



# **SABAH FORESTRY DEPARTMENT**

DERAMAKOT FORESTRY DISTRICT  
(DERAMAKOT FR-FMU 19A & TANGKULAP/Sg. PINANGAH FR-FMU 17A)

Standard Operating Procedures

## **Procedures – Safety & Training**

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## **1.0 BACKGROUND & PURPOSE**

Sabah Forestry Department (SFD) has initiated a policy to pursue certification by meeting the requirements of Forest Stewardship Council (FSC) as well as national standards in its management systems for Sabah. To ensure that its operations are in line with FSC requirements the SFD has developed a series of Guidelines for forest management in 2008 that has been adopted into procedures for use in FMU 19A and FMU 17A.

The purpose of this procedure is to define the process for maintaining worker safety and essential training on the ground based Part III of the ILO Code of Practice on Safety and Health in Forest Work concept to meet the requirements of FSC as well as national standards in its management systems for Sabah.

## **2.0 SCOPE**

The scope of this procedure is limited to **worker safety and essential safety training** within FMUs 19A & 17A managed by SFD. The procedure is to ensure that work may be completed in a controlled, consistent and effective manner.

## **3.0 RESPONSIBILITIES**

The Head of Occupational, Health & Safety is responsible for:

- Identifying essential training based on machine use by contractors and workers
- Training of forest officers
- Ensuring the implementation of this procedure

The Forest Officer (Occupational, Health & Safety) is responsible for:

- Implementation of training workers on health & safety practices for forestry operation
- Implementation of emergency first aid practices
- Training of supervisors and rangers
- Reporting on procedure implementation

## **4.0 DEFINITIONS**

This procedure contains definitions of common terms used by FSC, GFTN, GFS and SFD in the procedures for forest management.

**FSC:** Forest Stewardship Council, an international non-government organization who (governs) the Forest Management and Chain of Custody standard.

**FMU:** Forest Management Unit, a clear defined forest area with mapped boundaries, managed by a single managerial body to a set of explicit objectives which are expressed in a self –contained multi-year management plan.

**OSHA:** Occupational Health and Safety, is an agency to prevent work-related injuries, by issuing and enforcing rules for workplace safety and health.

**PPE:** Personal Protective Equipment - any equipment or clothing worn to protect a worker from health and/or safety hazards associated with working conditions at a work

## **5.0 INTRODUCTION**

Occupation in forest operations exposes forest workers to hazardous situations, causing frequent accidents. Injuries of forest workers employed in field operations can be serious and even fatal. Accidents normally occur due to lack of concentration during work activities and poor supervision of untrained forest workers. Supervisors and forest workers must be responsible for working safely so they do not endanger themselves or other workers. Basic training of forest workers in forest operations (e.g.: harvesting, tree felling, machine operation, etc) and first aid are important to minimize the danger in this dangerous working field. In the State of Sabah, the Sabah Forestry Department (SFD) regularly conducts several training programs related to forest workers (District Forest Officers and assistants, Forest Rangers, and general forest workers).

Applying safety measures is a top priority that all forest manager and forest workers should comply with, according to the prevailing safety policies, guidelines and work rules. Compliance will assure a safe and healthy work environment. A safety and health program will effectively eliminate or control hazards faced by forest workers. The success of the safety program depends on clearly stated work rules, the implementation of practical safety and training measures, and the assistance and cooperation of all forest workers.

The Human Resource Department of SFD plays an important role in planning, coordinating, and conducting training courses and staff examinations covering basic safety and health requirements. The training courses held by SFD consist of both in-house and external training courses to upgrade the knowledge of their staff and forest workers related to current forest management standards and practices. Preference should be granted for employment and training of local workers for both SFD and Contractors

The following sub-chapters provide details on training and application of safety and health requirements for forest workers.

