

Forest and Wood Products Industry Skills Report



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Acknowledgement of the work of IRCs

We acknowledge the work of the members of Industry Reference Committee (IRC) in the preparation of this report and continuing phases of the project. Their voluntary participation and provision of intelligence and data makes the compilation of this information possible.

This report has been developed from six years of contributions from the Industry Reference Committee.

Acknowledgement of Country

Aboriginal and Torres Strait Islander peoples have a proud and continuous connection to Australia's land and waters. We acknowledge the traditional owners and custodians, and the continuing connection of Aboriginal and Torres Strait Islander peoples to the lands, waters and communities. We pay our respects to Elders and Leaders, past and present, and to all Aboriginal and Torres Strait Islander peoples who have supported our work.

We acknowledge the importance of learning from Aboriginal and Torres Strait Islander peoples' unique history of land and ecosystem management, art, culture and society. Their connections are particularly important given our involvement in work directly connected to utilisation, care and stewardship of Australia's land, waters and ecosystems, and the animals, trees and plants that thrive across Australia.

The Industry Reference Committees and Skills Impact have been working to develop improved participation of Aboriginal and Torres Strait Islander enterprises, businesses, communities and people in our work. We will continue to work to develop strong, mutually beneficial relationships with Aboriginal and Torres Strait Islander partners who can help us deliver better outcomes for Aboriginal and Torres Strait Islander peoples, recognising their expertise in improving quality of life, employment opportunities and skills outcomes in their communities and for the whole of Australia.

Purpose

Skills Impact and ForestWorks have prepared this Industry Skills Report on behalf of the following Industry Reference Committees (IRCs):

- Forest Management and Harvesting
- Timber and Wood Processing
- Timber Building Solutions

It provides in-depth information about industry-specific skills and issues covered in the *Agribusiness, Food and Fibre Industries Skills Report*.

As one of nine industry-specific Skills Reports with matching structures, this document is designed to assist collaboration across industries and the streamlining and reform of the Australian skills and VET system. This may aid the implementation of the Skills Minister's Priorities by supporting:

- greater labour mobility through stronger recognition of cross-sector and transferable skills
- better use of industry and educator expertise to ensure better quality outcomes
- improved pathways advice to support lifelong learning and build peoples' labour market resilience
- Australia's capacity to grow, compete and thrive in the global economy, especially in context of the concurrent impacts of COVID-19, automation and digital transformation on the skills required for jobs now and into the future.

The IRCs requested that this report be prepared to support improvements in the skills system, including work on:

- industry workforce planning and strategies to address workforce shortages
- documenting shared standards and regulations across industries to support end-to-end systems planning and avoid duplication
- the provision of evidence, data and intelligence to add value for industries beyond a narrow focus on training package development, and to inform future Industry Clusters or similar bodies approved to undertake work within the Australian skills and VET system
- creating foundations for potential qualification reforms with a greater emphasis on skills families and portable skills
- identifying shared 'skills domains' to aid in simplifying and streamlining national VET qualifications across industry groupings.

Key Findings and Priorities

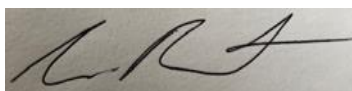
The forest and wood products industries have been challenged for years by changes in environmental and sustainability policies, natural events and disasters, and climate change. In addition, there are volatile local and international markets, which underwent major transformations as a result of COVID-19.

The forest and wood products industries are also one of the most important industries and key to Australia's efforts to address climate change. Forestry is one of the most efficient and effective methods of carbon sequestration; and plantation expansion would help Australia meet its future wood needs, increase carbon stores in the built environment, and contribute to the circular economy through the sustainable, renewable and recyclable potential of timber products.

The three IRCs have identified priorities which they recommend for future consideration, including:

- Actions to implement identified solutions to address low enrolments and thin markets
- Development of industry shared resources to support delivery of accredited training
- Working with other agribusiness, food and fibre industries on research and planning projects to identify and address skills gaps relating to traceability, provenance and blockchain
- Identifying digital skills needs using the Digital Workforce Capability and VET framework currently in development (along with other digital capability frameworks). This will need to include development of specific digital skills related to:
 - Development of digital forest operational maps
 - Development of cutting instructions files for forestry harvesters
 - Management and analysis of harvesting optimisation data
 - Collection of forestry data using uncrewed aerial vehicle (UAV).

