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# Appendices

## IN THIS SECTION:

**Appendix 1:** Glossary

**Appendix 2:** So far as is reasonably practicable (section 22 of HSWA)

**Appendix 3:** Working with other PCBUs – overlapping duties (section 34 of HSWA)

**Appendix 4:** Worker engagement, participation and representation (Part 3 of HSWA)

**Appendix 5:** Upstream duties (sections 39-43 of HSWA)

**Appendix 6:** Approach to managing risk

**Appendix 7:** Standards and qualifications

## Appendix 1: Glossary

TERM	EXPLANATION
<b>ACOP/ Approved code of practice</b>	Sets out WorkSafe's expectations about how to comply with legal duties imposed by HSWA and regulations. Other practices can be used to achieve compliance as long as the level of health and safety is equivalent to, or higher, to that in an ACOP.
<b>AS/NZS – Australian/ New Zealand Standard</b>	A reference to an Australian/New Zealand Standard, described by numerals and a title.
<b>ATV/all-terrain vehicle</b>	A smaller vehicle that has been designed for off-road use and includes quad bikes, side-by-sides and other purpose-built off-road utility vehicles. They may also be called a light utility vehicle (LUV)
<b>Business or undertaking</b>	The usual meanings are: <ul style="list-style-type: none"> <li>– business: an activity usually carried out with the intention of making a profit or gain</li> <li>– undertaking: an activity that is non-commercial in nature (for example, certain activities of a local authority or a not-for-profit group).</li> </ul>
<b>CPEng</b>	A Chartered Professional Engineer (often written as CPEng) is an experienced engineer who has been assessed as meeting a quality mark of competence.
<b>Chain shot</b>	The high-speed ejection of a piece of chain when a chain used in mechanised harvesting breaks.
<b>Chute</b>	The area on a hauler landing where stems are landed during extraction.
<b>Close supervision</b>	Direct and constant one-on-one supervision.
<b>Competent person</b>	Someone who can consistently demonstrate the skill and knowledge derived from experience and/or training for the type of work the person is tasked to do.
<b>Contracting PCBU/Principal</b>	A PCBU that engages another PCBU to do work for them (other than as an employee, apprentice, trainee or volunteer).
<b>Contractor</b>	A PCBU that has been engaged to do work by another PCBU (other than as an employee, apprentice, trainee or volunteer).  Contractors and their employees are classed as workers of the contracting PCBU/principal.
<b>Control measure</b>	A way of eliminating or minimising risks to health and safety.
<b>Danger triangle</b>	The area below the chute in a cable logging operation.
<b>Detent</b>	Detent is a type of switch that uses a mechanism to hold it in a specific position until a force is applied to release it.
<b>Driving trees</b>	To fell a tree into one or more trees to bring those trees down.
<b>Duty</b>	A legal obligation to act responsibly according to the law.
<b>Duty holder</b>	A person who has a duty under HSWA. There are four types of duty holders – PCBUs, officers, workers and other persons at workplaces.
<b>Eliminate</b>	To remove the sources of harm (for example, equipment, substances or work processes).
<b>Emergency</b>	An uncontrolled event that has caused, or could cause: <ul style="list-style-type: none"> <li>– loss of life</li> <li>– injury</li> <li>– serious property damage.</li> </ul> It can include declarations of civil defence emergencies, catastrophic weather events, bushfires, or other significant incidents.
<b>Exclusion zone</b>	A designated area in which others, apart from the operator, are excluded. An exclusion zone is established by separation distances (usually two tree-lengths), physical barriers, or by scheduling activities at different times.

TERM	EXPLANATION
<b>Exposure monitoring</b>	Measures and evaluates what your workers are being exposed to while they are at work. This can be: <ul style="list-style-type: none"> <li>- personal exposure monitoring (workers wearing a device while they work) or</li> <li>- biological exposure monitoring (where blood or urine samples are taken to test for a substance workers are working with).</li> </ul>
<b>Extraction</b>	The pulling, carrying (forwarding), shovelling, or hauling of logs from the felling point to a landing by machinery.
<b>Fall restraint device</b>	A device used to prevent a person falling while working at height. This is usually made up of a harness and lanyard system.
<b>Fatigue</b>	A physiological state where someone is unable to mentally and physically function as they usually would. This is caused by four main factors: <ul style="list-style-type: none"> <li>- missing out on sleep</li> <li>- being awake for too long</li> <li>- working and sleeping in the wrong parts of the body clock cycle</li> <li>- workload (mental and physical).</li> </ul>
<b>Falling object protective structures (FOPS)</b>	A structure meeting an ISO standard designed to be attached to, or form part of, mobile equipment for the purpose of reducing the possibility that an operator seated beneath the structure in the driving position being harmed if the FOPS receive a blow from a falling object.
<b>Faller (feller)</b>	The person who cuts or chops a standing tree or part of a standing tree to bring down that tree.
<b>Fell (felling)</b>	To cut, chop, push, or pull down a standing tree or part of a standing tree.
<b>Forestry operations</b>	All activities involved in establishing, maintaining, harvesting, and processing of wood products on a forestry site.
<b>Gut-hooked</b>	A stem that has had a strop attached towards the middle of the stem which could cause the stem to swing or end-for-end during extraction.
<b>Hazard</b>	Anything that can cause harm. Under HSWA, hazard is defined as 'includes a person's behaviour where that behaviour has the potential to cause death, injury, or illness to a person (whether or not that behaviour results from physical or mental fatigue, drugs, alcohol, traumatic shock, or another temporary condition that affects a person's behaviour'.
<b>Hazardous substances</b>	Any product or chemical that has properties that are explosive, flammable, oxidising, toxic, corrosive or toxic to the environment.
<b>Health</b>	A person's physical and psychological health.
<b>Health and Safety at Work Act 2015 (HSWA)</b>	The key work health and safety legislation in New Zealand. HSWA applies to all work and workplaces unless specifically excluded. You can find the full text of the Act on the New Zealand Legislation website.
<b>Health monitoring</b>	Looks at whether a worker's health is being harmed because of what they are being exposed to while at work (for example, hearing tests).
<b>Hung-up tree</b>	A cut tree caught in or lodged against another preventing it from falling to the ground.
<b>Impairment</b>	A reduction of a person's ability to think or act as the result of drug or alcohol use, mental fatigue, stress, health conditions, or traumatic shock.
<b>Industry qualifications</b>	Skill/unit standards registered with the New Zealand Qualifications Authority where assessment has been carried out and competence verified.
<b>ISO</b>	The International Organisation for Standardisation - an organisation that develops and publishes international standards that ensure quality and safety in products and services.
<b>Manual felling</b>	The felling of a tree by a method that requires the faller to stand at the base of a tree to carry out the tree felling operation.

