European Bank
for Reconstruction and Development

Sub-sectoral Environmental and Social Guidelines: Mobile Phone Systems

PROCESS DESCRIPTION

Mobile phone systems include the production and use of mobile phones and associated transmission networks.

Environmental and social impacts can be associated with the following value chain segments of the mobile phone systems sub-sector:

- Manufacture of mobile phones – Typically mobile phone manufacture comprises the assembly of the component parts which will be provided by a number of different suppliers. The sustainability issues associated with manufacture lie principally with the component part manufacture, namely that of batteries, silicon chips and plastic moldings;

- Establishment and operation of the transmission network (repeaters, receivers etc.) – This is primarily an issue of visual impact and habitat degradation, energy use, and concern with regard to electromagnetic field impacts on health;

- Impacts associated with use, disposal and recycling of mobile phone systems – This concerns energy use, responsible use and disposal of devices.

Scope of this guideline – Impacts associated with the establishment and operation of the transmission network are out of scope. These are covered in the *Telecommunications* sub-sector guideline. This guideline covers the impacts associated with the manufacture, distribution, use and disposal of mobile phones.

Sustainability issues associated with the manufacture of mobile phones are also covered in the *Electrical Goods* guideline.

KEY ENVIRONMENTAL, HEALTH AND SAFETY RISK/LIABILITY FACTORS

Hazardous substances (soil and water contamination)

Key components of mobile phones can contain toxic and hazardous substances, for example:

- Cover and key pad – chromium, PVC, brominated flame retardants

- LCD screen – liquid crystals

- Circuit board – lead, brominated flame retardants (PBB, PBDE), mercury

- Battery – cadmium, nickel, lithium

These substances may leach into soil and groundwater if the products are improperly disposed of (in landfills for instance).

In addition the manufacturing process uses substances such as solvents, paints/inks, machine and cutting oils etc. If the company generates its own power on-site fuel may be used as well. These compounds may cause contamination during transport, storage, handling and use.

Waste management

Disposal of mobile phones is an issue in terms of contributing to the volume of waste streams

and to waste sent to landfills (in addition to the issue of contamination due to hazardous substances). The greater the volume sent to landfill the greater the energy used in sorting and transporting of the waste stream. Lower recycling rates also mean greater use of resources and energy to create replacement components.

Other forms of waste are associated with primary, secondary and tertiary packaging of products and components.

Increasingly, legislation is being created to tackle this issue of waste and recycling. The EU Waste Electrical and Electrical Equipment (WEEE) and Landfill Directives are among the drivers increasing the visibility of these end-of-life issues. The WEEE Directive, for example, requires producers of mobile phones to finance the recovery and recycling of used handsets. Numerous countries around the world, including China, have either adopted or drafted legislation similar to the WEEE Directive and this spread is expected to continue.

Occupational Health and Safety

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

- Manual handling of equipment;
- Trips and falls;
- Ergonomic stress (from sitting at desks all day);
- Eye strains and headaches (if employee uses a computer);
- Accidents from machine and tool use;
- Vehicle injuries (associated with warehousing, logistics);
- Noise;
- Exposure to hazardous substances (during assembly or disposal phase of equipment).

OTHER POTENTIAL ENVIRONMENTAL ISSUES

Energy use and climate change impacts

Energy is used to manufacture mobile phones from components and packaging; for distribution and warehousing; during the use phase of mobile phones; and, for distribution associated with disposal and/or recycling. In addition, energy is used to extract and process raw materials into components used in mobile phone manufacture.

The climate change impact will depend on total energy use and carbon intensity of the energy. Carbon intensity will depend on the energy mix, for instance the proportion of renewable energy used. Leading companies have studied carbon emissions associated with the end-to-end value chain of their products and have focussed theirs strategy to address the carbon hotspots. This includes R&D efforts to create energy efficient products to reduce energy use during the use phase.

Air emissions

Air emissions could include volatile organic compounds (VOCs) from solvents and ozone depleting substances from refrigerants (HFC, HCFC and CFC) used in cooling facilities. Companies should ensure that emission levels are within regulatory parameters.

Environmental impacts of component raw material extraction and processing

Companies should be aware of the environmental impacts of upstream value chain activities of key suppliers. In mobile phone manufacture this would include the impacts of mining of metals. The environmental impacts could include land use changes, soil erosion, biodiversity impacts and water pollution.

KEY SOCIAL, LABOUR AND COMMUNITY RISK/LIABILITY FACTORS

Community engagement on health, responsible driving and privacy

Wireless communications and health – There is concern that radiofrequency (RF) fields associated with mobile phone use (and base stations) have an impact on human health (such as being the cause of cancer). Research by the WHO shows that there is no conclusive evidence that RF fields cause harm to human beings at the levels generated by telecommunications systems and devices. However, companies should monitor RF field levels based on the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines, keep abreast of latest research developments and engage openly with communities on the subject.

Responsible driving – The use of mobile phones while driving can increase the risk of accidents. One study found that the crash rate was four times higher when a mobile phone was used. The Institute for Road Safety Research estimated that if mobile phone use could be abandoned completely in the Netherlands, the number of road deaths and in-patients per year would decrease by 600.

Privacy – There is concern amongst mobile phone users that their privacy might be invaded. This might involve sharing of data (for instance numbers dialled, phone book contacts) or using mobile phones to track people's movements. If information that a company has invaded the privacy of its customers emerges, its reputation and brand might suffer.

