Motor Vehicle Assembly

Introduction

This guideline is designed to be used by EBRD Financial Intermediaries (FIs) to understand the nature of environmental and social (E&S) risks associated with existing operations in this sector and suggested actions for businesses to take to manage these E&S risks. It also provides guidance for FIs on potential due diligence questions to raise with management to understand how their business is managing these E&S risks. This guideline focuses on material E&S risks; it is not an exhaustive list of E&S risks. In managing E&S risks, all businesses should be compliant with relevant E&S laws and regulations. Where applicable, these include European Union legislation, which may also be taken as a benchmark for good practice.

This guideline covers the manufacture and assembly of motor vehicle from a number of metallic, plastic and electrical components.

Reference NACE codes:

- 29.10 Manufacture of motor vehicles

Material risks

Below is an overview of the material risks present in the motor vehicle assembly industry.

E&S Risk Category	**Environment** 	**Health and safety** 	**Labour** 	**Community** 	**Page no**.
Key E&S Risks *(In order of materiality)*	Affect the natural environment	Affect the health or safety of employees	Affect workplace conditions and the treatment of employees	Affect the health and safety, livelihoods, and environment of the community and wider public	
Air Emissions	✓	✓		✓	4
Hazardous Materials	✓	✓		✓	5
Water management and wastewater	✓			✓	5
Solid Waste	✓			✓	6
Energy Consumption	✓				6
Occupational Health and Safety		✓	✓		7
Labour Rights			✓	✓	8

Contents

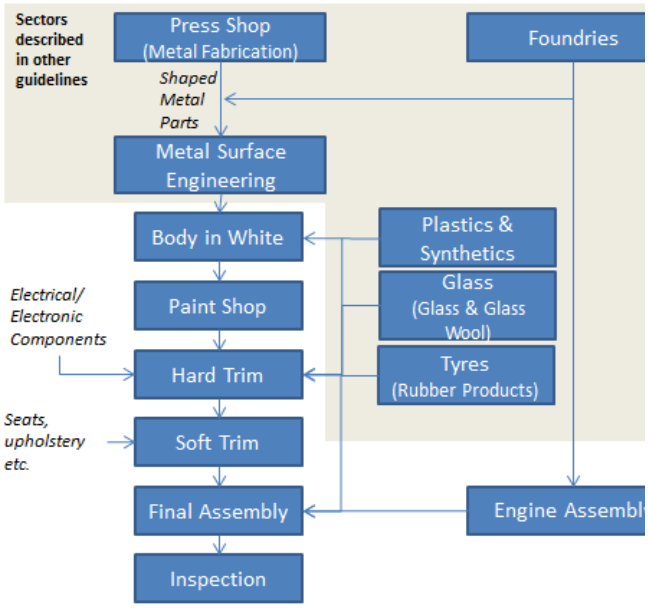
1. Process description

The manufacture of motor vehicles involves the manufacture and assembly of the final product from a number of metallic, plastic and electrical components. A wide range of processes are involved including metal cutting, pressing, polishing, grinding, welding, plating, & painting.

The vehicle industry produces many parts itself (e.g. by subsidiaries), while other parts are purchased. Engines are cast from aluminium or iron, and further processed in engine plants. Vehicle bodies are generally formed out of sheet steel, although there is a trend toward more plastic, reinforced fibreglass and aluminium parts in vehicle bodies.

There are close linkages with other metal industry sectors, particularly Foundries, Metal Surface Engineering, and Metal Fabrication (see separate Guidelines), as well as to the manufacture of plastic products, glass and textiles. It is common for the Press Shop and Metal Surface Engineering (Plating Shop) to be located on the same site and in these cases, it will be necessary to refer also to the relevant guidelines.

The vehicle manufacturing process is shown in the diagram below.



Most vehicle manufacturing facilities are more accurately described as assembly plants as they now confine themselves to producing body parts, machining the engine, final assembly and painting. All other parts are typically bought in on a "just-in-time" basis, e.g. castings/forgings, electrical/electronic equipment, wheels/tyres, instruments etc. Approximately 8,000 to 10,000 parts are assembled into approximately 100 major vehicle components[1]. Assembly plants are highly automated computer controlled assembly line operations.