TERM	EXPLANATION
<b>Mobile plant</b>	Mobile plant is plant that is powered or self-propelled, such as vehicles and equipment. Examples include bulldozers, quad bikes, mobile cranes, forklifts, elevating work platforms, tractors, and vehicles like cars, vans and trucks used for work.
<b>Minimise</b>	To take steps that protect the health and safety of people by reducing the likelihood of an event occurring, reducing the level of harm to people if it does occur, or both.
<b>Must</b>	Indicates a legal requirement that must be complied with.
<b>Officer</b>	A person who has the ability to significantly influence the management of a PCBU. This includes, for example, company directors and chief executives. Officers must exercise due diligence to ensure the PCBU meets its health and safety obligations.
<b>Operator</b>	A worker who operates some form of machinery.
<b>Overlapping duties</b>	When a PCBU shares duties with other PCBUs in relation to the same matter. When two or more PCBUs' duties overlap, the PCBUs must consult, co-operate and co-ordinate with each other.
<b>Other persons at the workplace</b>	Includes workplace visitors and casual volunteers (who are not volunteer workers). These people have their own health and safety duties to take reasonable care to keep themselves safe and to not harm others at a workplace.
<b>PCBU</b>	Person conducting a business or undertaking (PCBU). In most cases a PCBU will be a business entity, such as a company. However, an individual carrying out business as a sole trader or self-employed person is also a PCBU.  A PCBU does not include workers or officers of a PCBU, volunteer associations with no employees, or home occupiers that employ or engage a tradesperson to carry out residential work.
<b>Plant</b>	Includes: <ul style="list-style-type: none"> <li>– any machinery, vehicle, vessel, aircraft, equipment (including PPE), appliance, container, implement, or tool; and</li> <li>– any component of any of those things, and</li> <li>– anything fitted or connected to any of those things.</li> </ul>
<b>Personal protective equipment (PPE)</b>	Anything used or worn by a person (including clothing) to minimise risks to the person's health and safety.  This may include – but is not limited to: <ul style="list-style-type: none"> <li>– respiratory protective equipment</li> <li>– protective helmets</li> <li>– protective eyewear</li> <li>– protective boots</li> <li>– protective gloves</li> <li>– hearing protection</li> <li>– high-vis clothing</li> <li>– sunhats</li> <li>– sunscreen and lip protection</li> <li>– safety harness systems.</li> </ul>
<b>Principal</b>	See Contracting PCBU.
<b>RCA Road controlling authority</b>	For public roads, the RCA is usually a local council (for local roads) or NZTA (for state highways).
<b>Risks</b>	Arise from people being exposed to a hazard (a source of harm).
<b>Rollover protective structure (ROPS)</b>	A structure meeting an ISO standard, designed to be attached to or form part of mobile plant for the purpose of reducing the possibility of an operator (when also wearing a seatbelt) from being injured if the machine rolls over.
<b>RT</b>	Radio telephone

TERM	EXPLANATION
<b>Sailer</b>	A piece of broken wood (branch or top) resting in the canopy of a tree which may become dislodged.
<b>Subcontractor</b>	PCBUs hired by a contractor to work or provide services on their behalf. Sometimes subcontractors are referred to as suppliers.
<b>Worker</b>	<p>An individual who carries out work in any capacity for a PCBU. A worker may be an employee, a contractor or sub-contractor, an employee of a contractor or sub-contractor, an employee of a labour hire company, an outworker (including a homeworker), an apprentice or a trainee, a person gaining work experience or on a work trial, or a volunteer worker.</p> <p>Workers can be at any level (for example, managers are workers too).</p> <p>A PCBU is also a worker if the PCBU is an individual who carries out work in that business or undertaking.</p>
<b>Workplace</b>	<p>Any place where a worker goes or is likely to be while at work, or where work is being carried out or is customarily carried out.</p> <p>Most duties under HSWA relate to the conduct of work. However, some duties are linked to workplaces.</p>
<b>Upstream PCBUs</b>	<p>PCBUs who design, manufacture, import or supply plant, substances or structures, or who install, construct or commission plant or structures.</p> <p>'Design' includes the:</p> <ul style="list-style-type: none"> <li>- design of part of the plant, substance, or structure, and</li> <li>- redesign or modification of a design.</li> </ul>

## Appendix 2: So far as is reasonably practicable

(Section 22 of HSWA)

Certain PCBU duties must be carried out 'so far as is reasonably practicable'.

