BARCLAYS

Environmental and Social Risk Briefing

Forestry & Logging

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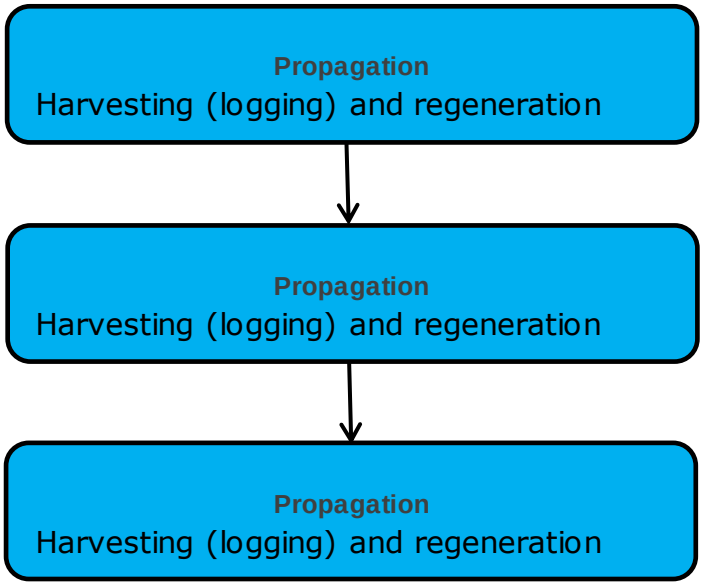
1. Introduction

This Environmental and Social Risk Briefing covers the Forestry and Logging industry. Forestry is the practice of managing and using, for human benefit, the natural resources that occur on and in association with forested lands. Logging is the practice of felling and removing trees or the removal of dead or damaged trees from an area, most commonly followed by regeneration of the area to a tree crop. Operations such as land clearing, timber harvesting, timber processing, mechanical site preparation, silvicultural treatments and road construction are also discussed.

The Forestry and Logging life cycle is spilt into three main phases. The first phase encompasses the harvesting or felling trees, and forest regeneration. The second phase incorporates the movement of the trees / wood to a distribution or production facility. The third phase is the wood processing in to a range of final products. Each phase will be discussed below.

Forestry and Logging Life Cycle



2. Logging and Regeneration

2.1 Logging and forest clearance

Logging is the practice of felling trees, either selectively or by clear felling, and removing them from the forest. Most conventional logging is either for pulpwood production, for the manufacture of paper or for saw logs for lumber production.

The standing tree is felled by chainsaw or large - scale machinery de-limbed and cut into logs of variable length. Ground vehicles are then used to transport (pull, carry or shovel) the logs to the designated loading points where primary processing takes place into various log grades. The logs are transported out of the forests commonly by truck, which use access roads and tracks constructed through the forest..

The clearance of forests can cause a range of environmental impacts to air quality, water, soil, flora and fauna. The clearance of native vegetation is particularly controversial and regularly attracts the attention of local and international NGOs.

Regions vulnerable to illegal forest activities include the Amazon Basin, central Africa, south east Asia, particularly Malaysia and Indonesia, and some of the Baltic states.

2.2 Regeneration

After harvesting, regeneration activities are implemented. These vary depending on the proposed land use. Regeneration activities can include the use of fire to encourage seed germination, or hand planting of seedlings into prepared soil. Intensive land uses such as plantation development can involve substantial site preparation in removing post harvest debris.

Following the initial regeneration phase, most forests also undergo on-going management inputs, which may involve use of fertiliser for optimising plant nutrition, or chemicals or manual removal of undesired species.

3. Transport

Logging roads are constructed to provide access to the forest for logging and other forest management operations. These vary markedly in road quality, and can include designs of a temporary nature only, such as use of natural surfaces and temporary bridges. Logging trucks when loaded, can carry up to 40 tonnes of wood. In some areas dedicated private use roads are created.

Construction of these roads, especially on steep slopes, can increase the risk of erosion and landslides, which can increase in downstream sedimentation. Logging roads can be the major source of eroded sediment long after actual logging operations are completed in an area. The decommissioning of these roads involves the restoring of natural habitat, which can be quite expensive.