Signed on behalf of the Industry Reference Committees:



Clarissa Brandt
Chair, Timber and Wood Processing IRC

Date: 26 September 2022



Bill Paul
Chair, Forest Management and Harvesting IRC

Date: 26 September 2022



Kersten Gentle
Chair, Timber Building Solutions IRC

Date: 26 September 2022

Industry Reference Committees

The Forest Management and Harvesting IRC, Timber and Wood Processing IRC and Timber Building Solutions IRC are responsible for national training package qualifications relevant to forest and wood products.

Qualifications overseen by these IRCs are in the *FWP Forest and Wood Products Training Package*.

These IRCs are supported by the Skills Service Organisation, Skills Impact.

Forest Management and Harvesting IRC

Name	Organisation or Area of Expertise
Dallas Goldspink	Visy
Tammy Auld	Timberlands Pacific
Bill Paul (Chair)	Vic Forests
Craig Hallam	ENSPEC
David White	Sustainable Timber Tasmania
Denise Campbell-Burns	CFMEU Manufacturing Division
Suzanne McCavanagh	Forest Products Commission WA
Debbie Knight	Industry Skills Advisory Council NT

Timber and Wood Processing IRC

Name	Organisation or Area of Expertise
Clarissa Brandt (Chair)	Timber Queensland
Denise Campbell-Burns	CFMEU Manufacturing Division
Suzanne McCavanagh	Forest Products Commission WA
Maree McCaskill	Timber NSW
Lesia Clark	Victorian Forest Products Association
Victor Violante	Australian Forest Products Association

Timber Building Solutions IRC

Name	Organisation or Area of Expertise
Gavin Matthew	Engineered Wood Products Association of Australasia
Denise Campbell-Burns	CFMEU Manufacturing Division
Kersten Gentle (Chair)	Frame and Truss Manufacturers Association of Australia
Marie-Claire McKiernan	MGATMA
Alicia Oelkers	Timber and Building Materials Association (TABMA)

Method

Industry Reference Committees oversee the work of Skills Service Organisations in the collection and analysis of industry intelligence, which is used to:

- Identify industry skills needs and challenges
- Identify issues and potential improvements to the Skills and VET system
- Provide the basis for work to update VET training package products
- Provide an information source for industry to assist with business, workforce, skills and training planning.

The information in this report has been collated from a variety of sources identified by Industry Reference Committee members and industry stakeholders who have participated in consultations with Skills impact. It also utilises data and information from official sources and major commercial providers through the assistance of the Australian Government Department of Education, Skills and Employment.

Environmental Analysis

This Environmental Analysis is intended to provide a link between industry trends and issues impacting the industry and the skills need relating to those issues and trends.

Whole of Value Chain Approach

The forest and wood products value chain encompasses all stakeholders (forest owners and managers, processors, manufacturers, wholesalers and retailers) who are linked in collaborative relationships to provide consumers with products and services. Value-adding occurs when skilled workers conduct work on specific products or resources that results in them changing form or taking on an additional attribute (see the *Agribusiness, Food and Fibre Industries Skills Report* for more details).

Principal forest and wood operations include growing and managing forests for timber production, harvesting and haulage, sawmilling and processing, wood panel and board production, and timber supply. From these operations, the industry supplies a diverse range of materials and products; for example, timber and timber elements for building construction; structural timber systems, including manufactured frames and trusses; engineered wood products; wood chips; pulp and paper and packaging products; and bio-fuels and bio-energy.

Supporting these operations is a broad network of suppliers, buyers and service providers who collaborate with forest and wood product business across all value chain stages. These include forest nursery operations (growing nursery stock and seedlings for forests), economic consulting services, forest science research services, ground preparation and forest planting services, silviculture contracting and reforestation services, timber plantation and track maintenance, tree pruning and thinning services, weed and pest control services, machine tool and parts manufacturers, and timber construction companies. Businesses across these sectors are interdependent with forest and wood products operations, such that trends, challenges and opportunities in one sector are likely to impact on others.

Value chain interdependencies

Forest and wood product value chain inputs and outputs are affected by internal and external factors. Over recent years, there have been extreme disruptions to the industry, notably recent bushfires and floods causing major losses to the available tree resources, with resulting business and job losses in some areas (see **Natural disaster planning, response and recovery** below). The decrease in available resources has contributed to a critical timber shortage across Australia, and exacerbated building cost and scheduling pressures in the construction industry. Global demand for timber is set to quadruple by 2050, meaning the forest and wood products industries needs to plan and take appropriate steps to continue to meet demands for domestic supply of timber. Whilst adapting to these challenges, the industries are also having to cope with other trends and circumstances, such as the announced **Phasing out of native timber harvesting** in some states (see below) and the ongoing impacts of the COVID-19 pandemic.

