Edible Oils Processing

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 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. In managing E&S risks, all businesses should be compliant with relevant E&S laws and regulations. Where applicable, this includes European Union legislation, which may also be taken as a benchmark for good practice.

This guideline covers the production of edible oils through extraction from seeds, beans, fruits and nuts. It does not cover the production of oils from animal-derived sources, or the manufacture of biodiesel.

Reference NACE codes:

• 10.4: Manufacture of vegetable and animal oils and fats;
• 10.41: Manufacture of oils and fats;
• 10.42: Manufacture of margarine and similar edible fats.

Material risks

Below is an overview of the material environmental and social (E&S) risks present in edible oils processing:

---

1 This guideline outlines some relevant legislation but does not provide an exhaustive list of applicable laws and regulations.
## Key E&S Risks

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Affect the natural environment</td>
<td></td>
<td></td>
<td></td>
<td>Affect the health or safety of employees</td>
<td></td>
</tr>
<tr>
<td>Affect workplace conditions and the treatment of employees</td>
<td></td>
<td></td>
<td></td>
<td>Affect the health and safety, livelihoods, and environment of the community and wider public</td>
<td></td>
</tr>
<tr>
<td>Palm Oil/Biodiversity</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Food Hygiene &amp; Product Contamination</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Odour</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Solid Waste</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Volatile Organic Compounds (VOCs)</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Hazardous Materials</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Water Use</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Wastewater</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Energy Use</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Air Emissions</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Noise</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Pesticides</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Organic Products &amp; Labelling</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Machine &amp; Electrical Safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Manual Handling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Slips, Trips &amp; Falls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>PCBs &amp; Asbestos</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Temperature</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Confined Space</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Labour &amp; Working Conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Relations with Local Communities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Note: this table provides an indicative list of the EHS risks associated with the sub-sector; it is not meant to be an exhaustive list and EHS risks will depend on the specific setting and scale of the operation or facility.
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Process description</td>
<td>4</td>
</tr>
<tr>
<td>2. Key E&amp;S Risks</td>
<td>4</td>
</tr>
<tr>
<td>3. Financial Implications</td>
<td>16</td>
</tr>
<tr>
<td>4. Suggested due diligence questions</td>
<td>17</td>
</tr>
<tr>
<td>5. References and additional sources</td>
<td>21</td>
</tr>
</tbody>
</table>
1. Process Description

Vegetable oils are extracted from seeds, beans, fruits and nuts. The basic steps in the process are shown in the Figure 1 below.

Figure 1. Edible Oils Production

The extracted crude oil will be refined either through chemical/alkali refining or through physical means. The primary purpose is to separate the free fatty acids and remove other unwanted substances.

2. Key E&S Risks

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 may form part of a corrective E&S action plan agreed with your customer.

Palm Oil/Biodiversity

Palm oil plantations are under increasing scrutiny for their effects on the environment, including loss of carbon-sequestering forest land.

There is also concern over displacement and disruption of human and animal populations due to palm oil cultivation.

Production of palm oil has been controversial in recent years and could reflect on purchasers and processors of these crops.
How can a business manage this risk?

- Perform background checks on raw material suppliers to determine the origin of feedstocks.

Food Hygiene & Product Contamination

Contamination of product could result in ill health in the general public and may result in product recall. Vegetable oils can become contaminated as a result of contamination of the raw materials during processing, packaging and transport. Screening of raw materials will identify any incoming contaminated raw product and food hygiene standards such as Hazard Analysis Critical Control Points (HACCP)3 and Codex Alimentarius4 will need to be considered in order to reduce the risk of contamination.

How can a business manage this risk?