The cost to the public of such road building varies with each jurisdiction and the type of logging licence held by the operator. Although many roads are justified to the public as providing access for recreational and other non-logging users, in many places, a clear decision on the long term intended use of the land, and its related access needs, is not made. Similarly long life roads require on-going maintenance and costs need to be recognised to maintain the road value.

4. Processing

4.1 Timber Products

Softwood and hardwood timber is received, segregated, cut to size and dispatched to sawmills. Prior to dispatch the wood is often seasoned, heat treated or treated with preservatives. Wood preservatives impart protective properties to the wood guarding against weathering and attack by pests. The preservatives are applied to the surface of wood by pressure impregnation, by 'deluging' (a mechanical application by flooding or spraying), by dipping or immersion or by thermal processing (immersion in a hot bath of preservative). The application of a vacuum helps to improve the effectiveness of the process and to prevent wastage.

Engineered wood products are made from veneers of solid wood that are bonded together under heat and pressure with strong adhesives. Depending on the type of product, the veneers are bonded either in aligned or perpendicular to each other. The veneers vary in thickness depending on the desired end product. Many of the engineered wood products are then re-combined into differing configurations such as I-beams or plywood. Commonly timber undergoes drying and treatment with preservatives.

Reconstituted products can be manufactured from forest and sawmill residues, including bark and sawdust and mechanically produced wood chips. These are bound together using a synthetic resin and heat. Binding occurs in a heater press where the resin is cured at high temperatures. After curing, the board is cooled, cut to size and sanded to produce a smoother finish. Use of woodchips produces a high-grade product such as medium density fibreboard, whilst use of residues such as bark and sawdust tends to produce lower grade board such as particleboard

4.2 Pulp and Paper Products

Pulp is a concentrated mixture of fibres created from the conversion of raw materials, generally wood, recycled paper and agricultural residues and suspended in liquid. The pulp is then used to produce various paper and board products, often in combination with fine clays. The main stages in pulp and paper manufacturing are raw material preparation, pulp manufacturing, pulp bleaching, paper manufacturing and fibre recycling.

At the paper facility, water is added to the pulp mixture to produce very thin slurry, which is drained through a fine-mesh moving screen to form a fibrous web. This moving web is pressed and dried into a continuous sheet of paper. Residual moisture is then removed and further fibre bonding occurs when the paper is passed through a series of steam-heated cylinders. Final stages in the process include coating, further drying and calendering, where the sheet is pressed between metal rollers to reduce the thickness and smooth the surface. A wide range of paper grades are produced, ranging from high quality paper for magazine and wrapping papers, through newsprint down to carton and containerboard production used in transportation of many light goods and foodstuffs.

The production of paper can potentially cause a range of environmental impacts including air emissions (nitrogen dioxide, sulphur dioxide and carbon dioxide), and the release of inorganic materials which cause impacts to water quality,. However, these impacts can often be mitigated by the use of chlorine free bleach.

4.3 Printing and Publishing

There are several different types of printing processes: heat set web offset, gravure/intaglio, flexigraphic and cold set web offset. These processes use prepared ink and apply them to a material, usually paper. The inks maybe water or solvent based. For most but not all the processes require that the carrier (the water or the solvent) is evaporated to leave the dry printed article. Where the carrier is a solvent this will give rise to solvent emissions that in most cases are stringently regulated.

5. Forest Clearance for Biofuels

5.1 Palm Oil

Palm oil has become a major, global agricultural commodity which is used in a wide range of food and non-food products. 85% of global output comes from Indonesia and Malaysia, with China, the EU, India and Pakistan being major importers.

Various environmental issues are associated with the production of palm oil including deforestation, biodiversity loss, greenhouse gas emissions and conversion of high conservation value and peat land. Social issues include concerns regarding legal and traditional land use rights, land acquisition, and treatment of local and indigenous communities. In recent years, cultivation of oil palm has grown exponentially which has resulted in increased attention on the environmental and social sustainability of the sector, particularly in Indonesia and Malaysia.