### What to consider when deciding what is 'reasonably practicable'

Just because something is possible to do, does not mean it is reasonably practicable in the circumstances.

Consider:

- What possible actions can be taken to ensure health and safety?
- Of these possible actions, at a particular time, what is reasonable to do?

Think about the following questions.

#### WHAT IS KNOWN ABOUT THE RISK?

- How likely is the risk to occur?
- How severe is the illness or injury that might occur if something goes wrong?
- What is known, or should reasonably be known, about the risk?

#### WHAT IS KNOWN ABOUT POSSIBLE CONTROL MEASURES?

- What is known, or should reasonably be known, about the ways (control measures) to eliminate or minimise the risk?
- What control measures are available?
- How appropriate (suitable) are the control measures to manage the risk?
- What are the costs of these control measures?
- Are the costs grossly disproportionate to the risk? Cost must only be used as a reason to not do something when that cost is grossly out of proportion to the risk.

While PCBUs should check if there are widely used control measures for that risk (such as industry standards), they should always keep their specific circumstances in mind. A common industry practice might not be the most effective or appropriate control measure to use.

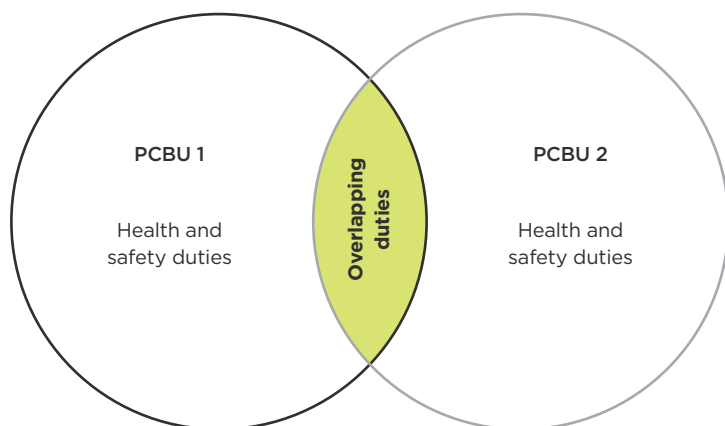
If PCBUs are not sure what control measures are appropriate, WorkSafe recommends getting advice from a suitably qualified and experienced health and safety professional.

For more information, see our guidance in the [Resources webpage](#)

### Appendix 3: Working with other PCBUs – overlapping duties

(Section 34 of HSWA)

More than one PCBU can have a duty in relation to the same matter. These PCBU's have overlapping duties – this means that the duties are shared between them.



Duties regularly overlap:

- in a shared workplace (for example, a building site or a port) where more than one business has control and influence over the work on site.
- in a contracting chain, where contractors and subcontractors provide services to a head contractor or client and do not necessarily share the same workplace.

A PCBU must, so far as is reasonably practicable, consult, cooperate and coordinate activities with all other PCBU's they share duties with so that all PCBU's can meet their joint responsibilities.

A PCBU cannot transfer or contract out of their duties, or pass liability to another person.

However a PCBU can make an agreement with another PCBU to fulfil specific duties. Even if this occurs, all PCBU's are still responsible for meeting their legal duties.

#### Example

A local hotel contracts out housekeeping services to an agency. The hotel and agency both have a duty to ensure the health and safety of the housekeeping workers, so far as is reasonably practicable. This includes the duty to provide first aid facilities.

The agency reaches an agreement with the hotel – if their workers need first aid while working at the hotel they can use the hotel's first aid facilities.

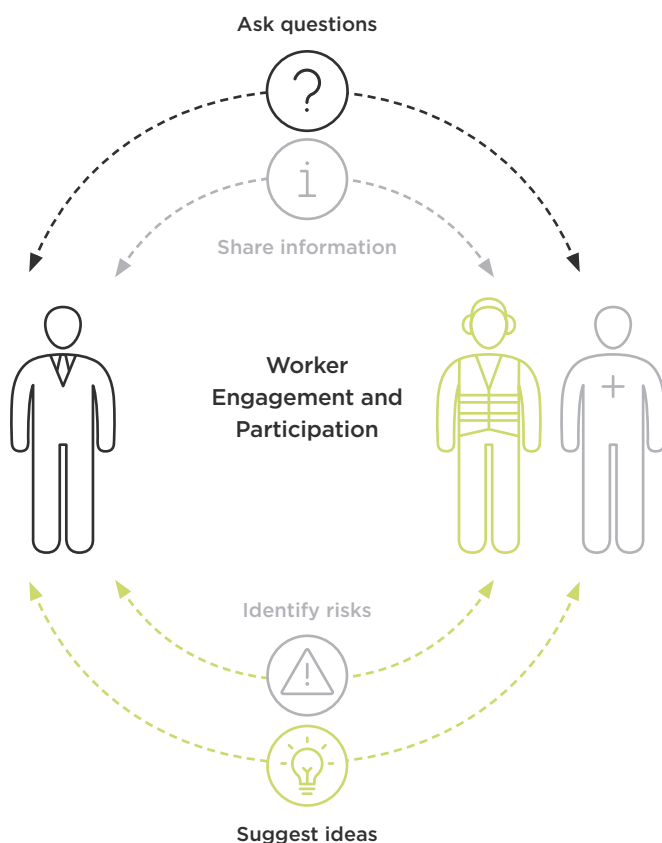
For more information, see our guidance in the [Resources webpage](#)