The unpainted vehicle body (also known as the "body-in-white") is assembled from formed body panels joined by welding, glue and riveting. The vehicle passes by conveyor to the paint shop for:

- Pre-treatment (degreasing and anti-corrosion inhibitor);
- Priming;
- Seam sealing and underbody preparation;
- Application of filler and finishing paint coats;
- Polishing, inspection and rectification;
- Undersealing and wax injection.

The Hard Trim is the fitting of items such as instrument panels, steering columns and body glass. The Soft Trim is the fitting of seats, door pads and upholstery.

The vehicle is then fitted with the petrol tank, exhaust, and bumpers. At the same time, the engine is assembled. The engine and tyres are then fitted and the vehicle is subjected to a rigorous inspection.

2. Key E&S Risks

The assembly of motor vehicles can potentially create a number of E&S risk issues. Most of these risks are associated with harmful substances, which are used during the manufacturing process as well as hazards arising from waste and emissions.

Motor vehicle assembly businesses may need permits or licences which will set out the limits to adhere to in terms of pollution and harm to human health. An environmental permit from a national or local authority may be required where an installation is a large consumer of organic solvents and significant volatile organic compound (VOC) emissions may be released. Water use and discharge and trade effluent permits may also be required.

[1] US EPA 1995

Larger installations obligated under the Industrial Emissions Directive (IED) (2010/75/EU) will need a permit which requires the application of “best available techniques” relevant to the motor vehicle assembly sector.

Specific legislation that may apply to the motor vehicle assembly sector may include, but is not limited to, the following:

- European Emission Standards which define the limit on the emissions of pollutants of new vehicles sold in the European Union. They are typically referred as Euro 1 to 6. This will impact design requirements but not the manufacturing process itself.
- Some large energy consumers in the sector may be captured by emissions trading schemes (ETS), such as the EU ETS, which requires members to purchase sufficient carbon allowances to cover their emissions.
- Vehicle painting and coating operations will be subject to the requirements of the Directive on Industrial emissions (2010/75/EU) which sets strict limits on the emission of waste gases in vehicle painting and coating operations.
- Legal entities in the EU that are manufacturing, importing or using certain chemical substances may be subject to EU regulation called the Registration, Evaluation and Authorisation of Chemicals (REACH) (1907/2006). This regulation places requirements on users/ manufacturers to evaluate and control the health and environmental risks associated with certain substances.
- The End of Life Vehicles (ELV) Directive 2000/53/EC required that the average weight of material per vehicle/per year reused or recovered by each member state since 2006 is 85% and this will increase to 95% by 2015. In the same time frame reuse and recycling figures currently at 80% must increase to 90%. This legislation also limits the use of certain hazardous substances.
- Member States must ensure that producers use material coding standards which allow identification of the various materials during dismantling in accordance with decision 2003/138/EC and that the vehicles manufactured can meet the minimum recycling targets. This has impacts for motor vehicle manufacturers that import into the EU.
- Companies operating within the European Union (either as a manufacturer or as a supplier into European Union countries) will be subject to the European Union Packaging and Packaging Waste Directive (94/62/EC), which aims to reduce the amount of packaging that is being introduced into waste.

Below are the material E&S risks associated with this sector and key measures to manage them. Where gaps are found in the management of key E&S risks, the E&S risk management measures should form part of a corrective E&S action plan agreed with your customer.

Air emissions

The majority of the emissions to air generated during motor vehicle assembly are volatile organic compounds (VOCs) emitted from painting and finishing operations (paint storage, mixing, applications, and drying). The emissions are primarily organic solvents, which are used as carriers for the paint and solvents used for cleaning equipment between colour changes and to clean spray booths. Other emissions to air include:

- VOC emissions - use of solvent based adhesives during Soft Trim;
- Isocyanates - Spray booths/ovens & paint mixing area during use of paint containing isocyanates;
- Particulates - Paint particulates from spray booths, dust from sanding. Spent filter material;
- Carbon dioxide and oxides of nitrogen where thermal or catalytic incinerators are used;
- Ozone may be released through the use of ultraviolet light curing lamps.

It should be noted that motor vehicle assembly generates indirect greenhouse gas emissions through the use of its final products, and specifically through the combustion of fossil fuels. The transport of products by road can also be a significant issue and generate GHG emissions through traffic congestion.

Many of these emissions may be harmful to the environment as well as health.

