



International Finance Corporation

Environmental, Health and Safety Guidelines for

Forestry Operations: Logging

Forestry Policy

International Finance Corporation (IFC) forest-based projects are subject to an internal environmental review process to ensure that any proposed IFC participation is consistent with the spirit and intent of the appropriate World Bank guidelines and policies. World Bank policy as it relates to private sector investment and logging operations may be summarized as follows:

- a) support for investment in commercial logging in primary tropical moist forest is excluded
- b) all forestry operations must entail a commitment to an active program for sustainable and conservation-oriented forestry. This includes setting aside adequate preservation forests to protect and conserve biological diversity (flora and fauna) and environmental services such as watershed protection. Sustainable forest management may include cyclic use of tree plantations or sustainable, selective harvesting in secondary (previously harvested) forest stands
- c) the interests and livelihoods of indigenous peoples and forest dwellers must be adequately addressed through the project

Recognizing that forest operations are likely to occur in tropical moist forest in some countries, IFC will consider investments in upgrading the design and control of harvest operations as part of a program to transform to sustainable forestry, provided the following conditions are met:

- a) new plantations can be supported only on heavily degraded forest land or non-forested areas, or on good quality secondary forest if it

can be clearly shown that the area cannot reasonably be expected to recover to a healthy climax forest condition due to either ecological conditions or extraneous human encroachment (e.g., invasion by colonists or swidden agriculture) if the land is not protected through plantation concessions

- b) active programs are included where and as appropriate to encourage social and agro-forestry operations by local residents

Forest Management Plan

Project sponsors are required to develop a forest management plan. The plan should include the components noted below.

Basic Principles

- a) conversion of secondary forest to plantations in the concession area will be kept to the minimum required to sustain the raw material production rate
- b) selective tree removal and directional felling are encouraged in secondary forest areas
- c) multi-species and multi-age stands are encouraged in plantations
- d) maintenance of a sustainable, healthy, diverse environment within the concession must be a high priority for the company
- e) rights and welfare of local inhabitants will be respected and enhanced where possible
- f) the design and management of conservation areas will be undertaken so as to ensure sound

watershed management, reduction of soil erosion, and maintenance of biological diversity

g) to the extent practical, conservation areas should occur in the largest possible blocks of contiguous area, maintain connecting corridors of natural habitat where they must be separate, and maintain connections with natural habitat outside of the concession area

h) a unit shall be established in the company operations whose sole function is to monitor the environmental impact of the operation, the design and implementation of conservation management areas, and the relation of the company with local inhabitants and community programs

Water Resources

Both surface water and groundwater can be adversely affected by logging operations. Particular attention should be given in the forest management plan to:

- a) avoid harvesting areas of karst terrain, unstable slopes, slopes greater than 30%, highly erodible floodplain soils, or highly braided channel areas
- b) keep stream crossings to a minimum so as to reduce siltation (project sponsors are encouraged to consider log suspension for yarding across small streams)
- c) reclaim areas disturbed by drag lines and vehicles, preferably with native species
- d) protection of surface water and groundwater from contamination by any herbicide and fungicide applications (biodegradable chemicals are to be used and buffer zones should be maintained adjacent to water courses)
- e) buffer strips (no harvest or significant disturbance of vegetation) established on each side of stream banks, the width to be determined on a case-by-case basis by a qualified forester's evaluation of soil and ecological conditions in the logging concession

Road Construction

Road construction and road networks often represent sources of significant adverse effects on streams and rivers, which may extend to resources and resource users outside of the concession area. Particular attention should be given in the forest management plan to:

- a) maximize use of existing roads
- b) minimize the amount of cut and fill for roads
- c) culverts should be designed to carry reasonable flood flows and installed at natural channel grade to maintain drainage systems
- d) avoid poorly drained areas or placing roads on slopes more than 60%
- e) slash from road right-of-way clearing should be placed in windrows downslope of the road to act as a sediment filter, especially in fill areas
- f) construct water bars or employ other methods of rapidly diverting surface runoff from the road surface

Settlement Incursion

The forest management plan must address the risk of human incursion from settlers, squatters, or other human activities and the appropriate measures to minimize or reduce this impact. Appropriate measures can include:

- a) proper delineation of concession boundaries
- b) establishing plantations around designated conservation areas to the extent practical and consistent with the basic principles noted above
- c) preferential recruitment and training of local inhabitants for employment
- d) promotion of agro-forestry and community forestry programs where possible
- e) cooperation with extension programs operated by government institutions or non-governmental organizations to increase environmental awareness and technical skills among local people

All resettlement or relocation of local residents or communities must be in compliance with World Bank Operational Directive 4.30 (Involuntary Resettlement) and any local or national laws.

Workplace Air Quality

- a) dust collection, adequate ventilation, and lighting in all inside work areas
- b) provision of special footwear, respirators, and dust-proof clothing to personnel working in areas with high dust levels
- c) use of protective respiratory devices when the workplace dust levels exceed 10 mg/m³

Workplace Noise

- a) regular maintenance of equipment and facilities to minimize noise levels
- b) use of feasible administrative and engineering controls, including sound-insulated equipment and control rooms, to maintain the average noise level in normal work areas below 90 dBA
- c) use of hearing protection for personnel exposed to noise levels above 85 dBA

Safety

- a) established warning system for keeping employees safely away from falling trees
- b) safety gloves, safety helmets and non-slip closed shoes available for employees felling trees or handling sawn timbers
- c) saws stored in special racks away from possible casual or accidental contact
- d) guards and emergency devices on all mill saws
- e) ability to emergency stop conveyor systems from multiple locations other than the main control center -- a siren alert must be sounded before the conveyor is started

Health - General

- a) pre-employment and periodic medical examinations for all personnel
- b) on-site health center stocked with appropriate medications and first aid equipment and full time rapid response access to personnel trained in first aid
- c) ambulance service or comparable emergency response

Safety - General

- a) All steam pipes should be insulated.
- b) Shield guards or guard railings should be installed at all belts, pulleys, gears and other moving parts.
- c) Elevated platforms and walkways, and stairways and ramps should be equipped with handrails, toeboards and non-slip surfaces.
- d) Electrical equipment should be grounded, well insulated and conform with applicable codes.
- e) Eye protection should be worn by personnel when in areas where there is a risk of flying chips or sparks, or where intense light is generated.
- f) A fire prevention and fire safety program should be implemented and include regular drills.

Training

- a) Employees should be trained on the hazards, precautions and procedures for the safe storage, handling and use of all potentially harmful materials relevant to each employee's task and work area.
- b) Training should incorporate information from the Material Safety Data Sheets (MSDSs) for potentially harmful materials.
- c) Personnel should be trained in environmental, health and safety matters including accident prevention, safe lifting practices, the use of MSDSs, safe chemical handling practices, and proper control and maintenance of equipment and facilities.

d) Training also should include emergency response, including the location and proper use of emergency equipment, use of personal protective equipment, procedures for raising the alarm and notifying emergency response teams, and proper response actions for each foreseeable emergency situation.

Record Keeping And Reporting

- a) The sponsor should maintain records of significant environmental matters, including monitoring data, accidents and occupational illnesses, and spills, fires and other emergencies.
- b) This information should be reviewed and evaluated to improve the effectiveness of the environmental, health and safety program.
- c) An annual summary of the above information should be provided to IFC.