## Appendix 4: Worker engagement, participation and representation (Part 3 of HSWA)

### Engage with workers and enable their participation

A PCBU has two main duties related to worker engagement and participation:

- to engage with workers on health and safety matters that affect or are likely to affect workers, so far as is reasonably practicable, and
- to have practices that give workers reasonable opportunities to participate effectively in the ongoing improvement of work health and safety.



A PCBU can engage with workers by:

- sharing information about health and safety matters so that workers are well-informed, know what is going on and can contribute to decision-making
- giving workers reasonable opportunities to have a say about health and safety matters
- listening to and considering what workers have to say at each step of the risk management process
- considering workers' views when health and safety decisions are being made
- updating workers about what decisions have been made.

A PCBU must engage with workers during specified times, including when identifying hazards and assessing risks.

A PCBU must have clear, effective, and ongoing ways for workers to suggest improvements or raise concerns.

## Worker representation

Workers can be represented by a Health and Safety Representative (HSR), a union representing workers, or a person that workers authorise to represent them (for example, a community or church leader, or another trusted member of the community).

HSRs and Health and Safety Committees (HSCs) are two well-established methods of participation and representation. If workers are represented by an HSR, worker engagement must also involve that representative.

For more information on the following, see the [Resources webpage](#)

### **WORKSAFE GUIDANCE**

#### **Good practice guidelines**

Worker engagement, participation and representation

#### **Interpretive guidelines**

Worker representation through Health and Safety Representatives and Health and Safety Committees

#### **Pamphlets**

Worker representation

Health and Safety Committees

Health and Safety Representatives

## Appendix 5: Upstream duties (Sections 39–43 of HSWA)

A PCBU in the supply chain (upstream) also has a duty to ensure, so far as is reasonably practicable, that the work they do or the things they provide to other workplaces do not create health and safety risks.

An upstream PCBU is a business that:

- designs plant, substances, or structures
- manufactures plant, substances, or structures
- imports plant, substances, or structures
- supplies plant, substances, or structures
- installs, constructs or commissions plant or structures.

Upstream businesses are in a strong position to eliminate or minimise risk. They can influence and sometimes eliminate health and safety risks through designing, manufacturing, importing or supplying products that are safe for the end user.

### Example

A worker using a badly designed or poorly manufactured saw may be at risk of injury. This risk should have been eliminated or minimised, so far as was reasonably practicable, by the designer or manufacturer.

### Upstream duties for designers (Section 39 of HSWA)

A designer creates or modifies a design for plant, substances or structures that are to be used or operated, or could be used or operated, in a workplace.

A designer has a duty, so far as is reasonably practicable:

- to make sure the products they design do not create health and safety risks for the people that use them and those nearby
- to make sure the products they design have been tested so they are safe for use in a workplace
- to give the following information to those who will use the designed products:
  - the design's purpose or intended use
  - the results of any calculations or tests
  - any general and current relevant information about how to safely use, handle, store, construct, inspect, clean, maintain, repair, or otherwise work near the designed products.

These requirements apply across the product's entire lifecycle – from manufacture and construction, through to everyday use, decommissioning and disposal.

For more information, see our guidance: [Health and safety duties for businesses that design products for workplaces](#)

### Upstream duties for manufacturers [section 40 of HSWA](#)

A manufacturer makes plant, substances or structures that are to be used, or could be used or operated, in a workplace.

A manufacturer has a duty, so far as is reasonably practicable:

- to make sure the products they manufacture do not create health and safety risks for the people that use them and those nearby
- to make sure the products they manufacture have been tested so they are safe for use in a workplace

- to give the following information to those that will use the manufactured products:
  - the purpose or intended use of each product
  - the results of any calculations and tests
  - any general and current relevant information about how to safely use, handle, store, construct, inspect, clean, maintain, repair, or otherwise work near the manufactured products.

These requirements apply across the product's entire lifecycle – from manufacture and construction, through to everyday use, decommissioning and disposal.

For more information on the following, see the [Resources webpage](#)

### Upstream duties for importers (Section 41 of HSWA)

An importer imports plant, substances or structures that are to be used, or could be used or operated, in a workplace.

An importer is a business:

- that goods are imported **by**, or
- that goods are imported **for**.

Importation is another word for importing. Importation refers to the **arrival of goods** in New Zealand from a point outside New Zealand. These goods can arrive in any manner.

An importer has a duty, so far as is reasonably practicable:

- to make sure the products they import do not create health and safety risks for the people that use them and those nearby
- to make sure the products they import have been tested so they are safe for use in a workplace
- to give the following information to those who will use the imported products:
  - the purpose or intended use of each product
  - the results of any calculations and tests
  - any general and current relevant information about how to safely use, handle, store, construct, inspect, clean, maintain, repair, or otherwise work near the imported products.