## **6.0 TRAINING FACILITIES FOR FOREST WORKERS**

SFD provides training facilities for SFD staff, forest workers, and contractors. Training is provided by SFD staff, external safety consultant, or any other equally qualified organization or individual. Training shall be provided in all safety and health areas. Training in forestry tends to focus on accident prevention and safety at the workplace, tree felling and extraction techniques, machinery and equipment handling, and provision of first aid practices. Training should be conducted based on:

- initial health and safety training for each current forest worker
- important changes in health and safety requirements
- prior to an initial assignment of new forest workers
- forest worker is assigned new working tasks, tools, equipment, machinery, or vehicles
- evidence that a forest worker applies unsafe work practices during job performance

Training courses on safety requirements should contain all key elements:

- Recognition of safety hazards associated with the forest workers specific work tasks, including the use of measures and work practices to prevent or control those hazards.
- Procedures, practices and requirements at the individual work site, to ensure safe performance of assigned work tasks.
- Safe use, operation and maintenance of tools and machinery, with an emphasis on understanding and following the manufacturer's operating and maintenance instructions, warnings and precautions.
- Recognition of safety hazards associated with specific work tasks, as well as preventive and protective measures to deal with such hazards.
- Provision of First Aid and emergency rescue

## **7.0 CONTRACTORS**

The following regulations apply to contractors:

- The contractor is responsible for employment of trained and certified logging professionals giving preference to local communities where possible.
- Training is particularly important for road construction (bulldozer/excavator/truck drivers) tree felling (chainsaw men) and extraction (bulldozer and skidder operators).
- Any such operator who is not certified at the time of hiring should obtain certification within one year of the date of contract commencement.
- All new and inexperienced as well as current supervisory staff and forest workers unfamiliar with a new job assignment should be properly trained (through internal or external training), until it can be satisfactorily demonstrated that forest workers know the health and safety requirements and are capable to carry out their assigned job functions in a safe manner.

- Contractors employing forest workers are responsible for ensuring that each current and new forest worker can safely perform the assigned work tasks, and operate the tools, equipment, machinery, and vehicles used during their job performance.

## **8.0 SAFETY REQUIREMENTS FOR FOREST MACHINERY AND EQUIPMENT**

All supervisors, forest workers, and machine operator involved in the forest operation should undergo basic training in safety requirements for forest machinery and equipment, and comply with Part III of the ILO Code of Practice on Safety and Health in Forest Work.

### **8.1 Chainsaws**

All chainsaws shall be maintained in good working order. Safety devices shall be operational at all times. Chainsaw must be equipped with basic safety features such as:

- Chain brake
- Throttle control lock-out to prevent the chain saw from being started accidentally
- Rear handle, protection guard for right hand in case of the chain breakage
- Chain catcher
- Chain guard for avoiding injuries and protecting the chain during transportation
- Anti-vibration device
- Guide bar cover
- Exhaust system

### **8.2 Machinery for Road Construction, Timber Harvesting and Transport**

Typical forest machineries used in Sabah include bulldozers, excavators, bucket and log loaders, and motor grader. These should be equipped with the basic safety features:

- Roll Over Protection Structure (ROPS, ISO 3471 and ISO 8082 standards) and Falling Objects.
- Protection Structure (FOPS, ISO 8083 standard) cabs or frames, conforming to international standards, and securely mounted with high tensile nuts and bolts
- All machinery should comply to government and manufacturer safety standards. Safety cab should not be modified, drilled, welded or altered in any way, nor should any attempt be made to straighten any part of the frame following damage.
- Rear portion of cabs or frames fitted with protective wire mesh (except log loaders, excavators, and motor graders)
- Parking brakes must be capable of keeping the machine and its rate load stationary on all slopes likely to be encountered
- First-aid kit and suitable fire extinguisher, firmly fixed and easily retrievable exhaust systems fitted with spark arrestor at times of high fire risk
- Access to and exit from machinery should be designed to provide hand and footholds of convenient height and spacing

- No modification shall be made to a machine that would interfere with operator visibility, interfere with access to and exit from the machine and exceed the rated payload or gross combination weight of the machine resulting in overloading the braking and/or steering system or the ROPS capacity rating.
- All safety features of forest machineries shall be regularly inspected and maintained in good working condition, to achieve compliance with these standards.

## **9.0 SAFETY PRACTICES FOR FORESTRY OPERATIONS**

All field staff should be formally trained and implement safe working practices when using operating machinery and equipment. The contractor/supervisor must ensure that machine operators and supporting staff fully comply with the handling instructions for forest machineries and equipment, and apply the prescribed safety and personal protection equipment.