Dust created in the process can be inhaled and cause respiratory diseases including asthma in employees. Dust, vented fumes, smog caused by particulates, and odours can be a nuisance to neighbouring residential communities and industrial activities.

How can a business manage this risk?

- Consider use of alternative or low VOC coatings/paints.
- Increase the transfer efficiency of the application technique.
- Capture and concentrate VOC emissions, e.g. with activated carbon.
- Implement a Solvent Management Plan to monitor and control the use of solvents on site.
- Install or upgrade abatement technology to minimise exposure to hazardous substances and to control the release of emissions, e.g. enclosure of equipement, use of appropriate ventilation with filters, gas balancing systems, cyclones, and wet or alkali scrubbers.
- Monitor indoor air quality and use signage where there are elevated levels of emissions and personal protective equipment (PPE) is required.
- Implement a formal Leak Detection and Repair (LDAR) programme for equipment, and where necessary, replace with higher quality items any equipment which generates significant fugitive emissions.
- Improve engine efficiency to reduce the emissions from motor vehicle.
- Adjust delivery times to reduce GHG emissions due to traffic congestion at peak hours.

Hazardous materials

Hazardous chemicals and process gases may be used in the assembly process of motor vehicles. Hazardous properties relating to these substances are many and varied and include flammability, combustion potential, toxicity, corrosive potential and oxidising potential. Chemicals with such properties should be labelled with the appropriate internationally recognised hazard symbol. Some chemicals may only possess a hazard potential if they have the opportunity to react with other compounds.

Inadequate control or accidental releases of hazardous substances on site or in transit may result in significant environmental impacts in relation to soil, groundwater and surface water contamination and occupational health and safety, e.g. disposal of empty drums and packaging of fuel and chemicals.

How can a business manage this risk?

- Consider feasibility of substitution of hazardous chemicals such as solvent based paints with less hazardous alternatives. Label chemicals with appropriate, internationally recognised, hazard symbols.
- Chemicals with different hazard symbols should not be stored together - clear guidance on the compatibility of different chemicals can be obtained from the Materials Safety Data Sheets (MSDS) which should be readily available from the manufacturer and on site.
- Store chemicals in a dedicated, enclosed and secure facility with a roof and a paved/concrete floor. Chemical tanks should be completely contained within secondary containment such as bunding.
- Install devices to prevent spills and overfills, e.g. alarms to warn of overfilling and automatic shut-off devices or a secondary spill containment.
- Maintain and inspect storage units regularly.
- Consider installation and use of groundwater monitoring points on site to check for contamination. Implement a Solvent/Hazardous Materials Management Plan to monitor and control the use of solvents and hazardous materials on site.

Water management and wastewater

Under normal conditions, there should be no emissions to sewer or waters from vehicle coating and refinishing operations using solvent coatings. The new trend towards use of waterborne paints may result in some discharge to sewer, but pre-treatment will be required and authorisation to discharge to sewer or waters must be obtained in advance from regulating authorities. The source of such emissions would be waterborne paint gun washes and spray booth wash waters. Emerging treatment for such waste water is chemical flocculation followed by filtration or sedimentation.

There are several areas with a potential to contaminate waters via accidental discharge to drains and sewers or onto ground. These include gun wash within the paint gun cleaning unit,

residues from solvent-containing paint, waste gun cleaner or dirty water from wet filters (where used). There should be no open drains or sinks where solvent materials are being handled or stored. Other liquid waste include paint overspray caught by emissions control devices and unused paint.

Local communities and the environment may be affected by pollution due to discharge of untreated wastewater. The toxins in such water may affect local ecology as well as posing a hazard to drinking water supplies and contaminating land.

How can a business manage this risk?

- Minimise the consumption of water used in production processes and equipment cleaning.
- Consider upgrades to wastewater treatment facilities.
- Recycle wastewater where possible, e.g. certain solvent wastes such as gun wash can be sent for recovery and reuse in another application where these facilities are available
- Ensure untreated wastewater does not discharge to watercourses through use of wastewater treatment facilities and monitoring of wastewater discharges.

Solid wastes

Solid wastes may arise from several sources during assembly and the majority of wastes by volume result from packaging - reusable or disposable. Reusable packaging covers metal racks, bins and containers and disposable packaging covers wood pallets, cardboard, plastic, polystyrene and polythene film.