These requirements apply across the product's entire lifecycle – from construction or assembly, through to everyday use, decommissioning and disposal.

Imported products must also meet all New Zealand regulatory requirements relevant to that product.

For more information on the following, see the [Resources webpage](#)

### Upstream duties for suppliers (Section 42 of HSWA)

A supplier supplies plant, structures or substances that may be used in a workplace.

A supplier has a duty, so far as is reasonably practicable:

- to make sure the products they supply do not create health and safety risks for the people that use them and those nearby
- to make sure the products they supply have been tested so they are safe for use in a workplace

- to give the following information to those who will use the supplied products:
  - the purpose or intended use of each product
  - the results of any calculations and tests
  - any general and current relevant information about how to safely use, handle, store, construct, inspect, clean, maintain, repair, or otherwise work near the supplied products.

These duties do not extend to the sale of second-hand plant sold 'as is'.

These requirements apply across the product's entire lifecycle – from construction or assembly, through to everyday use, decommissioning and disposal.

For more information on the following, see the [Resources webpage](#)

### Upstream duties for installers, constructors or commissioners of plant or structures (Section 43 of HSWA)

An installer/constructor builds and/or assembles and installs plant and structures that may be used at a workplace. A commissioner performs adjustments, tests and inspections on plant and structures before they are used for the first time in a workplace.

An installer, constructor or commissioner has a duty, so far as is reasonably practicable, to make sure that the way the plant or structure is installed, constructed or commissioned does not create health and safety risks to the people that come into contact with it across the product's entire lifecycle – from construction or assembly, through to everyday use, decommissioning and disposal.

For more information on the following, see the [Resources webpage](#)

## **Appendix 6: Approach to managing risk**

### **Managing risk across a system**

If you are new to managing risk, read this Appendix.

The following section looks at the principles of risk management. Most of them will be familiar to you but they are worthwhile repeating.

Think about how you will manage risk across the whole system. This applies equally if you are a principal or a contractor.

If you are a forest manager, for example, think about the whole project, from establishment and planting, through roading and landings, to harvesting, and replanting.

If you are a harvesting contractor, think about all the parts and processes and actions that go into the job over the duration of the contract.

Think about the risks and the control measures that you might apply but also think about what those control measures could do further down the line. If they create potential risks, then you need to weigh those up and look for a solution that provides the least total risk for all parties.

Forestry operations involve different businesses working on the same site operating at different times in a forestry cycle that is measured in years.

It is complex.

All PCBUs involved in the forestry and harvesting contracting chain have health and safety responsibilities.

### **MANAGING RISK IN DYNAMIC ENVIRONMENTS**

Things change and sometimes they can change fast.

Take into account the dynamic nature of your work and work environment when identifying hazards, assessing risks and deciding what control measures to use.

Train workers to recognise unanticipated risks and what control measures to use. For example:

- What do they do if they are manual felling and the wind comes up, or it changes direction? At what point are they to stop work and reassess the risks?
- What do they do if there is an electrical storm?

Workers need to be able to recognise when a situation has become unsafe, and stop work until the risks can be adequately managed.

## Approach to managing risk

### STEP 1: IDENTIFYING THE HAZARDS

The first step is to consider all the things in your work and workplace that could cause injury or harm. These could be physical objects, foreseeable actions or particular situations; or less tangible things such as fatigue, weather events, and 'wild-cards' like unexpected worker actions.

There is a number of ways that you can do this.

- Talk with your workers. Get them to think about what they do and what hazards they see.
- Follow a worker through a task. Look for where things might go wrong.
- Think about the step-by-step process of a particular activity. What actually happens when a task is done?
- Walk around the workplace. Look for hazards. Think about what could go wrong and how you might prevent that.
- Talk with other forestry operators and the industry body about any incidents, accidents or near misses that you could learn from.
- Search online for any incidents that have happened internationally and show what could happen in a similar situation for your business.
- Always ask yourself, 'What could go wrong?'

### Why you must talk with your workers about health and safety



- It is compulsory. Under HSWA (the Health and Safety at Work Act) you **must**, so far as is reasonably practicable, engage with your workers and their representatives when identifying hazards.
- It is good practice. Your workers know about things that you may not. They know how they do their jobs, and they know when things can be done better. They also know the short-cuts and workarounds. This is work as it is in real life rather than work as you might think it should be.
- It is the workers who are at risk of being hurt or being killed. They have a very real interest in making sure that they are not hurt or killed.

### Examples of things that could go wrong

The table below gives examples of common hazards for forestry workers and operations. They are by no means a complete list. Use them as a starting point for developing your own list of hazards.

**Something to think about.** When you are identifying hazards, think about the length of a contract and, also, the lifespan of a forest. Think about risks that might come up in the future or things that might increase risk such as severe weather and storms.