### **9.1 Tree Marking, Felling & Bucking**

- Tree felling operations carry a high accident rate. Most accidents can be avoided if chainsaw men strictly follow the prescribed standards as listed below:
- During tree marking for directional felling the safety of the tree feller must be observed. Directions of tree fall shall not be indicated towards areas that would expose the tree feller to safety risks.
- Chainsaw operators shall never work alone. They must be accompanied by an assistant tree feller.
- No person should come closer to the feller than the double total height of the tree being felled, unless the feller has acknowledged that it is safe to do so.
- Plan & clear two alternative escape routes one at 135° and one at 215° to the intended felling direction.
- Make sure that there are no dead limbs or 'hung up' branches overhead.
- Clear saplings and debris around the base of the tree to be felled, to provide a safe working space.
- The chainsaw should not be operated above shoulder height, because of the risk of kickback and the resulting backward rotation of the guide bar.
- When the tree begins to fall, step backwards into the escape route. Beware of falling branches and tops.
- If a tree is hung-up the chainsaw operator should not try to fell the supporting tree, nor fell another tree across the hung up tree in an attempt to dislodge the hung up tree.
- Machines fitted with approved safety cabs may be used to dislodge hung-up trees by pulling (winching) the tree off the stump, and never by pushing against it or against a supporting tree.
- If a hung-up tree cannot be removed safely, the surrounding area should be clearly marked with flagging tape to signal danger.

- Chain saw should always be switched off, or the chain brake must be employed when moving about.
- Workers should not stand on the trunk of the tree being cross-cut.
- When making the final cross cut the operator should always stand on the compression side of the log.

## **9.2 Log Skidding Operations**

All machine operating personnel undertaking log extraction shall observe the following rules:

- Skidding should not be carried out under site conditions where the stability of the machine cannot be assured.
- Equipment should not be operated on slopes exceeding 20° for a crawler tractor (bulldozer) or wheeled skidder.
- Skidding across slopes should be avoided because of the significant decrease in skidding stability.
- Do not place objects in the cab of the machine operator that are not fixed firmly into place.
- No person other than the trained operator should be authorized to operate the machine

## **9.3 Log Transportation**

To ensure a safe log transport truck operators must comply with the below requirements:

- Truck operators shall not exceed the road design speeds, as stipulated in the Guidelines for road construction.
- Trucks should only carry the capacity load registered for the vehicle and should never be over loaded.
- Riding on any part of a logging truck other than in the cab is prohibited.
- Side bars on trucks and trailers should be vertical after loading and all loads should be secured with at least two approved chain binders.
- Protruding limbs, bark and trailing material (e.g.: vines) should be removed before the truck leaves the log yard.
- Logging machinery and vehicles using public roads should employ amber flashing light on top of the cab or any other prominent point installed, to alert other road users of the large vehicle with heavy payload.

## **10.0 SAFETY AND HEALTH OF FOREST WORKERS**

During forest operations, the maintenance of physical and mental health of forest workers must be given absolute priority. The prescribed safety rules and regulations shall ensure a minimum occurrence of accidents at the workplace.

## **10.1 Responsibilities**

Whereas SFD and contractors are responsible for conducting regular training related to safety and health aspects, all forest workers are responsible for applying their safety knowledge to their specific work environment. In order to ensure safety at the workplace during forest operations, every person shall observe the following rules:

- comply with all federal, state and local laws and regulations
- apply good judgment and safe work practices
- comply with Safety and Health requirements of SFD
- comply with general rules of Occupational Health and Safety Act, 1994
- apply their own Personal Protective Equipment (PPE)
- be informed and apply First Aid measures, whenever necessary

## **10.2 Occupational Health and Safety Hazards**

The Department of Occupational Safety and Health (DOSH) prescribes the application of safety practices that need to be followed to ensure a safe working environment for forest workers. The key hazards affecting forest workers include:

- Physical hazards
- Noise and vibration
- Fire occurrence
- Chemical hazards
- In this context, “Hazard” means any existing or potential condition at the workplace which, by itself or by interacting with other variables, can result in deaths, injuries, property damage, or other losses.

### **10.2.1 Physical Hazards**

Forest operations involve a number of activities that may result in severe physical injury to workers. Frequent causes of injuries include an improper use of chainsaws, bush knives ('parang'), falling trees or branches. Effective means of accident prevention and control include:

- Proper training of forest workers in safe use of the chainsaws
- Regular maintenance and completeness of equipment (e.g., use of blade guards)
- Provision and use of all necessary personal protective equipment (e.g., working gloves, footwear, protective clothing, hard hats).
- On site first aid equipment and trained personnel must be available, as well as procedures for emergency evacuation.
- Hard hats should be worn at all times by forest workers

### **10.2.2 Noise and Vibration**

- Chainsaws, vehicles and other mechanical forest equipment emit noise of excessive level.