Many companies engage with their customers and the community on these issues through education and communication campaigns.

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.

Labour standard violations in the mobile phone sector have been well documented in countries such as China and the Philippines, where controls are weaker. It was found that workers, many of whom are women between the ages of 16 and 30, had to work excessive hours, at minimum wages and were subjected to

disciplinary measures when mistakes were made. A company's reputation, brand and licence to operate could be impacted if labour standard violations are made public.

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 corruption and bribery are illegal, and charges of misconduct can negatively impact a company's reputation and its ability to enter into business relations with partners. Companies may, for example, use unethical means (such as bribery) to gain planning permission or to be given preferential treatment by the government.

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.

Waste disposal in developing countries

Export of waste electronics 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 and other metals).

OTHER POTENTIAL SOCIAL, LABOUR AND COMMUNITY ISSUES

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.

The issue of labour standards – Often components for mobile phones are manufactured in developing countries where labour standards might not be upheld as rigorously. A 2008 report found that factories in China and the Philippines that produced components for western based mobile phone manufacturers were guilty of labour rights abuses – such as low wages, excessive working hours, punitive fines and disrespect of union rights. A company's reputation may be damaged if it is found that there are such labour rights abuses in its supply chain.

The issue of coltan sourcing – Columbite-tantalite is a heat-conducting mineral used in capacitors found in products including phones, games consoles, laptops and digital cameras. Large reserves are found in the Democratic Republic of Congo and sourcing from this region has been said to fuel local conflict by providing local warlords with sources of income. 50% of coltan is now mined in Australia but unless mobile phone producers have a view of their supply chains it is possible that they and

their customers are complicit in the trade of conflict coltan.

It is incumbent upon mobile phone manufacturing 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).

FINANCIAL IMPLICATIONS

Regulatory compliance

There might be costs associated with complying with changing regulatory requirements. These costs might be associated with; the phasing out or replacement of hazardous substances, ozone depleting substances and specific solvents; managing of waste streams and initiating recycling programmes; emissions reduction technologies; or health and safety improvement measures. In some jurisdictions, a mobile phone producer will have to contribute to the financing of collection, recovery and recycling facilities for used handsets. 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, or accusations of discrimination; the government over non-compliance; or, local communities and government agencies over environmental contamination.

Reputational risk

Damage to reputation (due to either environmental or social impacts or failures) could damage the company's brand. This could mean long-running and costly efforts to mitigate damage 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; accusations of labour standards violations or unethical business practices are made; the company has a poor health and safety record; it has a poor record of disposing of hazardous material containing waste; or, if the company's suppliers are discovered to have a poor environmental or social record.

In order to control such risks the company may incur costs associated with monitoring, reporting and performance improvement. This could include, for example, a process through which suppliers' performance audited and tracked. Costs might also include research into the effects of electromagnetic radiation exposure and communication with stakeholders.

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;

- Research technologies to develop energy efficient products, including chargers which use low carbon energy sources (e.g. solar);
- 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 logistics (distribution efficiencies through
- Replace or phase-out hazardous and ozone depleting substances by monitoring environmentally friendly alternatives, emerging technologies;
- Plan for responsible disposal of equipment that contain hazardous substances (such as lead batteries) by working with certified recycling or waste disposal companies;
- Reduce packaging waste (primary, secondary and tertiary) through innovative packaging design, and developing reusable or recyclable packaging solutions.
- Consider implementing a take-back programme for mobile handsets;
- Avoid ecologically sensitive areas while planning new site locations.

Health and Safety

- Monitor and report radiofrequency field levels associate with device use;
- Train employees on proper health and safety procedures;
- Designate first-aid wardens and provide additional training;
- Ensure adequate fire control and safety equipment is provided (fire extinguishers, first-aid kits);
- Provide appropriate personal protective equipment;
- Schedule regular maintenance of machinery;
- 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

- Ensure fair wages and working hours, minimum age of workers;
- Develop a policy on ethical procurement to ensure that there are no labour standard violations in the supply chain;
- Develop a policy covering labour practices for contractors and sub-contractors;
- Ensure data privacy protection measures are in place.

Community

- Develop a company point-of-view and communication plan on responsible driving and the use of mobile phones;
- Develop a policy on data protection and privacy;

In addition, best practice might include:

- Support for local and SME suppliers through selective procurement policies;
- Local skills development and capacity building.

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 need to comply with any limits or other requirements on emissions to air or water, or relating to waste management?
- Does the company have a policy to help track disposal of waste products and their impacts?
- Is the company required to finance or participate in collection, recovery and recycling programmes for used handsets?
- Does the company have a strategy to manage energy use and carbon emissions?
- Does the company communicate radiofrequency field levels associated with the use of its products (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?

Labour issues

- 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

- Are there guidelines for responsible use? (e.g. responsible use while driving, how to recycle etc.)
- Are appropriate data privacy protection measures in place?
- 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.

- Consider opportunities to take-back, recover and recycle used handsets, where this is not a regulatory requirement.

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);

- 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;

- Develop responsible product use guidelines;

- Implement processes to ensure data privacy protection;

- 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.

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

EU WEEE Directive - http://ec.europa.eu/environment/waste/weee/index_en.htm