Other solid wastes include:

- Scrap metal from the press shop, which is normally recycled off-site.
- Metal-rich dust generated by the abrasive disc smoothing of welds and soldered joints.
- Sludge generated by wastewater treatment facilities of equipped vehicle manufacturing plants.
- Additional wastes arise from general operations, cleaning and maintenance and the disposal of faulty equipment and parts.

Improperly disposed of waste can lead to pollution and ground contamination.

How can a business manage this risk?

- Return packaging of hazardous and non-hazardous materials (wherever possible), such as empty drums, to supplier for reuse.
- Recycle packaging wherever possible.
- Develop and implement a waste management plan covering all aspects of waste treatment on site. Wherever possible, priority should be given to reduction of wastes generated, and recovery and re-use of raw materials.

Energy consumption

Motor vehicle assembly plants use energy throughout the plants for many different end-uses. The main energy types used on-site are electricity, steam, gas and compressed air.

Paint shops are major energy consumers. Energy is used to condition the air for the painting and drying steps, and for treatment of the emissions and for ventilation.

Some forms of energy production are damaging to the environment, such as the production of carbon dioxide from fossil fuel combustion. Energy security and energy price fluctuation are a concern in many developed and developing countries. The motor vehicle assembly industry has responded with many motor vehicle assembly sites introducing renewables energy sources such as wind and solar.

Some large energy consumers in the motor vehicle assembly sector sector may come under emissions trading schemes (ETS), such as the EU ETS which requires members to monitor and report their CO2 emissions, and ensure that enough allowances (either allocated or purchased) are in place to cover their emissions.

How can a business manage this risk?

- Improve thermal efficiency of heating equipment to minimise heat loss.
- Implement heat recovery processes, such as steam rising boilers to capture hot gases and re-

use elsewhere in operation or for generating energy.

- Monitor and target energy usage and implement behavioural change programmes.
- Consider opportunities to switch to cleaner fuels or renewable energy sources.

Occupational Health and Safety

Chemical exposure – see also asbestos

Chemicals involved in the motor vehicle assembly may have a wide range of hazardous effects, including being toxins, carcinogens or highly corrosive upon skin contact. Direct skin and eye exposure to and/or inhalation of hazardous chemicals can result in health impacts for workers. Prolonged exposure over years can induce chronic health effects. Particular substances to be aware of include:

- **Coating powder.** Some components of coating powders can cause irritation of lungs, eyes and skin and allergic skin reactions. They can also cause long-term health effects or asthma.
- **Curing agents.** Some curing agents may damage genetic material, which could cause some diseases including cancer and impaired fertility.
- **Organic solvents.** The most commonly used solvents for degreasing are chlorinated solvents such as trichloroethylene, dichloromethane (methylene chloride) and perchloroethylene. These substances may be harmful to health if inhaled. The ill-health effects from inhalation would depend on the substance in use and the concentration and length of exposure. At high concentrations all organic solvents exert a strong narcotic effect and can be fatal. Skin exposure can cause irritation and dermatitis.

Noise and Vibration

Vehicle assembly plants can be noisy work places due to the high level of use of machinery. Transport of products by road may also generate noise. Those at risk include machine operators and those working nearby, e.g. maintenance staff, cleaners, forklift truck drivers and shop floor supervisors.

Noise may reach levels that are hazardous to health, leading to symptoms associated with permanent deafness.
Noise, particularly during unsocial hours, may cause annoyance or disruption to local communities.

Hand-arm vibration syndrome from the prolonged use of vibrating tools and machinery causes effects on the body's blood circulation known as 'vibration white finger' (VWF). Other damage may be caused to the nerves and muscles of the fingers and hands causing numbness and tingling, reduced grip strength and sensitivity. Pain and stiffness in the hands, and joints of the wrists, elbows and shoulders are other possible symptoms.

Machinery

Moving parts of machinery can result in entanglement and entrapment. Particular attention should be paid to the following situations:

- Handling sheet or strip metal.
- Handling of small pieces of metal with sharp edges during work at presses.
- Accidental contact with scrap metal, banding or swarf, principally during cleaning and disposal.
- Contact with machinery blades, cutters or tools during use and when fitting, removing, cleaning or storing.