- Consider food hygiene under the requirements of EU food safety directives and legislation (e.g. Regulation No. 178/2002, Regulation on general principles and requirements of food law, No. 882/2004 on general food safety, Regulation No. 2073/2005 on microbiological criteria for foods) in addition to local/national food safety regulations;

- Train staff in food safety issues and follow established procedures for hand washing, working attire (clothes, shoe coverings, gloves and hair coverage), and how to handle injuries and diseases;

- Establish plant such that products move from dirty to clean areas, to avoid recontamination. Staff movement to be opposite to the manufacturing flow direction of products (i.e. from ‘clean’ towards ‘dirty’ areas);

- Undertake regular cleaning and disinfection to maintain food safety and hygiene standards;

- Process hygiene standards should prevent the spread of diseases such as salmonella, Escherichia coli (E. coli) and Legionnaires’ disease beyond the factory boundaries, for example to the local surrounding community and/or consumers;

- Consider implementing product traceability systems that facilitate tracing of products once released for sale;

- Regular, rigorous hygiene monitoring programmes should be in place. All surfaces and equipment should be cleaned regularly to prevent the build-up of oil and fat and to reduce the risk of health hazards;

- Ensure that appropriate clothing is provided to all facility visitors, that hygiene requirements adhered to and that external contact with the products is avoided.

3ISO 2005
Edible Oils Processing

Unpleasant odours may be generated during operations which heat the oil and involve solvents.

**How can a business manage this risk?**

- Reduce odour emissions from extraction cookers, vacuum and pressurised systems by using caustic, alkaline or ozone scrubber systems or by incinerating the gas;
- Adopt odour management measures to prevent and minimise odour nuisance to local communities and other receptors;
- Control temperature and humidity to reduce odour emissions.

**Solid Waste**

Edible oil processing can generate significant quantities of organic solid waste such as empty fruit stalks and waste palm kernels. Other solid wastes may include:

- Deodoriser distillate;
- Mucilage\(^5\) from degumming;
- Spent catalysts and filtering aid from hardening;
- Spent bleaching earth, activated clay, silica and carbon are used in the bleaching process and will contain pigments and residues of other undesirable substances such as gums and metals;
- Sludge arising from wastewater treatment which may be contaminated with hazardous chemicals or have a high pH and therefore require appropriate disposal.

Extracted oil is typically packaged in plastic, cans and glass. Waste may arise from the packaging process in the form of discarded packaging offcuts.

**How can a business manage this risk?**

- Comply with national and EU regulations (as applicable) for the safe disposal of waste;
- Explore waste recovery measures such as:
  - Use of waste vegetable matter as a soil improver;
  - Use of waste oils for biofuels;
  - Use of waste vegetable matter and free fatty acids as fuel for steam and power generation at refineries or for animal feed;
  - Use of free fatty acids as feedstock for chemical industry;
  - Use of uncontaminated wastewater treatment sludge in agricultural applications;
  - Use of spent bleaching earth in brick/block/cement manufacture, fertiliser, anaerobic digestion;
- Maintain an inventory of wastes generated and minimise where possible;

\(^5\) Gelatinous substances secreted by plants.
• Store solid wastes in adequate containers and segregate to encourage recycling;

• Dispose of wastes regularly to avoid odour, litter, fly and rodent problems;

• For wastes that cannot be recycled, due to biosecurity issues, dispose according to the requirements of local health authorities;

• 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 as amended by 2005/20/EC), which aims to reduce the amount of packaging that is being introduced into waste streams.

• Recover and reuse packaging material where possible or ensure that the packaging is easy to recycle.

Volatile Organic Compounds (VOCs)

Solvent is used to separate oil from the vegetable matter. Solvent emissions arise from several steps in the process such as the solvent recovery plant, volatilisation during refining and leaks in piping and vents.

The most common solvent used is hexane, which is a colourless, volatile liquid, soluble in water and highly flammable and may cause explosions due to the volatilisation of the solvent dissolved in the oil. Exposure to hexane may cause impaired fertility. Acute inhalation of high levels of hexane can cause mild central nervous system (CNS) depression and irritation of the skin and mucous membrane. Prolonged exposure may cause serious health damage. Hexane is also harmful in low concentrations to aquatic organisms. Strict controls are required to prevent a build-up in working areas and discharges to the environment.

**How can a business manage this risk?**


• Minimise solvent use by switching to physical (rather than chemical) refining where the free fatty acid content is >2%;

• Improve process design to increase solvent recovery, e.g. distillation, reuse of vapours, gravity separators etc.;

• Consider the soil and groundwater contamination implications of the use and storage of solvents

---

6 AEA Group Guidance on VOC Substitution and Reduction for Activities Covered by the VOC Solvents Emissions Directive - Guidance 19: Vegetable oil and animal fat extraction and vegetable oil refining activities
Hazardous Materials

In addition to solvents, a range of other potentially-hazardous materials may be used during processing and cleaning, including:

- Phosphoric acid – used in degumming;
- Spent bleaching earth – this material presents a fire risk;
- Hydrogen;
- Solvents;
- Cleaning agents such as detergents.