HOW COULD PEOPLE BE HARMED?	EXAMPLES
Difficult landscape or terrain could result in workers being injured through slips, trips or falls	<ul style="list-style-type: none"> <li>- steep slopes and drop-offs</li> <li>- rough terrain</li> <li>- rivers, creeks and water channels</li> <li>- existing forest</li> <li>- unstumped land</li> </ul>
Poor or extreme weather conditions could expose workers to physical harm	<ul style="list-style-type: none"> <li>- hot or cold temperature extremes</li> <li>- heavy rain, flooding</li> <li>- strong winds</li> <li>- UV exposure</li> </ul>
Using plant that exposes workers to harmful fumes, excessive noise or vibration, cutting edges for example	<ul style="list-style-type: none"> <li>- plant that produces excessive fumes, vibration or noise</li> <li>- cutting tools – chainsaws and brushcutters</li> <li>- plant that is reliant on cables or rigging systems</li> </ul>
Poorly built tracks and forestry roads or poor traffic management could expose road users to harm	<ul style="list-style-type: none"> <li>- narrow tracks and drop-offs</li> <li>- poor visibility</li> <li>- inadequate traffic management</li> </ul>
Poor landing layout resulting in congestion and vehicles/people working closely together	<ul style="list-style-type: none"> <li>- people working near machinery and mobile plant</li> </ul>
Workers exposed to harmful substances while working	<ul style="list-style-type: none"> <li>- hazardous substances being used such as herbicides, petrol and diesel</li> <li>- hazardous substances being stored on site or transported to and from site</li> <li>- chemical and fuel spills</li> <li>- battery storage and recharging</li> <li>- burst hydraulic hoses</li> <li>- vehicle and plant emissions (carbon monoxide and diesel particulate matter)</li> <li>- dust disturbed during digging, excavation or mobile plant movement</li> <li>- wood dust</li> </ul>
Workers contacting overhead power lines and services resulting in electric shock	<ul style="list-style-type: none"> <li>- working with machinery near overhead lines</li> <li>- damaged lines resulting from a crash or weather event</li> </ul>
Workers falling while working at height	<ul style="list-style-type: none"> <li>- working on ladders and height-access equipment</li> <li>- working on mobile plant and machinery</li> </ul>
Workers being hit by falling objects	<ul style="list-style-type: none"> <li>- broken branches sitting in the canopy</li> <li>- dead trees</li> <li>- windthrow</li> </ul>
Workers working excessive hours/shift work resulting in fatigue/impairment	<ul style="list-style-type: none"> <li>- long travel times to site</li> <li>- working at night</li> <li>- excessive overtime and long working hours</li> </ul>
Workers being injured carrying out manual tasks	<ul style="list-style-type: none"> <li>- lifting or handling heavy objects</li> <li>- repetitive tasks</li> </ul>
Workers in isolated or remote locations not having access to immediate help if injured	<ul style="list-style-type: none"> <li>- lone workers</li> </ul>
Unauthorised persons at worksites being hurt by plant or harvesting activities.	<ul style="list-style-type: none"> <li>- public entering forest sites without permission</li> </ul>
Workers who are impaired or distracted making mistakes	<ul style="list-style-type: none"> <li>- impairment of workers through drugs, medication, alcohol, stress or fatigue</li> <li>- worker distractions such as cellphones, work pressures, home pressures</li> </ul>
Workers being harmed by poor work relationships	<ul style="list-style-type: none"> <li>- bullying</li> <li>- harassment</li> <li>- violence</li> </ul>

## STEP 2: ASSESSING THE RISKS

Once you have identified the hazards, you will need to work out what risks they present.



You **must**, so far as is reasonably practicable, engage with your workers when assessing risks.

With every hazard that you have identified, think about:

- What is the likelihood of the risk? (Is it reasonable to expect that it will eventually happen if the task/activity is repeated numbers of times?)
- What harm could happen? How serious is the harm and what is the worst-case scenario?
- How many people are likely to be exposed to the risk? Do their skill or experience levels influence the likelihood of the harm occurring?

All risks need to be managed. Risks that have the potential for causing serious injury or death, or chronic ill-health have priority. Just because a risk has lower likelihood of occurring or lower potential for harm does not mean that it can be ignored.

An example. The likelihood of someone being struck by falling branches during manual felling is high. The potential consequences are likely to be severe – in the worst case, death. Every worker involved in manual felling is exposed to that risk. Manual felling is high-risk/high consequence, so you would give priority to managing the risks.

## STEP 3: MANAGING THE RISK

The essential rules of risk management are:



1. You **must** eliminate risks so far as reasonably practicable.
2. If you cannot eliminate the risk, you **must** minimise it so far as is reasonably practicable.

The extent of the duty to manage risk depends on the ability of each PCBU to influence and control the matter.

You **must**, so far as is reasonably practicable, engage workers when making decisions about ways to eliminate or minimise those risks.