IFC and World Bank

The IFC (International Finance Corporation), a member of the World Bank Group, supports and invests in Palm Oil projects, so long as the IFC's Performance Standards and the World Bank's Safeguard Policies have been met. The World Bank provides advisory services for private sector palm oil development projects and encourages the development of appropriate international standards and codes of practice.

In August 2009, due to growing critique relating to the unsustainability of palm oil plantations in countries such as Indonesia, Malaysia and Papa New Guinea, the World Bank decided to suspend finance to the entire palm sector and ordered the IFC to carry out an audit. The results indicated that loans that should have been classified as higher risk were listed as 'low-risk' thereby avoiding more comprehensive social and environmental checks. IFC have since developed a strategy to guide its involvement in the palm oil sector which was published in March 2011. The revised approach to the palm oil sector includes the early assessment of key risks on a country by country basis. This will be supported by a range of tools (to be developed) including a good practice note, risk screening assessment tool, and monitoring and evaluation measures.

Roundtable on Sustainable Palm Oil (RSPO)

The RSPO is a non-profit association, developed to promote the growth and use of sustainable oil palm products through credible global standards and engagement of stakeholders from seven sectors of the palm oil industry. It has developed a code of practice, known as the Principles and Criteria (P&C), which certifies that palm oil plantations are managed in a sustainable way. In November 2008, the RSPO implemented an auditable certification system, CSPO (Certified Sustainable Palm Oil), based on the P&C, which provides certification that palm oil production is being managed in a sustainable fashion and tropical forests have not been cleared during its production. In addition to the RSPO, other relevant certification bodies can be consulted, such as the Roundtable on Sustainable Bio fuels and/or the Rainforest Alliance.

Several Asian and European companies are actively seeking to invest in suitable areas in Liberia, Cameroon, Democratic Republic of Congo, and Brazil where prospects for palm oil growth are moderate to good. In the immediate future, expansion of the industry will most likely continue to be centred in Southeast Asia where governments are supportive of the palm oil sector

5.2 Soya

Soy monocultures are expanding to supply the growing markets for cheap animal feed and agro fuels. Soya is mainly produced in the US, Brazil and Argentina.

There are numerous environmental and social impacts of soya monoculture production, especially linked to their continued expansion. Conversion of forests and savannas has resulted in deforestation and loss of biodiversity, as well as disruptions to groundwater and rain water patterns. Environmental groups, such as Greenpeace, claim that soya bean production in Brazil is destroying huge areas of the Amazon rainforest. Rivers have also been affected by leeched herbicides used on crops, from siltation due to removal of forest cover and from disruption to downstream flows due to dams built by farmers. Large-scale use of synthetic fertilizers and pesticides can pollute ground water, affecting both wildlife end human health.

Social problems include land conflicts and displacement, loss of livelihoods and increased local unemployment. Thousands of small farmers, who cannot compete with large producers in an increasingly globalised market, have been driven out of employment.

Roundtable on Responsible Soy (RTRS)

The RTRS is an international multi-stakeholder initiative founded in 2006 that promotes the production of soy in a responsible manner to reduce social and environmental impacts while maintaining or improving the economic status for the producer. In June 2010, the RTRS Standard for Responsible Soy Production was published, providing guidelines for responsible soy production. Basic requirements for certification include legal compliance and good business practices, responsible labour conditions, community relations, good agriculture and environmental practices.

Environmental groups, such as Friends of the Earth, criticised the RTRS for failing to address the major social and environmental impacts of industrial scale cultivation and asserted that certification provides a façade of sustainability for multinationals and agribusinesses.

5.3 Jatropha

The jatropha plant was thought to be a sustainable source of plant oils which would require less water than other biofuel crops and could grow on marginal land, unsuited to conventional agriculture.