- Fuels - edible oils processing is a heat-intensive process and can use hydrocarbon fuels (oil, diesel, coal) for heating processes. Underground storage tanks are a common source of groundwater pollution unless contained, managed and tested regularly. Coal storage can lead to soil contamination, unless covered/contained appropriately.

- Drain corrosion – edible oils processing processes commonly use caustic/corrosive chemicals for cleaning processes (including CIP). If discharged to drainage systems, this can lead to corrosion of pipework and creation of new contaminant pathways.

The transport, storage and handling of such materials provide opportunities for spills and other releases to the environment and present a risk of fire and explosion.

Bulk storage facilities will be used for the storage of oil seeds and beans, gas and liquid chemicals used in the production process and for cleaning and disinfection, and fuel oils for energy production.

**How can a business manage this risk?**

- Operations where pollution has occurred or there is a threat of it occurring to water resources, land and protected species and habitats may be liable under national legislation and EU legislation for preventing and remedying environmental damage. Within the EU, the Environmental Liability Directive (ELD) (2004/35/EC) established a framework of environmental liability, based on the "polluter-pays" principle, to prevent and remedy environmental damage;

- Compliance with the EU BREF Guidance Note on Food, Milk and Drink Industries (2006) is required for ‘intensive’ facilities falling under the ELD; compliance with EBRD Performance Requirement 3 (whether the facility falls under the ‘intensive’ definition or not);

- Provide adequate secondary containment for all hazardous fuels and oils etc.; install suitable shut-off and alarm systems;

- Maintain storage areas to ensure that they are organised, secure, clean and dry. Storage facilities should be properly designed with appropriate signage and ventilation and should be locked and accessible only to trained and approved personnel. Storage facilities should be inspected on a regular basis to ensure that leaks and spillages do not occur;

- Record all hazardous materials held on site in
an inventory with Materials Safety Data Sheets (MSDSs) available in the appropriate language; procedures should be prepared for their handling and treatment in the event of spillage;

- Conduct regular inspection of all bulk containment facilities and effluent holding tanks to ensure integrity of storage;

- 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. PPE should be inspected regularly and maintained or replaced as necessary.

- Maintain storage, transport and conveyance systems in good condition;

- Protect raw materials storage from rain and wind to prevent contaminated runoff and to minimise wastage.

Water Use

Edible oil extraction can use a relatively large quantity of water throughout the process primarily for:

- Raw ingredient cleaning;

- Cooling water in crude oil production;

- Chemical neutralisation;

- Washing and deodorisation;

- Cleaning process areas;

- Steam production.

Water can be wasted when much of it can be treated and reused in the process. It is typical for abstraction or water use permits to detail volumes of water abstraction allowed as over abstraction can impact local communities. Whenever changes take place in product volumes this should be reflected in the permit.

How can a business manage this risk?

- Consider discharges and abstraction from water resources under the requirements of the EU Water Framework Directive (2000/60/EC) and local environmental regulations and permitting requirements;

- Evaluate water supply and water efficiency measures (e.g. recycling, reuse, run-off reduction, storage etc.) to reduce impacts on surrounding resources and community supplies;

- Separate cooling water from process water, and recycle condensates and cooling waters;

- Reduce cleaning water needs by ensuring that solid waste is removed before rinsing and washing, e.g. using scrapers, brooms and vacuum cleaners;

- Use taps with automatic shutoff valves;

- Use high pressure hoses and optimised nozzles to minimise water usage;

- Use hot water or steam as this can reduce
water requirements;

- Consider adoption of equipment cleaning-in-place (CIP)\(^7\) methodologies to reduce chemical, water and energy consumption.

---

### Wastewater

Large volumes of wastewater containing high organic loads, organic nitrogen, oils and fats, cleansing agents, solvents and suspended solids may be produced. Wastewater may also be contaminated with pesticide residues.