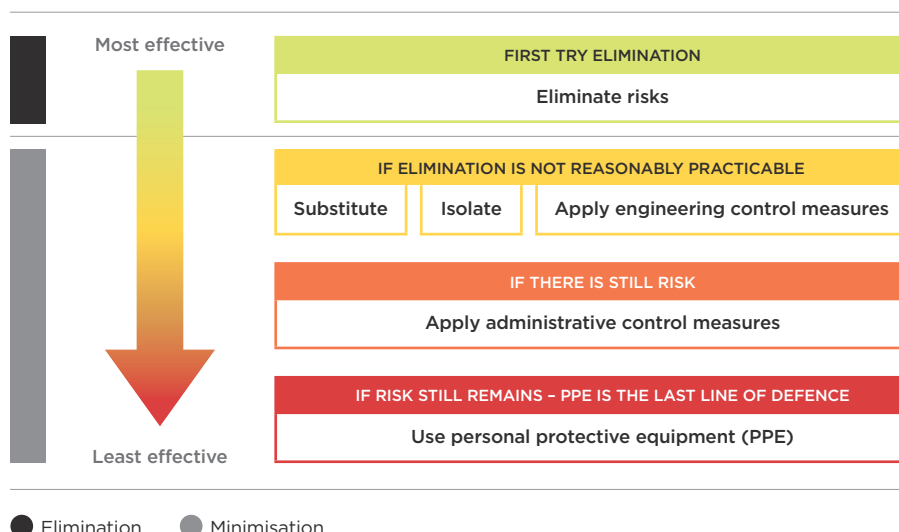
There are certain risks that must be dealt with in a certain way. These are specified in the health and safety regulations.

Certain risks require you to use the prescribed risk management process (including the hierarchy of controls) to manage them. For example, remote or isolated work, falling objects and working under raised objects.

If the risk is not specified in regulations, you decide how to manage the risk.

For more information, see [Resources webpage](#)

Use the hierarchy of control measures to minimise risk. These operate from the highest level of protection and reliability to the lowest.



## THINK ABOUT IT LIKE THIS

### Eliminate (get rid of the hazard)

Change or redesign the way you do a job so that the hazard is removed or eliminated. For example, the risk of felling on steep slopes can be eliminated at the establishment stage by not planting those slopes.

### Substitute (replace)

Replace a process or a material with a less hazardous one. For example, replacing manual felling with mechanised felling or using mechanised grapples for breaking out.

### Isolate (prevent access)

Use physical control measures or equipment to keep people away from the hazard.

### Apply engineering control measures

Change the physical components of plant, structure or work area to reduce or eliminate exposure to hazards.

This could include such things such as enclosing or guarding dangerous items of machinery and equipment. Another example of an engineering control would be using chain catchers and chain shot guards on harvesting heads and installing thick polycarbonate windshields on harvesters.

### Administrative control measures (organise)

Put in place procedures to make sure that the work can be done safely.

Examples are:

- using job rotation to reduce the time workers are exposed to hazards
- prohibiting the use of cellphones when involved in hazardous work
- having daily toolbox talks.

Standard Operating Procedures (SOPs) are an administrative control. They do not eliminate or minimise risks but once risks have been eliminated or minimised, they can be used to manage the remaining risk.

### **PPE**

Personal protective equipment (PPE) is the last line of defence. PPE is only used when other control measures alone cannot adequately manage the risk.

## PUTTING THE CONTROL MEASURES IN PLACE

Once you have worked out what the most effective control measures are, put them in place as soon as possible.

Engage with your workers. Make sure that they understand:

- the risks that you have identified together
- the control measures that have been chosen and put in place
- how to apply the control measures (what they have to do)
- why it is important to use the control measures.

## MONITORING THE CONTROL MEASURES

Control measures are not 'set and forget'. Situations change, as will your business and processes. It is important that you monitor how your control measures are working, to make sure that they remain fit-for-purpose, they are suitable for the work, and that workers are using them correctly.



If you are required to use the hierarchy of controls, then you **must** make sure the control measures remain effective and review the control measures.

Engage with your workers and their representatives to see if the control measures are eliminating or minimising work risks.

Check incident reports and near miss reports (and encourage your workers to report incidents and near misses).

Carry out inspections of the work and the site(s), paying particular attention to known risks and risk control measures.

Monitor regularly. Make sure all policies, processes and systems have a scheduled date for a review or audit to check that they are being followed and are still fit-for-purpose.

## ACTING ON LESSONS LEARNT

If you find that your control measures are not working effectively, or if your workers have suggestions for improving them, take action.

If there is an incident or near-miss, investigate. Find out what caused it and what needs to change to make sure it does not happen again. If need be, go through the risk management steps again and look at how and where you might adapt or improve control measures.

Look outside your own business. Observe what is happening in the industry from the industry association and other forestry operations. Look internationally, too. There are always things that you can learn and improve to make for better health and safety.

A quick summary of risk assessment.

Follow these steps:

- identify what could go wrong
- identify who might be affected and how they might be harmed
- identify controls that are needed to stop it going wrong
- show that any remaining risk after all reasonable controls are in place is low enough to be acceptable
- record all of your findings and keep these records
- tell everyone what they need to know and do
- make sure it all gets done
- ensure that if anything changes, you check you have got the right things in place. If not, stop the activity and review what is needed.

## Appendix 7: Standards and qualifications

### Standards

The following standards are referred to in *Safe practice for forestry and harvesting operations* (up to date at the time of publication). The standards listed are the minimum requirement. Other standards that give equal or better outcomes for safety, can also be used.

For PPE, look for the mark/stamp to check it is compliant with the relevant standard. You are not expected to obtain copies of these standards.