Manual handling and repetitive work

Lifting and carrying heavy or awkwardly shaped objects, such as bags, can result in manual handling injuries.

Slips, trips and falls

These are primarily caused by uneven surfaces, inappropriate footwear, poor lighting, weather conditions, trailing cables and pipe work, especially during unblocking, maintenance and cleaning activities.

Working hours

Long hours or night shifts can lead to fatigue, decrease wellbeing and ability to concentrate.

Polychlorinated Biphenyls (PCB) & Asbestos

PCBs are a group of substances which are good electrical insulators. Typically, PCBs may be present as constituents of hydraulic oils or dielectric fluids in electrical switchgear, transformers and fluorescent light starters. PCBs are extremely toxic

and become concentrated within the food chain. Any products that may contain PCBs must be disposed of by licensed contractors in accordance with national regulations.

Asbestos (a carcinogen when in the form of inhalable dust) has been used on a large scale for many years as a fire proofing and insulation material. The organisation should identify the presence of asbestos, confirm its condition and, where necessary, encapsulate or remove it.

Particular attention should be given to buildings constructed between 1950 and 2000 when asbestos use was at its most extensive.

How can a business manage these risks?

Chemical exposure

- Provide personal protective equipment (PPE) that is fit for the task to prevent injury and maintain hygiene standards. Train staff in the correct selection, use and maintenance of PPE, and put in place measures to encourage/ mandate its use.
- Implement a programme of assessment of routine monitoring of worker health.

Noise and Vibration

- Conduct a noise survey and mark out dedicated areas with signage where there are elevated noise levels and PPE is required.
- Enclose noisy machines to isolate people from the noise where practicable.
- Reduce vibration exposure times and provide PPE where people may be exposed to vibration.
- Limit scrap handling and transport during unsocial hours to reduce noise.

Machinery

- Train staff in correct selection, use and maintenance of PPE.
- Train workers in correct use of machinery and safety devices.
- Avoid direct handling of sharp edged items and/or remove sharp edges by machining.
- Engineer out sharp edges and access to dangerous parts of machinery through a hierarchy of controls (permanently fixed physical barrier, interlocked physical barrier, physical barrier, presence sensing system).

Manual handling and repetitive work

- Redesign manual processes and rotate work tasks to reduce heavy lifting/repetitive activities, and where possible install mechanical lifting aids.
- Train workers in correct lifting technique.

Collision

- Separate people from moving equipment:
  - Ensure that the process layout reduces opportunities for process activities to cross paths; and
  - Install safeguards on moving parts of conveyor belts to reduce the risk of entrapment of employees.
- Install walkways to separate people from vehicle movements to reduce risk of collision.

Slips, Trips and Falls

- Ensure that walkways are constructed of non-slip materials and route cables and pipework under walkways.

Working Conditions

- Implement a programme of routine monitoring of worker health.
- Implement a grievance/dispute resolution mechanism for workers.

Asbestos

- Remove friable asbestos and PCBs using licensed contractors. This should be carried out in controlled conditions to ensure that there is no release of substances or materials to the environment.

Labour rights

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.

Worker dissent and unrest can manifest if workers feel unfairly treated, overworked or unable to raise concerns regarding the work environment to management, particularly in a unionised sector such as the motor vehicle assembly sector.

Attention should also be paid to the rights and fair treatment of workers over the entire value chain to avoid reputational risk.

How can a business manage this risk?

- Adhere to national government legal requirements.
- Ensure business meets good practice standards for managing labour issues and working conditions, in particular those set out in the International Labour Organisation conventions.
- Record employee hours worked, including overtime, and ensure that staff receives written details of hours worked and payment received.
- Ensure that labour standards, contracting, wages, and working hours, are consistent with the average for the sector and national standards.
- Implement a grievance/dispute resolution mechanism for workers.
- Permit the formation of unions and the use of collective bargaining.

3. Financial implications

Outlined below are examples of financial implications for businesses due to ineffective management of E&S risks related to this sector. These implications may in turn create issues for FIs.