The main production processes producing wastewater are the refinery, deodorisers and boilers. Wastewater will typically require treatment before it can be discharged to a municipal wastewater treatment system or to the environment. Many facilities have on site wastewater treatment plants, which may utilise mechanical and chemical means of treatment. A permit with specific discharge parameters from the regulatory authorities will normally be required.

---

\(^7\) CIP is a method of cleaning the interior surfaces of pipes, vessels, process equipment, and associated fittings, without disassembly using approved chemicals and/or detergents with minimal environmental impact and compatible with subsequent wastewater treatment processes.

---

### How can a business manage this risk?

- Comply with national and international regulations for edible oils processing; large edible oils processing facilities in the EU, with (capacity for greater than 300 tonnes/day of finished product), are subject to national regulations under the Industrial Emissions Directive (IED) 2010/75/EU. Other smaller facilities within the EU and operations outside the EU will be subject to local regulation;

- Where feasible, use citric acid to replace phosphoric acid in degumming to reduce phosphorous loading in effluent;

- Use appropriate cleaning chemicals in the right dosage for the equipment to be cleaned, e.g. caustics for polymerised fat and acids for lime deposits. Use hot water rather than solvents to facilitate cleaning where possible;

- Ensure that contaminated sludge is disposed of by incineration or landfill at permitted facilities;

- Install filters to collect sediment/debris before wastewater discharge;

- Install diversion drains to direct surface water runoff away from waste areas;

- Treat wastewater prior to discharge to separate oils and fatty acids from the water and discharge through a fat trap;

- Install (or upgrade) wastewater treatment plant.
Energy Use

Large quantities of energy are consumed in oil processing in two ways:

- Thermal energy in the form of steam and hot water used for distillation, cleaning, and sterilising. Frequently an auxiliary boiler is used to generate steam;

- Electricity for machinery operation, refrigeration, lighting and production of compressed air. Minimum refrigeration requirements are normally determined by regulation.

**How can a business manage this risk?**

- Use heat recovery to heat incoming oil with the outgoing oil thereby reducing energy demand and water demand for steam;

- Examine other options for heat recovery and insulation, to reduce/supplement energy usage;

- Examine options for increasing energy efficiency through modifying work practices and installing energy efficient devices/equipment.

Air Emissions

Dust may arise from storage, handling and drying activities; aerosols typically arise from the use of compressed air and high-pressure water for cleaning.

Workers may inhale or ingest the dust and aerosols exposing them to biological hazards which present a risk of occupational lung disease. This may give rise to skin irritation or allergic reactions.

A dust cloud of any flammable material will explode where:

- The concentration of dust in air falls within the explosive limits;

- There is a source of ignition.

**How can a business manage this risk?**

- 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 like edible oils processing are required to reduce their CO₂ emissions through setting targets. This can result in a need for substantial investment in new/clean technologies to achieve the emission targets set. These targets can be reflected in environmental permits;

- Consider air emissions under the requirements of EU air quality and emissions directives (e.g. Directive 2008/50/EC on ambient air quality also Industrial Emissions Directive (IED) 2010/75/EU) and local environmental regulations and permitting requirements;

- Reduce dust emissions through:

  - Ensuring proper maintenance of all
cleaning, screening and crushing equipment to prevent fugitive emissions;

- Enclosing and sealing plant and equipment to prevent escape and accumulation of dust;

- Using doors/plastic strip curtains on building access points;

- Redesigning processes to reduce free-fall distances and speed of movement for dry products;

- Replacing external bulk storage areas with silos, fitted with alarms to prevent overfilling;

- Installing a centralised piped vacuum cleaning systems;

- Installing dust extractors e.g. cyclones and fabric filters;

- Improving ventilation within buildings;

- Maintaining a slight negative pressure within storage vessels such as bins and silos.

- Reduce the risk of fire and explosion by:

  - Reducing dust emissions as above;

  - Locating equipment within a lightweight building so that the roof and wall cladding panels can act as explosion relief;

  - Fitting silos and bins with explosion relief;

  - Assessing explosion potential by zoning hazards within the facility and installation of intrinsically safe electrical equipment;

  - Ensuring vessels and tanks have sufficient emergency venting capacity to relieve excessive internal pressure in the event of fire; if the silo is contained within a plant, evacuate gases outside.