TOPIC	STANDARD
High-visibility clothing	<ul style="list-style-type: none"> <li>AS/NZS 4602 (Class D,D/N,N) or AS/NZS 1906 (Class 1,2,3) or</li> <li><i>New Zealand Forestry Guidelines for High-Visibility Clothing</i></li> </ul>
Leg protection for workers using a chainsaw	<ul style="list-style-type: none"> <li>AS/NZS 4453.3:1997 <i>Protective clothing for users of hand-held chainsaws, Part 3, Protective Legwear</i> or</li> <li>any other Standard that has the same or more stringent criteria</li> </ul>
Protective toe caps for footwear	<ul style="list-style-type: none"> <li>AS/NZS 2210.1:2009 <i>Safety, protective and occupational footwear Part 1</i> or</li> <li>any other Standard embodying the same or more stringent criteria</li> </ul>
Safety helmets	<ul style="list-style-type: none"> <li>AS/NZS 1801:1997 <i>Occupational protective helmets</i> or</li> <li>ATV-NZS 8600:2002 or</li> <li>any other Standard embodying the same or more stringent criteria such as EN 397</li> </ul>
Hearing protectors	<ul style="list-style-type: none"> <li>AS/NZS 1270:2002 <i>Hearing protectors</i> or</li> <li>any other Standard embodying the same or more stringent criteria</li> </ul>
Eye protection (not forestry-type mesh visors)	<ul style="list-style-type: none"> <li>AS/NZS 1337:2010 <i>Eye protectors for industrial applications, Amendment 1 Sept 1994: Amendment 2 Oct 1997</i> or</li> <li>any other Standard embodying the same or more stringent criteria</li> </ul>
Gloves	<ul style="list-style-type: none"> <li>NZS 5812:1982 <i>Industrial protective gloves Reconfirmed:1989</i> or</li> <li>any other Standard embodying the same or more stringent criteria</li> </ul>
Respiratory protective devices	<ul style="list-style-type: none"> <li>AS/NZS 1715:2009 <i>Selection, use and maintenance of protective respiratory devices</i> and 1716:1994 <i>Respiratory protective devices, Amendment 1 Feb 1996</i> or</li> <li>any other Standard embodying the same or more stringent criteria</li> </ul>
Seat belts and seat harnesses	<ul style="list-style-type: none"> <li>ISO 6683:2005 <i>Earth-moving machinery – Seat belts and seat belt anchorages Performance requirements and tests</i></li> <li>SAEJ386: 2022 <i>Occupant restraint system for off-road work machines</i></li> </ul>
Safety harnesses, belts and lanyards used in silviculture, harvesting and seed collection	<ul style="list-style-type: none"> <li>AS/NZS 1891.1:2007: <i>Industrial fall-arrest systems and devices – Harnesses and ancillary equipment</i> and AS/NZS 1891.4:2009: <i>Industrial fall-arrest systems and devices – Selection, use and maintenance</i> or</li> <li>any other Standard embodying the same or more stringent criteria</li> </ul>
Helmets for ATVs (for all persons operating, or riding as a passenger)	<ul style="list-style-type: none"> <li>NZS 8600:2002 <i>All-terrain vehicle helmets</i></li> </ul>
Roll-over protective structures (ROPS)	<ul style="list-style-type: none"> <li>ISO 8082.1:2009: <i>Self-propelled machinery for forestry – laboratory tests and performance requirements for roll-over protective structures. Part 1</i></li> <li>ISO 8082.2:2011 <i>Self-propelled machinery for forestry – laboratory tests and performance requirements for roll-over protective structures. Part 2</i></li> <li>AS/NZS 4024 (series) <i>for machine guarding</i></li> <li>AS 5327:2022 <i>for safe access</i> or AS/NZS 1657 <i>for fixed platforms, walkways, stairways and ladders</i></li> </ul>
Falling object protective structures (FOPS)	<ul style="list-style-type: none"> <li>ISO 8083:2006 <i>Machinery for forestry, falling object protective structures, laboratory tests and performance requirements</i></li> <li>ISO 3449:2005 <i>Earth-moving machinery – Falling-object protective structures – Laboratory tests and performance requirements</i></li> </ul>
Operator protective structures (OPS)	<ul style="list-style-type: none"> <li>ISO 8084:2003 <i>Machinery for forestry, operator protective structures, laboratory tests and performance requirements</i></li> </ul>

TOPIC	STANDARD
All load-bearing wire rope used in forest harvesting work should have an independent wire rope core or a wire strand core	<ul style="list-style-type: none"> <li>- <i>BS/NZS 302: Part 5:1987 Specification for ropes for hauling purposes or</i></li> <li>- any other Standard embodying the same or more stringent criteria</li> </ul>
Traction aid winches	- <i>ISO 19472.2:2022 Machinery for forestry – Winches – Part 2: Traction aid winches</i>
Cranes, hoists and winches	- <i>AS/NZS 1418 – Cranes, hoists, and winches</i>
Steel wire rope	- <i>AS 2759:2004 – Steel wire rope – Safe use, operation and maintenance</i>
Ladders	<ul style="list-style-type: none"> <li>- <i>AS/NZS 1892.1:1996 Portable ladders</i></li> <li>- any other Standard embodying the same or more stringent criteria</li> </ul>
Petrol containers	<ul style="list-style-type: none"> <li>- <i>AS/NZS 2906:2001 Fuel containers – Portable – Plastics and metal</i></li> <li>- <i>ASTM F-852-99e1 Standard specification for portable gasoline containers for consumer use</i></li> </ul>

## Qualifications

Where forestry qualifications are referred to in the guidance, the following are those recognised by the New Zealand Qualifications Authority:

[Forestry Skill/unit Standards – Muka Tangata](#)