- The last holder of an end-of-life vehicle in the EU may dispose of it free of charge ("free take-back" principle). Producers must meet all, or a significant proportion of, the cost of this measure.
- Significant capital investment in site infrastructure may be required to comply with planning constraints, permit / consent conditions and new environmental, health and safety requirements, especially if local communities raise concerns regarding the site operations.
- Fines, penalties and third party claims may be incurred for non-compliance with environment or health and safety regulations.
- Injuries to employees may lead to increased payroll costs, lost production time and employee compensation claims.
- Soil and groundwater contamination from accidental chemical releases can be costly to remediate, especially if contamination affects neighbouring property, water supplies or public health.
- Many countries are signatories to the Kyoto Protocol and have adopted targets for the reduction of CO2 emissions. Where Governments have set up carbon emission reduction programmes industrial processes have been required to reduce their CO2 emissions through the setting of targets. This can result in a need for substantial investment in new/clean technologies to achieve the emission targets. These targets may be reflected in environmental permits.

4. Suggested due diligence questions

When assessing E&S risks, it is important to discuss with the customer how these risks are being managed. Below are suggested questions that can be used when engaging with management or on a site visit. You may wish to engage a specialist consultant to support you with this.

General

- Does the site have all the required permits in place?
- What processes are undertaken and are any hazardous chemicals used? How hazardous are the materials and have associated risks been documented and addressed in appropriate risk assessments?
- If on an operational site visit, note signs of poor housekeeping, inadequate/untidy storage areas and poor drum labelling. Look for evidence of any recent spills or releases of raw materials/product.
- Are assets and facilities in good condition? What systems are in place to monitor and maintain physical assets?

Management plans

Confirm that the business has put in place at a minimum, the following items in its E&S risk

management systems, and investigate whether any of these management systems are certified to relevant standards such as ISO14001 (environment), OHSAS 18001 (health and safety), ISO9001 (quality) and SA8000 (socially acceptable workplace practices):

- Operational policies and procedures for managing environmental, health, safety, labour and community matters. These systems should cover both employees and contractors.
- Accountability and responsibility for environmental, health and safety, and labour matters. Is there evidence of management review/demonstrated involvement in environment, health, safety and hygiene management? This should include senior management oversight.
- Improvement objectives, targets, project plans and monitoring programmes.
- Training for personnel, including ensuring that personnel are trained in the risk associated with their job and the correct use of PPE;
- Regular inspections, checks and audits with records to demonstrate achievement of the required level of performance against legal requirements.
- Energy conservation schemes and development of programmes to reduce greenhouse gas emissions.
- Emergency plans for environment, health and safety accidents or hygiene non-compliance incidents.
- Waste management plans (waste minimisation, re-use, recycling, monitoring).
- Stakeholder engagement plans / programmes.
- Financial investment plans directly or indirectly related to management of environment, health and safety and labour issues.
- Internal reporting systems, including the reporting of near misses.

Air emissions management (including noise)

- What levels of air emissions are permitted? Have permitted levels of emissions been exceeded in the past?
- Has pollution abatement technology been installed to reduce atmospheric emissions?
- Has employee exposure to potentially harmful gases been assessed and controlled?
- Are there any VOC abatement technologies or measures in place? Is there a Leak Detection and Repair (LDAR) programme?
- Are metal products/materials moved around the site by conveyor or by vehicle?
- Is there local exhaust ventilation? Is it maintained?
- Are there any dust control measures? Are they used and effective?
- If on a site visit, note the noise and dust levels and any odours at the site. Is there any build-up of dust on machinery or other surfaces? Is there any evidence of deployment of noise/dust/odour abatement measures or a requirement for such measures (e.g. hearing protection)?

Water abstraction & management

- What volumes and quality of water are required? Where is water obtained from?
- Are measures in place to recycle water? Will there be any planned changes which may affect the demand for water? Will existing resources be able to meet demand?
- Check regulatory compliance - are all necessary licences/permits/discharge consents in place?

Wastewater management

- What liquid effluents are produced? What discharge control measures are employed?
- Is effluent and wastewater treated before discharge? If so, does the wastewater treatment plant discharge to a local watercourse or the municipal wastewater treatment works? Higher environmental risks will be associated with facilities discharging to water courses without adequate treatment.
- Is the wastewater quality tested and if so, for what? Where are the samples taken from, and how often? Do the discharges have to meet set standards?
- If on a site visit, check the condition of the treatment plant and location of discharge points for effluent and wastewater from the facility. What does the quality of these discharges look like? Note the colour and appearance of adjacent watercourses.