Recent studies have shown that this is not the case and that although it is possible for the plant to survive with little water, yield is low. To grow successfully it requires fertile soils with a plentiful water supply. Many governments, mostly of developing economies, are trying to press farmers into converting their farms to produce jatropha, putting it in direct competition with food production. Due to this, the plant could be a threat to smallholder farms, whose productive agricultural land could be taken over by multinationals to cultivate jatropha crops. In June 2009, Friends of the Earth reported that jatropha plantings are replacing food crops in Swaziland. Some scientists do believe that if the jatropha plant was to be cross bred to maximize yield, it may become a better biofuel producer.

6. Key Sector Risks and Headline Issues

In large-scale forestry and logging operations some critical issues of particular public concern may result in reputation or credit risk to an investor, these include:

- Legality of supply chain;
- Degradation of forest values and sustainability- loss and fragmentation of habitats – loss of biodiversity- disturbance to protected species;
- Human rights of workers and surrounding communities;
- Ecological degradation/deforestation - cash cropping of soya, palm and rubber;
- Climate change - long term impact of deforestation and greenhouse gas emissions from processing;
- Sustainable community development;
- Involuntary resettlement and relocation;
- Land rights of resource dependent communities for livelihood and subsistance;
- Health risk of pollution arising from timber processing;
- Forestry mining and clear felling – requirement for re-planting schemes; and
- Revenue Transparency.

7. Risks and Controls

7.1 Environmental Risks

7.1.1 Propagation and Harvesting

Life Cycle Phase and Activity	Risks	Controls
New Build	**Pressure on natural resources –** • Destruction of high conservation value forests • Non-sustainable harvesting of forest resource • Conversion of primary forest (i.e. currently uncut forest) • Changes in carbon dioxide levels due to the large scale forest clearing **Habitat depletion, fragmentation and degradation –** • Natural and manmade habitats (e.g. disturbance to protected species; loss of fish farms and spawning areas due to siltation due to erosion) • Mudslides and landslides **Impact on terrestrial and aquatic ecology** – replanted trees, monoculture and / or low quality saplings) **Employee health and safety** - dust and chemicals exposure, **solid/liquid waste (production and disposal)** **Disruption to surface water (hydrological) and**	**Supply chain sustainability –** • Identification and protection of high conservation value forests (HCVF) and primary forest • Confirm post harvesting land use with existing forest owners and other stakeholders and plan operations around these agreed land uses • Third party independent assessment of forest management performance and focus on sustainable harvesting, under internationally accepted schemes such as FSC. • Third party confirmation of sustainable wood supply through implementation of internationally recognised process of chain of custody **Sustainable Forestry and Biodiversity Management –** • Implementation of active forest regeneration programmes and determination of sustainable yields by forest type • Conduct regular (i.e. annual) third party review of performance against major planning processes (i.e. forest protection and regeneration, sustainable yields)

Life Cycle Phase and Activity	Risks	Controls
	groundwater (hydrogeological) systems and flows – fuels, lubricants and ancillary chemicals from use of heavy machinery / spillage **Bioaccumulation and contamination of food chain** – use of fertilizers and pesticides **Landscape scarring and visual impact** – clear felling **Accidental/Unplanned Events** – inappropriate use of fire or unplanned fire events	**Water management** – protect / avoid water resources, minimisation and spill prevention, response planning, responsible waste vegetation management **Forest fire management** – should include prevention, suppression and training **Industry standards and best practice** – application of international standards and codes of practice for forest planning and harvesting

7.1.2 Transport

Life Cycle Phase and Activity	Risks	Controls
Capture Fisheries (Commercial Fishing)	**Strain on infrastructure and public nuisance** – Strain on local transport networks and infrastructure **Habitat depletion, fragmentation and degradation** – • Soil erosion • Access roads • Opening new areas for agricultural use leading to degradation and overuse • Disruption to wildlife migration routes, • Fragmentation of habitat and; • Loss of species due to increased traffic volume	**Transport management** – • Careful route selection plan access road routes carefully • Construct access roads so as to control drainage and minimise surface run-off • **Rehabilitation/Restoration and Biodiversity Management** • Establish reserved areas for natural regeneration and maintain and plant native species • Limit disturbance to other vegetation and landforms