- Install dust and solvent emissions monitoring equipment at sensitive points;

- Inventory all GHG emissions associated with the edible oils processing process and its value chain, as well as the GHG emissions associated with life cycles of its products; this information can be used in the reporting processes where necessary, and to set effective reduction targets/initiatives.

### Noise

The noise generated by equipment and processes such as steam generation, condensers, ventilation, and pressurised air equipment as well as trucks can be a nuisance if the site is located close to residential areas and other sensitive receptors.

Noise induced hearing loss can occur from working in noisy areas, e.g. internal transport, conveyors, boilers, pumps, fans, and steam and air leaks.
How can a business manage this risk?

- Locate and design facilities to avoid sensitive receptors to noise;
- Enclose noisy machinery to isolate people from noise where practicable and reduce noise exposure through the hierarchy of controls;
- Provide hearing protection as required.

Pesticides

Chemicals including pesticides and insecticides may be applied to raw materials and/or physical structures to control pests. Pesticides are potential pollutants which may cause environmental and health impacts.

Toxic pesticides which biodegrade slowly, can accumulate in body tissues and be harmful to ecosystems and human health. Accidental exposure to hazardous substances (e.g. pesticides) can result in dermal contact and inhalation. Contact can lead to burns or inflammation of skin or allergy. Inhalation can lead to respiratory difficulties.

How can a business manage this risk?

- Provide personal protective equipment (PPE) that is fit for the task to prevent exposure/risk and maintain hygiene standards, e.g. gloves overalls, respirators, aprons etc.;
- Train staff in the correct selection, use and maintenance of PPE;
- Implement worker management plans to ensure that workers with allergic reactions are not working with substances that cause a reaction;
- Conduct health screening of new staff and regular health monitoring of existing staff.

Organic Products and Labelling

Processing and production of organic products that are sold and labelled as organic must meet a number of requirements under Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products.

How can a business manage this risk?

- Follow EU guidelines (834/2007/EC) which introduce requirements for production and labelling of organic products.

Machine & Electrical Safety

In a busy processing environment, injuries involving machinery or equipment are common. Conveyors, packaging machines...
and palletisers or operating fork lift trucks and delivery vehicles/trucks are commonly used in edible oil processing.

Over a quarter of all manufacturing injuries occur in the food processing industries.  

How can a business manage this risk?

- Within the EU, machinery purchased after 1 January 1995 must comply with the Machinery Directive 98/37/EC;
- Assess machine safety in consultation with machine operators, reduce hazards according to the hierarchy of controls and undertake modifications/install guards and interlocks as required;
- Assess electrical installations and ensure that appropriate insulation, earthing and residual current devices (RCDs) are in place;
- Separate people from vehicle movement to ensure the safety of workers, the community and the public;
- Train vehicle and forklift drivers to properly operate the machinery and equipment.

Manual Handling

Lifting, repetitive work and posture injuries can occur from lifting and carrying heavy or awkward shaped items, and manoeuvring carts/manual forklifts.

Repetitive tasks such as the operation of slicing and vacuum-packing machines can lead to musculoskeletal injuries and work-related upper limb disorders (WRULDs).

How can a business manage this risk?

- Redesign manual processes and rotate work tasks to avoid heavy lifting and repetitive activities;
- Install mechanical lifting aids where possible.

Slips, Trips and Falls

Food preparation processes may require access to elevated areas such as gantries, vats and storage silos. These activities may require working at height.

How can a business manage this risk?

- Effective design can often eliminate the need to work at height but in the event that it is necessary, such work should be carefully managed and controlled;
- Install correct fall arrest systems (guarding and harnesses attached to fixed anchor points etc.).
Polychlorinated Biphenyls (PCBs) & Asbestos

PCBs may be present in electrical switchgear, transformers and fluorescent light starters.

Asbestos may be present in fire proofing and insulation material, including as asbestos cement boards, as fire retardant gaskets in pipe work and as fire retardant insulation around boilers and furnaces, particularly in older buildings.

Both materials give rise to risks to the environment and health and safety.

How can a business manage this risk?