Solid waste management

- What is the nature of solid waste disposal?
- Are measures in place to minimise, re-use or recycle waste products?

- How is hazardous waste removed? How are appropriate contractors selected and monitored to ensure that the waste is being taken to an appropriate waste disposal facility?
- Check that solid waste storage equipment is in a good condition, that waste storage areas are clear of debris and that skips are covered to prevent waste escaping. For example, check that waste containers have lids or are stored in an area with a roof. Check for flora/vegetation zones near storage sites that are not growing very well as this will indicate the possibility of pollution.

Transport of finished products from the site

- Is transport achieved by rail, road or water, or a combination of these?
- Does road haulage cause excessive traffic through any neighbouring residential areas?
- If on a site visit, check the age and condition of equipment and vehicles. Look for signs of wear and tear, degradation, leaks and breaks.

Storage

- What fuels and materials are stored in bulk on site?
- What is the potential for spillages and leakages to enter surface water drainage systems? Are surface tanks and material storage areas hard surfaced and bunded? Are alarms installed to detect leaks from storage areas?
- If on a site visit look to see whether these storage facilities are in good condition. Is the volume of the bunded area adequate to contain the stored materials? Are they regularly cleaned and inspected and tested for leakages?

Health & safety

- Do staff wear PPE? Is there signage to inform staff where PPE should be worn?
- Is first aid equipment available? Is there a trained and competent first aid resource on site?
- Is there a worker health monitoring programme? What does it check for?
- Have workers been historically exposed to materials that could potentially lead to occupation health diseases?
- If on a site visit, check signage around the site:
  - Does it convey the health and safety risks?
  - Are fire exits and/or evacuation routes clearly marked?
  - Are there demarcated routes for pedestrians and vehicles?
- If on a site visit, check the age and condition of equipment, look for signs of wear and tear, degradation, leaks and breaks. Check for automatic safeguards on machinery to prevent accidental injury.

Incident management

- Have there been any recent incidents on site such as fatalities, fires/explosions, spills?
- Assess emergency responses to fires, major spills and explosions (in some countries it may be a legal requirement to have an emergency response plan). Does the organisation have an emergency response plan which includes an engagement plan to disseminate information to local communities at risk?
- Does the organisation have insurance to cover any significant damage to the environment/ community/operations (this may be covered by public liability insurance or the organisation may be party to an industry insurance scheme). Review the terms of the cover and identify any exclusions relevant to environmental and health and safety matters. Identify the number and types of insurance claims in the past.
- If on a site visit, note if safety equipment is clearly signed and readily available, e.g. fire extinguisher(s), eye wash, safety shower, first aid equipment, emergency escape routes, emergency stop, decontamination equipment, and absorbent materials?

Inspections & regulation

- Check the conditions and duration of validity for all permits. Will any planned changes at the facility require revisions to the permits or require new consents?
- What systems are in place to check and maintain assets and infrastructure?
- Have the premises been inspected recently by the regulatory authorities for health and safety, labour conditions, hygiene and environment? What were their findings?
- Has the organisation been subject to environment, health and safety or quality audits by customers/insurers? What was the outcome of these audits?

- Does the organisation have insurance in place to cover the recall of contaminated/ faulty products? Have there been any recent product recall incidents? If yes, what did these relate to?
- Review historical environmental fines. If appropriate, it may be useful to contact local regulatory agencies to determine compliance and whether complaints have been made by the public.

Take note of/ask questions relating to any activities that manage risks as listed in the earlier sections of this document.

Investment

- Where are the organisations main markets? Are they manufacturing in, or exporting to, the EU? Are product standard regulations such as REACH relevant?
- Review budgets for capital expenditure and operational expenditure to cover EHS matters. Does the business plan have line items for Environment, Health and Safety improvements as well as asset management and maintenance?
- If investment or refinancing will lead to restructuring of the organisation what will be the potential impacts on health and safety at the operation and wider community? Have these been considered and assessed by the company?
- If the company plans to invest in new technology, what will be the impacts and benefits for human resources?

Labour

- 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. Staff should receive written details of hours worked and payment received.
- Check that wages and working hours are consistent with the average for the sector and national standards.
- 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 worker's organisation of their choosing?

5. References and additional sources

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