Life Cycle Phase and Activity	Risks	Controls
	Disruption to surface water (hydrological) and groundwater (hydrogeological) systems and flows – fuel, lubricant and chemicals from use of heavy machinery **Strain on infrastructure and public nuisance** – strain on local transport networks and infrastructure specifically harvesting and transport vehicles and effects on regional communities	

7.1.3 Processing

Life Cycle Phase and Activity	Risks	Controls
Wood Products	**Pressure on natural resources** • Supply contributing to destruction of high conservation value forests and primary forests • Unsustainable harvesting of forest resource **Atmospheric emissions:** • Dust, boiler and dryer emissions, onsite burning • Pollutants (VOC, NOX, SOX, PM10, CO, CO2, etc) • Greenhouse gas production • Odour and noise **Disruption and pollution to surface water (hydrological) systems and flows** – accidental spillage and storage leaks of timber treatment preservatives	**Supply chain sustainability -** • Third party confirmation of sustainable wood supply through implementation of internationally recognised process of chain of custody such as FSC or PEFC (preferably FSC as PEFC performance standard and chain of custody control mechanism is weaker) **Environmental management plans** – water quality management, spill prevention and response, air quality etc. and ensure that compliance is monitored **Best Available Technique Not Entailing Excessive Cost (BATNEEC)** – e.g. install dust cyclones and filters, acoustic boards and sound barriers

Life Cycle Phase and Activity	Risks	Controls
	Disruption and pollution to groundwater (hydrogeological) systems and flows – bulk chemicals, resins, adhesives and wood treatment agents accidental spillage or leakage from wastes **Employee health and safety** – exposure to chemicals (known carcinogens), dust, noise and unguarded machinery **Community health and safety** – transport accidents, emissions/discharges (aqueous and gaseous), noise, dust and vibrations vehicles and sawmills **Accidental/unplanned fire** – flammable material and spark sources – e.g. ply board, chipboard waste / dust	**Hazardous waste, storage and disposal plans** – employ appropriate health and safety measures for containment of chemicals **Waste management** – apply appropriate waste / waste water storage, and disposal management measures **Fire management and training plans** – protection / prevention equipment e.g. Use protective clothing / equipment
Pulp and Paper	**Pressure on natural resources –** • Source and supply may contribute to destruction of high conservation value forests and primary forests • Reliance on non-sustainable harvesting of forest resource • Potentially high water and energy resource consumption **Atmospheric emissions:** • Gaseous emissions from boilers and acid gases, and fugitive chip dust generated from chip handling and stacking operations • Pollutants (VOC, NOX, SOX, PM10, CO, CO2, etc)	**Supply chain sustainability** • Third party confirmation of sustainable wood supply through implementation of internationally recognised process of chain of custody such as FSC and PEFC • All sponsor developed Environmental Impact Statements are reviewed by independent third party reviewer **Environmental management plans –** • Water quality management, spill prevention and response, air quality etc. and ensure that compliance is monitored

Life Cycle Phase and Activity	Risks	Controls
	• Greenhouse gas production • Dust and noise **Odour** – highly noxious sulphide containing compounds **Disruption and pollution of surface water (hydrological) systems and flows** – liquid bleaching effluents and wastewater containing organic matter, suspended solids, dioxin by-products and dissolved salts **Disruption and pollution of groundwater (hydrogeological) systems and flows** – accidental spillage, leakage from waste of bulk chemicals e.g. caustic soda, biocides and sodium hypochlorite	• Odour elimination / containment processes **Hazardous waste, storage and disposal plans** – employ appropriate health and safety measures for containment of chemicals **Use Best Available Technique Not Entailing Excessive Cost (BATNEEC)** – wastewater treatment design **Waste management** – apply appropriate waste / waste water storage, disposal management measures **Fire management and training plans** – protection / prevention equipment e.g. Use protective clothing / equipment
Printing and Publishing	**Pressure on natural resources –** • Contributing to destruction of high conservation value forests • Reliance on non-sustainable harvesting of forest resource **Atmospheric emissions:** - solvent emissions from solvent based inks • Pollutants (VOC, NOX, SOX, PM10, CO, CO2, etc) • Greenhouse gas production • Dust and noise **Disruption and pollution of groundwater**	**Supply chain sustainability** - • Third party confirmation of sustainable wood supply through implementation of internationally recognised process of chain of custody such as FSC and PEFC • All sponsor developed Environmental Impact Statements are reviewed by independent third party reviewer **Environmental management plans –** • Govern water quality, spill prevention and response, air quality etc. and that compliance is monitored

