audits to ensure that suppliers subscribe to acceptable labour standards, or dealing with suppliers who have signed up to international labour frameworks such as the UN Global Compact).

Data security

Telecommunications companies may store data that contains sensitive information relating to customers' personal lives. It is the duty of the company to use this information responsibly and to protect customers' privacy, including when data storage systems are being decommissioned. Release of information inappropriately could cause reputational damage, and might involve legal action.

FINANCIAL IMPLICATIONS

Regulatory compliance

There might be costs associated with complying with changing regulatory requirements. These costs might be associated with the phasing out of hazardous substances and ozone depleting substances. Manufacturers and suppliers of equipment may pass increased costs on to telecommunications service operators. There might also be costs associated with handling and disposal of the waste stream as greater accountability is demanded of companies using telecommunications equipment. Depending on national legislation non-compliance could have financial implications for the business in terms of fines.

Litigation and compensation

The company could incur costs if legal action is taken against it. Action could be initiated by; employees over health and safety incidents; the government over non-compliance or breach of regulations; or, local communities and government agencies to prevent further infrastructure development in the area over site selection or health concerns. Companies may also need to compensate owners for laying cables through their land.

For instance, breaching regulation with regard to what can be broadcast and when (e.g. watershed rules etc.) could cause fines to be levied against the company. A recent phenomenon has been breaches connected with viewers calling into programmes to vote, and being charged for doing so even after voting has closed.

Reputational risk and licence to operate

Damage to reputation (due to either environmental or social impacts or failures, or ethical breaches) could severely damage brand value and impact the company's licence to operate.

This might require long-running and costly efforts to attempt to restore trust and reputation, and reassure stakeholders such as investors, shareholders, customers and the public. This is in addition to associated litigation costs and compensation payments that might be incurred. Such reputational damage could occur if; consultation has not been adequately carried out; accusations of labour standards violations or unethical business practices are made; the company has a poor health and safety record; or,

it has a poor record of disposing of hazardous material containing waste. Costs may also be associated with land rehabilitation after construction and cable laying activities (even though this might not be a legal requirement). However, this is important to maintain good relations with local communities to ensure that future planning permission is not delayed.

IMPROVEMENTS

Companies can implement improvements to better tactically manage the environmental and health & safety risks of their business. Examples of such improvements are given below.

Environmental

- Consider low-energy options while upgrading equipment;
- Consider low-energy options while selecting devices to offer customers (by partnering with suppliers that offer energy efficient products);
- Consider using energy sources that are low carbon intensive (such as renewables, combined heat and power);
- Consider implementing an energy efficiency plan to minimise carbon emissions from operations (including logistics);
- Fit secondary containment on bulk fuel/oil storage tanks;
- Ensure that new equipment, and cooling and fire suppressant systems do not contain PCBs or ozone depleting substances (ODSs);
- Phase out equipment and systems that contain hazardous materials;
- Plan for responsible disposal of equipment that contain hazardous substances (such as lead batteries) by working with certified recycling or waste disposal companies;
- Consider implementing a take-back programme for customer devices such as mobile handsets;
- Avoid ecologically sensitive areas while planning new site locations;
- Plan laying of cables along existing transport/utility corridors;
- Avoid sensitive ecosystems (such as coral reefs) while laying underwater cables;
- Avoid construction or installation activities during breeding of sensitive species;
- Rehabilitate impacted land with native vegetation.

Health and Safety

- Monitor, and report where necessary, radiofrequency field levels;
- Train employees on proper health and safety procedures (including ergonomics);
- Designate first-aid wardens and provide additional training;

- Ensure adequate fire control and safety equipment is provided (fire extinguishers, first-aid kits);
- Ensure electrical safety through; regular testing of all electrical equipment; care of cables, plugs and leads, and; ensuring that only trained personnel maintain and operate sensitive equipment;
- Train employees on safe driving techniques (for installation operation/maintenance activities);
- Provide appropriate tools and personal protective equipment (for maintenance of cables, data servers etc.);
- Control warehouse accidents by ensuring that; fork-lift trucks are maintained and inspected regularly; trucks are operated only by approved and trained staff; and, only authorised personnel are allowed in yards for deliveries and dispatch.

Social and Labour

- Implement a formal code of conduct, which outlines the principles by which individual employees and the organisation must conduct themselves;
- Implement a specific broadcasting code of conduct. Typically, elements would address: protection of children from harmful content; prevention of offensive material; avoidance of infringement of privacy, and; prevention of material which may incite crime or lead to disorder;
- Develop a policy covering labour practices for contractors and sub-contractors;
- Develop a policy to ensure that labour standards are upheld if outsourcing and offshoring are part of the business model;
- Develop a policy on data protection and privacy;

Community

- Begin the consultation process early to understand concerns of key stakeholders (local communities, environmental NGOs, local government authorities etc.) while planning new site locations (for base towers, cable routes etc.);
- Plan regular consultation sessions with local communities to understand on-going impacts (visual impacts, concern over RF field health impacts etc.);

In addition, best practice might include:

- Communication on safe use of telecommunications devices;
- Support for local and SME suppliers through selective procurement policies;