- Where the presence of asbestos or PCBs is known or suspected, seek professional advice.

Confined Spaces

Edible oils processing facilities contain vessels such as tanks and pits which may require entry by staff during maintenance and cleaning activities. Entry to confined spaces without effective management and control can result in engulfment and asphyxiation.

How can a business manage this risk?

- Implement confined space procedures, provide training, equipment and control systems if confined space entry is necessary.

Temperature

High temperatures can lead to collapse through heat exhaustion and contact burns.

How can a business manage this risk?

- Minimise time needed for staff to access high temperature areas, issue protective clothing and ensure that regular breaks and hydration takes place.

Labour & Working Conditions

Edible oils processing operations may use casual and contract labour. Poor working conditions for casual labourers in the food processing sector is a key labour risk.

Child labour is a prevalent risk particularly in relation to smaller-scale family run operations.

Worker accommodation standards, particularly for temporary/casual labourers, may not reach the standard required for permanent employees.
How can a business manage this risk?

- Comply with International Labour Organisation (ILO) requirements on working hours, pay, overtime, etc.;
- Include all ILO prohibitions on child labour into contracting agreements;
- Provide appropriate worker accommodation which meets, at a minimum, the basic needs of workers, national legislation and international good practice.

Relations with Local Communities

Having good relationships with neighbouring communities reduces the risk of local opposition to food processing activities. Opposition may arise from odour emissions and increased traffic.

How can a business manage this risk?

- Engage with the local community and assess opportunities for their involvement in employment or in provision of goods and services;
- For large-scale intensive facilities, or in highly populated areas, prepare a Stakeholder Engagement Plan (SEP);
- Manage traffic flows with consideration of local communities.

3. Financial Implications

Outlined below are key financial implications of management of E&S risks related to edible oils processing.

- Product recall can have a significant impact, e.g. compensation claims, loss of reputation, loss of contracts and in terms of export markets. Significant upgrades in hygiene standards may be required at the production facility in order to reduce the risk of contamination during processing and to satisfy national and European food hygiene standards. A system of product traceability is required to facilitate product recall;
- If oil and solvents are allowed to enter the effluent stream, the cost of treatment increases and this represents the loss of valuable by-products;
- Significant capital expenditure might be required to maintain environmental, health, safety and hygiene standards;
- Capital and operational investments to obtain and maintain industrial emissions permits and, where applicable, achieve compliance with Best Available Techniques (BAT);
- Capital and operational investments to prevent and minimise the risk of contamination of soil, surface water and
groundwater resources from edible oils processing waste;

- Injuries may lead to increased payroll costs to replaced workers;

- Fines, penalties and third party claims may be incurred for non-compliance with environment, health and safety regulations;

- Capital expenditure for installing or upgrading wastewater and waste treatment facilities;

- Capital expenditure for installing or upgrading storage facilities for chemicals, fuels and oils;

- Product contamination issues may result in restrictions on price and demand, and export markets (e.g. EU);

- Inadequate health and safety provisions (including risk assessments, training, infection control and provision of Personal Protective Equipment (PPE) etc.) for workers (permanent, temporary and/or casual) may lead to absenteeism, health care costs or health and safety incidents and claims;

- Community health and safety impacts from edible oils processing (e.g. exposure to contaminated drinking water and/or living in proximity to infectious diseases) may lead to reputation damage, legal challenges/prosecutions and/or compensation claims.

4. Suggested Due Diligence Questions

When assessing E&S risks, it is important to engage the customer on how these risks are managed.

Perform a complete tour of the facility, accompanied by someone knowledgeable about all the activities at the site.

Confirm organisational responsibilities and systems for environment, health, safety and social matters and that these systems cover both employees employed directly and sub-contractors.

During the initial site visit, the issues will vary according to the type of edible oils processing and the level of environment, health and safety and hygiene management already introduced. While visiting the site it is important to discuss and review the following:

**General Housekeeping**

- Check the condition and containment arrangements of raw and finished product storage facilities;

- What is the standard of general housekeeping on site? Do areas look clean and tidy? Look for localised spills, leaking pipes etc.;

- Check the age and condition of buildings and equipment.
**Health and Safety**

- Check whether Health and Safety risks have been systematically assessed, documented and addressed;

- Check whether efforts have been made to reduce hazards through application of the hierarchy of controls i.e. eliminate, substitute, engineer, administer then issue personal protective equipment PPE as a last resort (e.g. install noise reduction equipment before resorting to issuing hearing protection);

- If PPE is required, check that it is being supplied by the employer, is used effectively and maintained/checked regularly;

- Note the signage around the site, does it convey what health & safety risks might exist in areas?