- Some logging machinery (particularly chainsaws) can subject workers to an unsafe level of noise and vibration, leading to working related injury to internal organs or hands.
- Most sources of noise in forest operation cannot be prevented. Therefore, protective measures need to be taken, which include the use of personal hearing protection by exposed workers, and implementation of work rotation programs to reduce cumulative exposure to vibration.

### **10.3 Protective Clothing and Safety Equipment**

“Personal Protective Equipment”(PPE) means any equipment or clothing worn to protect a worker from health and/or safety hazards associated with working conditions at a work site (*Workplace Health and Safety, 2001*). In addition, forest workers are exposed to tough environmental conditions, due to exposure to sunlight, winds, changing weather and rough terrain conditions. Therefore, forest workers must be adequately protected and wear the PPE appropriate to the job being performed. The employer shall provide PPE at no cost to the forest worker, and actively promote its use, including incentives for compliance. Generally any PPE must be maintained in safe and effective condition, and if defective it shall be removed from service and replaced. PPE must be inspected before initial use during each work shift.

All forest workers must be equipped with PPE relevant to their specific job task:

- Head protection (hard hats): safety helmets of ISO standard quality, or equivalent (not more than 2 years);
- High visibility cover (vest and hard hats in either red or orange color)
- Eye (goggles) and face protection (visor, particularly for tree fellers)
- Hand gloves (cotton)
- Leg protection (flexible nylon pads): made from cut resistant materials (e.g.: chainsaw chaps, leg piece)
- Hearing Protection (particularly tree fellers: earmuffs, defenders that are capable of providing hearing protection for noise levels > 100 dB
- Work boots (usually with a steel toe cap)

### **11.0 EMERGENCY FIRST AID**

Emergency first aid services, equipment and supplies should be located at or near the work site, and must be available for ready use at all times. First aid equipment and supplies must be kept clean, dry and in operating condition. Basic first-aid training should be provided to all crew members of each working group.

### **11.1 First Aid Training**

All supervisors and machine operators should attend first aid training courses with following minimum contents:

the definition of the first aid

Legal issues of applying first aid (Good Samaritan Laws)

Basic anatomy

Patient assessment and first aid for the following:

Respiratory arrest, cardiac arrest, hemorrhage, lacerations, abrasions, amputations, musculoskeletal injuries, shock, eye injuries, burns, loss of consciousness

Application of dressing and sling

Treatment of strains, sprains, and fractures

Immobilization of injured person

Handling and transporting of injured persons

Treatment of bites, stings or contact with poisonous plants or animals

### **11.2 First Aid Kit**

The supervisor of the forest operation and all machine operators should be trained in first aid method, as prescribed by the Red Cross, *Bulan Sabit Merah* or an equivalent training program. The location of this first aid kit should be at tree felling sites, at each log landing, and on each transport vehicle.

Each first-aid kit should include critical elements to control bleeding and general antiseptic as well as a manual that clearly explains how to handle frequent and typical injuries. First aid kits should contain at least:

Sterile gauze and bandages of various sizes

Antiseptic solution or cream

Roller Bandages

Strong painkilling tablets (paracetamol)

Splints and truncates

### **12.0 EMERGENCY RESPONSE AND RESCUE**

All forest manager and contractors working in the forest are responsible for developing emergency response procedures, which include:

permanent updating on locations of all active working sites

effective emergency communication, e.g. 2-way radios, telephones (if feasible), whistle, etc.

worker awareness of the remoteness of the site and nearest health care facility

In case of serious injuries requiring medical assistance, forest managers shall be prepared and make arrangements for quick evacuation of a person in the event of an injury or illness. Transport and means of communication should be available at the worksite, to be able to contact rescue



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services in case of emergency. In urgent injury cases, helicopter services should be engaged. At permanent worksites a suitable place should be provided where a sick or injured person might rest in comfort until evacuation has arrived. Where professional help is not available within a reasonable distance and time, own health-care facilities should be developed.