Life Cycle Phase and Activity	Risks	Controls
	(hydrogeological) systems and flows - accidental spillage, leakage from waste of bulk chemicals e.g. solvents and oils **Accidental/unplanned events** – Explosion and fire due to heat of production equipment **Liquid waste (production and disposal) and disruption to surface water (hydrological) systems and flows** – contamination from wastewater discharge	• Use of water based inks to eliminate solvent emissions **Waste management** – apply appropriate waste / waste water storage, disposal management measures **Fire management and training** – protection / prevention equipment e.g. Use protective clothing / equipment

7.2 Social risks

7.2.1 Propagation and Harvesting

Life Cycle Phase and Activity	Risks	Controls
Felling etc.	**Pressure on natural resources –** • Illegal log and timber supplies entering supply chain • Destruction of high conservation value forests • Non-sustainable harvesting of forest resource **Land acquisition – displacement** – loss of land leading to poverty, social disruption, migration, involuntary resettlement requiring relocation and compensation claims **Community health and safety** – noise, vibration, dust creation, transport movement and road safety, emissions and air quality from vehicles, harvesting plant and	**Supply chain sustainability** - • Third party confirmation of sustainable wood supply through implementation of internationally recognised process of chain of custody such as FSC and PEFC • All sponsor developed Environmental Impact Statements are reviewed by independent third party reviewer **Resettlement and relocation management** – proper compensation, restoration of livelihoods and living standards

Life Cycle Phase and Activity	Risks	Controls
	equipment **Communicable diseases** – spread of diseases to local / foreign populations from foreign/migrant work populations **Cultural /Archaeological Heritage** – Damage/ destruction of cultural/ historical/ archaeological/ religious sites **Loss of livelihood** – economic displacement – job competition, esp. people without formal land title, conflict between locals and outsiders **Disruption of social / community cohesion and exclusion of vulnerable groups** • Breakdown of social networks and structures • Socio-economic exclusion of ethnic minorities and indigenous peoples • Socio-cultural tensions between local and foreign workforce from influx and outflow of migrants/ temporary workers and attraction of seasonal residents to project area **Working conditions and labour rights** – Exploitative working conditions, included bonded labour, particularly in remote areas and where migrant labour is used	**Community relations management** – management of interface between local communities and outsiders through stakeholder identification and consultation (including governmental/national/regional/local stakeholders). **Community safety management** – establishment of safety buffer zone around felling operations **Cultural heritage / archaeology management** – protection of cultural / archaeological sites in accordance with country's laws/international standards and conventions **Social / community baseline assessment** – establish community profiles (e.g. livelihoods and employment) in project area, through detailed social baseline assessments to inform mitigation measures and the development of long term agreed community investment/development Labour and recruitment assessment – for high risk scenarios.

7.2.2 Access roads

Life Cycle Phase and Activity	Risks	Controls
	Community health and safety – noise, vibration, dust creation, traffic movement and road safety, emissions and air quality; **Cultural / archaeological heritage** – Damage/ destruction of cultural/ historical/ archaeological/ religious sites **Land acquisition – displacement**– resettlement/relocation (including squatters) because of right-of-way acquisitions and loss of traditional lands / cultural property **Loss of livelihood – economic displacement** – esp. income and land depreciation **Community health and safety** – water source contamination from surface runoff from roads and soil runoff from bare lands resulting from earthmoving activities **Land acquisition – loss of access** – opening up of natural habitats to human access/settlement – impact on protected conservation **Strain on infrastructure and public nuisance** • Strain on transport networks and local infrastructure • Infrastructural impacts (e.g. access roads – opening	**Community relations management** – management of interface between local communities and outsiders through stakeholder identification and consultation (including governmental/national/regional/local stakeholders) **Cultural heritage / archaeology management** – protection of cultural / archaeological sites in accordance with country's laws/international standards and conventions **Transport management plans** – appropriate driving training and road safety awareness in communities **Resettlement and relocation management** – proper compensation, restoration of livelihoods and living standards **Community health and safety plans** – vaccinations and awareness raising on communicable diseases