- Check whether an asbestos survey has been undertaken at the facility, have the costs for management/removal been assessed, and if asbestos exists, is an asbestos management plan in place?

- Check whether fire-fighting and first aid equipment is available, and is it checked/maintained regularly?

- Have the premises been inspected recently (within the past 2 years) by the regulatory authorities for health, hygiene and environment? What were their findings?

**Edible Oils Processing Management Practices**

- Check the source of raw materials. Are the levels of pesticides and other contaminants quantified and within guidelines? What is the source and origin of Oil Palm if used in the process?

- Does the organisation have insurance in place to cover product contamination? Have there been any recent incidents? Has the company any other insurances and have there been any claims against these policies?

- Is the facility subject to any audits by customers? What was the outcome of these audits?

**Waste Management**

- Check that waste disposal takes place on a regular basis;

- Check 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;

**Wastewater and Surface water Management**

- Check whether drainage systems lead to wastewater treatment systems or discharge directly to surface waters;

- Check whether the routing of wastewater drainage systems within the facility are well understood; has the facility undertaken dye tracing and/or video surveying of drain systems?

- Check that the routing of surface water drainage systems from the facility are well understood (and are separate to the wastewater drainage system); has the facility been the subject of surface water pollution incidents; is any system in place to capture surface water in the event of a release, or a
first flush system to capture an initial washdown?

- Check the extent of treatment/capture systems for the different types of wastewater, including process water, surface water runoff and cleaning water;

- Check if monitoring and testing is undertaken as a requirement of operating licences and the extent of compliance in recent years;

- Note the colour and appearance of adjacent water courses.

Pollution Control

- Is the facility next to any vulnerable water bodies, sited in a floodplain, or close to groundwater sources which may be contaminated by activities?

- Check the location and condition of oil and chemical storage areas. Are these well controlled, appropriately constructed and is containment / spill clean-up equipment provided?

Labour Management

- 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 staff should 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?

- Check worker accommodation.

Incident Management

- Check if any recent incidents have taken place on site involving serious injuries, fatalities, fires/explosions, spills or gas releases of ammonia or chlorine. Note whether these incidents were investigated and staff trained.

Community Complaints/Grievances

- Is a grievance mechanism in place to allow the community to raise concerns regarding farming operations?

- Note any history of public complaints relating to the facilities operation.

Investment

- Check if the business has budgeted line items for environment, health and safety improvements - check whether there are any high value improvements in the business plan for E, H & S issues in the coming months/years.

Regulatory Compliance

- Check if the Company has received inspections from the local labour, H&S or Environmental inspectorate in the previous
three years and whether these have resulted in any penalties, fines, major recommendations or corrective action plans.

- Establish whether the company has undertaken a systematic, documented review of operations against national legal requirements relevant to Environmental, Health, Safety and Social performance and the extent of compliance with that legislation.

Management Plans

- Review the operational procedures and management plans available regarding the control of risks. As a minimum any business should have the following in place:

  o Environmental, Health & Safety management systems which include operational procedures that are communicated, implemented and regularly reviewed (i.e. ‘live’ systems that are used in practice, not just kept as an office manual);

  o Monitoring programmes to monitor environmental, health & safety, and hygiene risks (and where necessary, testing of water, air, noise, waste emissions etc.);

  o Improvement objectives, targets and project plans;

  o A training plan for personnel to include environmental and health and safety issues;

  o Emergency plans for environment, occupation & community health & safety, and food safety incidents and site security;

  o Food safety management plans;

  o Environmental, Health, Safety and Food Safety audits of its operations conducted via a third party;

  o Demonstrable involvement of senior management in environment, health & safety, and hygiene management and leadership.
5. References and Additional Sources


Sub-sectoral Environmental and Social Guideline: Edible Oils Processing