GUIDE TO INITIAL DUE DILIGENCE SITE VISITS

The issues and risks associated with a site will vary depending on size of operation, site location, country of operation and quality of management. During an initial site visit to a site it will be important to assess the following:

Environmental, and Health and Safety

- Are there processes in place to ensure that key suppliers comply with environmental and labour standard requirements;
- Does the company have a plan in place to phase out equipment and systems that contain hazardous or ozone depleting substances?
- Does the company have a policy to help track disposal of waste products and their impacts?
- Does the company have a strategy to manage energy use and carbon emissions?
- Does the company track and communicate radiofrequency field levels (using an internationally recognised standard such as the guideline developed by the International Commission on Non-Ionizing Radiation Protection [ICNIRP]);
- Check whether the site has any outstanding fines, or a record of poor relationships with environmental regulators and other authorities;
- Have there been any recent (within the last three years) incidents on site such as serious injuries, fires etc. Is there insurance in place to cover such incidents?
- Check whether general health and safety precautions are being taken. This would consider:
    - Whether staff are wearing appropriate personal protective equipment (if applicable);
    - Whether appropriate signage is present around the site warning of health and safety dangers;
    - Whether staff have received appropriate training;
    - Whether fire extinguishers and first-aid kits are available.
- Have the premises been inspected recently (within the past 2 years) by the regulatory authorities for health, safety and environment?

Social

- Check that there is a policy in place covering ethical programming;
- Check that there is a policy on data protection and privacy.

Labour issues

- Check that the company has an official and documented HR policy in place;
- Check that labour standards, contracting and remuneration are in line with national law and are consistent with the average for the sector;
- Check that hours worked, including overtime, are recorded and that staff receive

written details of hours worked and payment received;

- Has the Company received inspections from the local labour inspectorate in the previous three years? Have these resulted in any penalties, fines, major recommendations or corrective action plans?
- Does the organisation have a grievance mechanism which allows employees to raise workplace concerns?
- Are employees free to form, or join, a workers' organisation of their choosing?

Community engagement

- Is there a policy and process for regular consultation with local community representatives?
- Is there a policy to prioritise community concerns and integrate into management decisions?
- Is there a process to communicate progress to local communities and other relevant stakeholders (such as local government authorities, NGOs etc.)?

ACTION PLAN

An action plan would enable the company to develop policies and processes that would strategically manage risks along its value chain.

Environmental

- Develop an overall environmental strategy, supported by functional level policies and targets;
- Communicate the company environmental strategy and progress against commitments to stakeholders (as part of a separate sustainability report or a section of the annual report);
- Implement an environmental management system certified to a recognised standard such as ISO 14001;
- Implement a carbon management strategy to monitor and reduce energy use and carbon emissions;
- Implement a programme to phase out equipment and systems that use hazardous or ozone depleting substances (including working with key suppliers to ensure that their products are sustainably produced);
- Implement a programme to monitor and reduce impacts associated with waste streams and waste-to-landfill.

Health and Safety

- Develop a formal Health and Safety policy;
- Maintain a schedule to track training given to workers and managers on safety policy and procedures;

- Develop Key Performance Indicators (KPIs) for Health and Safety measures with monitoring, reporting and target setting;
- Encourage a culture of 'safety first' through communication from the top;
- Incentivise a culture of safety by linking H&S performance to reward structures;
- Consider implementing a Health and Safety management system, certified to a recognised standard, such as the Occupational Health and Safety Assessment Series OHSAS 18001 or the International Labour Office ILO-OSH 2001 system.

Social, Labour and Community

- Design and communicate an appropriate code of business conduct that considers concerns of key stakeholders (shareholders, employees, government bodies, NGOs);
- Develop an ethical broadcasting code of conduct on responsible programming;
- Develop a policy on data protection and privacy;
- Implement best-practice labour standards (in line with ILO principles); consider signing up to international frameworks such as the UN Global Compact;
- Implement a process to assess labour and human rights conditions for contractors, sub-contractors, and workers associated with supply chains of key suppliers;
- Design a robust and on-going community engagement process to measure and report on impacts (positive and negative) on local communities;
- Consider measuring and communicating wider socio-economic impacts (job creation, infrastructure development) – for example using the WBCSD Measuring Impact Framework.

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REFERENCES AND ADDITIONAL SOURCES

International Labour Organization declaration - http://www.ilo.org/declaration/thedeclaration/lang--en/index.htm

UN Global Compact - http://www.unglobalcompact.org/

The World Business Council for Sustainable Development (WBCSD) - http://www.wbcsd.org/

The World Health Organization – Electromagnetic fields and public health fact sheet - http://www.who.int/mediacentre/factsheets/fs304/en/index.html

IFC Environmental, Health and Safety Guidelines – Telecommunications - http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/gui_EHSGuidelines2007_Telecommunications/$FILE/Final+-+Telecommunications.pdf

Television Without Frontiers Directive - http://europa.eu/scadplus/leg/en/lvb/l24101.htm

ICNIRP guidelines - http://www.icnirp.de/documents/emfgdl.pdf