Life Cycle Phase and Activity	Risks	Controls
	new areas for agricultural use leading to degradation and overuse) • Large vehicle traffic impede the movement of inhabitants **Communicable diseases** – spread of communicable diseases, e.g. STDs and HIV/AIDS, amongst workers and local community	

7.2.3 Processing and Production

Life Cycle Phase and Activity	Risks	Controls
	Pressure on natural resources – • Illegal log and timber supplies entering supply chain • Destruction of high conservation value forests • Non-sustainable harvesting of forest resource • Lack of long term secure sustainable timber supply (given pulp and paper mill investments require minimum of 15-20 years confirmed supply) **Community health and safety** – noise, vibration, odour, traffic movement, emissions and air quality **Stakeholder/public consultation and disclosure** – social conflict and unrest due to operations and inadequate information disclosure and explanation of project impacts	**Supply chain sustainability** • Third party confirmation of legal and sustainable wood supply through implementation of internationally recognised process of chain of custody particularly in large scale pulp and paper operations **Community/stakeholder relations management** • Management of interface between local communities and outsiders/foreign workers as well as community tensions, grievances and concerns through stakeholder identification and consultation and information dissemination about the project (including governmental/national/regional/local stakeholders)

Life Cycle Phase and Activity	Risks	Controls
	Communicable diseases – spread of diseases to local / foreign populations **Land acquisition** – displacement – Loss of access • Land acquisition (temporary and / or permanent) and resettlement – disruption to family/community hierarchy / assets • Inadequate or inappropriate land rehabilitation and restoration **Employee health and safety** – employment and labour standards Employment and poor labour standards, child labour and Employee health and safety **Disruption of social / community cohesion and exclusion of vulnerable groups** • Breakdown of social networks and structures • Socio-economic exclusion of ethnic minorities and indigenous peoples • Socio-cultural tensions between local and foreign workforce from influx and outflow of migrants/ temporary workers and attraction of seasonal residents to project area **Cultural / archaeological heritage** – damage to / destruction of cultural / archaeological sites / features **Host country governance, national economy and**	• Management of relations with NGO and national advocacy groups through consultation **Social / community baseline assessment** – detailed social baseline assessments to establish community profiles (e.g. social hierarchy, ethnic groups, socio-cultural and religious practices, skills profile) and public services / resources in a project area **Community investment and development** – community investment (both long and short term) – health care facilities, micro-finance initiatives **Site security plans** – ensure appropriate security measures and awareness raising are in place **Community health and safety plans** – vaccinations and awareness raising on communicable diseases **Human resource policies** – maximization of local employment **Cultural heritage / archaeology management** – • Identification, classification and protection of cultural / archaeological sites in accordance with the country's laws/international standards and convention • Implement "watching brief" during construction

Life Cycle Phase and Activity	Risks	Controls
	revenue transparency – local procurement and business, unregulated trade, sustainable economic growth, inflation, bribery, corruption and extortion **Strain on infrastructure and public nuisance** • Strain on transport networks drain on and overuse of local infrastructure • Capacity to absorb new / foreign populations (supply and demand) • Water resources, power, health, education, housing **Loss of livelihood (income and employment)** – economic displacement at closure– dependency on project related jobs	activities **Partnering and supporting host Governments -** • Encourage revenue transparency and good governance • Compliance with national / regional / local regulations **Resettlement and relocation management** – including measures for proper compensation, restoration of livelihoods and living standards

8. Key considerations

1. Does the farmer undertake activities that require authorisation from environmental regulators? If so, is the appropriate authority held?
2. Are high conservation value forests identified for logging? Are there plans in place to protect any protected forests that are located within a wider logging area?
3. Does the company or organisation responsible for management of the timber resource have certification to Forest Stewardship Council (FSC) or Pan European Forest Certification (PEFC)?
4. Are contents of the project and the potential impacts adequately explained to the project affected population based on appropriate procedures, including information disclosure? Is understanding obtained from the public? Are proper responses made to comments from the public and regulatory authorities?
5. Can the supply of logs and timber be third party verified to come from legal and sustainable sources?
6. For large scale processing or production facilities, has the long term secure fibre supply been confirmed by an independent third party environmental and economic assessment?
7. Are indigenous communities impacted as part of the development?
8. Has the company ever been prosecuted for environmental offences?
9. Is the company required to hold consents from the environmental regulator or local authority? Have current or future costs associated with complying with them been identified?
10. Has the site ever been used for landfill? (See Utilities and Waste Management Briefing Note)
11. In the harvesting or wood processing, are any nationally or internationally noted toxic chemical or hazardous substances going to be used?
12. For new sites or extensions to existing sites, has an Environmental Impact Assessment (ESIA) been undertaken to assess environmental impacts?
13. For large processing facilities, has the ESIA been assessed by an independent third party?

9. Regulation and Best Practice

Permits, consents and licences are likely to be required for forestry and logging operations the specifics of which will depend on the relevant regulatory framework in the location of the operation/facility. In developing regions, weaker governance structures may mean that there is less stringent implementation of local controls and regulations or indeed there may be no controls at all. In such cases the project proponent should ideally adopt international environmental and social standards and industry best practice.

In the case of almost all large-scale new build, expansion and development projects an Environmental and Social Impact Assessment (ESIA) will be required particularly where project debt financing is being sought. A comprehensive ESIA undertaken to international standards allows both the project sponsor and the investors to assess the full range of potential environmental and social impacts related to a project development, operation and decommissioning. Part of the ESIA process is to design appropriate mitigation measures and to set a framework for the monitoring the performance of these measures on a long-term basis. This limits and controls compliance and remediation costs as well as long term credit and reputation risks.

For smaller scale projects and operations a full ESIA may not be required. Focused studies on particular issues of concern may however, be helpful in identifying potential environmental and social risks associated with certain project activities.

10. Additional resources

Multilateral:

1) IFC Performance Standards
2) Global Environment Outlook Chapter 2 The State of Our Environment
3) Summary of EU Legislation regarding Water Pollution
4) Summary of EU Legislation regarding Air Pollution
5) International Labour Organization: Mandate
6) ILO's Lists of Subjects Standards have been decided upon -
7) Security Issues and Human Rights
8) Food and Agriculture Organization for the United Nations
9) United Nations Economic Commission for Europe
10) Annual Market Review of Timber Trade by UNECE and FAO
11) World Business Council for Sustainable Development Forest Products Industry
12) List of members of the World Business Council for Sustainable Development Forest Products Industry
13) Forest Communicators Network (A committee of the UNECE Timber)
14) Asian Development Bank, Handbook on Social Analysis November 2007

Government:

1) Environment Agency UK Monitoring Guidance notes for emission levels
2) Health and Safety Executive Noise Regulations (complete)
3) Health and Safety Executive Guidance for Employers for the Control of Noise at Work Regulations 2005
4) Air Quality Criteria for Particulate Matter Environmental Protection Agency United States Government
5) Environment Canada Convention on Biological Diversity
6) Health Canada Guidelines on Noise in the Workplace
7) Traffic Noise Information and Recommendations
8) Canada Labour Code Federal Law and Regulations

Industry Association:

9) Forest Stewardship Council
10) High Conservation Value Resource Network
11) Pan European Forest Certification
12) Roundtable on Sustainable Palm Oil
13) Roundtable on Responsible Soy
14) Sustainable Forestry Initiative
15) Forest Product Association of Canada
16) Programme for the Endorsement of Forest Certification Schemes
17) American Forest & Paper Association

18) Commonwealth Forestry Association
19) International Tropical Timber Organization