In spite of these unprecedented challenges, the forest and wood products industries continue to pursue extremely positive measures around increasing the plantation estate and the development of innovative production methods and products (see also below for information on **Regional Forestry Hubs**). In this context, a whole of value chain approach is essential not only for understanding the ways in which industries work together but also to implement robust and adaptable systems, both to mitigate disruptions and continue to meet consumer demands¹. Some larger businesses are becoming vertically integrated so as to control a whole of value chain approach, enacting holistic management strategies for maximum efficiency and effectiveness.

¹ J. Azarias, R. Nettle & J. Williams (2020); *National Agricultural Workforce Strategy: Learning to excel*; National Agricultural Labour Advisory Committee; Canberra, December; p.xiv

All stages of the forest and wood products value chain are supported by cross-sectoral skills and knowledge in natural resource management, logistics, and safety and regulatory compliance (each addressed in greater detail below). These technical skills are further enabled by employability skills in communication, strategic planning, data analysis, leadership, digital literacy, and science, technology, engineering, mathematics (STEM). Employers' ability to access workers with such skills creates unique challenges and opportunities across the value chain. Investment in the capabilities and skills of the forest and wood products workforce is critical.

Regional Forestry Hubs

The National Forest Industries Plan² recommended the establishment of Regional Forestry Hubs³ to work with industry, state and local governments, and other key stakeholders on strategic planning, technical assessments and analyses of growth in the forest industries in their region.

Hubs were to be in locations with existing concentrations of value chain resources and partners, including significant wood supply resources, processing and/or manufacturing operations, and domestic and/or international transport infrastructure. There are now 11 hubs across Australia in areas with strong growth potential:

- North East New South Wales
- Central West New South Wales
- South East New South Wales
- Murray Region
- Gippsland
- Green Triangle
- North Queensland
- South and Central Queensland
- South West Western Australia
- Tasmania
- Northern Territory

Regional Forestry Hubs identify both region-specific and industrywide priorities of relevance to the value chain. These include partnerships with First Nations communities, opportunities for expanding value chain operations and collaboration, and value adding through initiatives such as carbon capture. Underpinning these objectives are three unifying themes that would help unlock value chain opportunities:

- Skills and training
- Workforce development
- Attracting people – particularly young people – to the industry.

Phasing out of native timber harvesting

In Victoria and Western Australia, businesses across the forest and wood products value chain are needing to prepare for native timber harvesting to be phased out.

The Victorian Government has resolved to phase out native forest harvesting by 2030 (with reductions from 2024-25)⁴. This native timber harvesting ban on public lands is forecast to result in a deficit of wood supply and, to address this, the Victorian Government has committed to an extra 50,000 hectares for timber

² Department of Agriculture, Water and the Environment (2021); *National Forest Industries Plan—implementation, election commitments and other measures*

³ Australian Government (2022); *Regional Forestry Hubs*; <https://www.awe.gov.au/agriculture-land/forestry/regional-forestry-hubs>; viewed 01/09/2022.

⁴ ABC News (2019); *Victorian Government announces multi-million-dollar plan to end native logging by 2030*; <https://www.abc.net.au/news/2019-11-06/native-timber-logging-in-victoria-to-be-phased-out-by-2030/11678590>; viewed April 2020.

plantation by 2030.

In Western Australia, the state government will also end native timber harvesting from 2024. The decision is part of the state's upcoming Forest Management Plan 2024-33. The announcement also included \$350 million to expand Western Australia's softwood timber plantations.

While the Victorian and Western Australian state governments have committed to increase support and funding to further the development of plantation forestry, there is widespread industry concern over:

- the future supply of timber
- the impact on regional businesses across the value chain
- the impact on regional communities sustained by value chain operations.

Machinery and operations used in native timber harvesting are not readily interchangeable with machinery and operations used in plantation forestry, and there is concern for the impact on businesses due to the loss of investment. There is also concern that the additional capacity the forest industry companies, machinery and workforce provide in responding to bushfires will be greatly diminished.

It is important, therefore, to identify all value chain interdependencies because of the impact that changes in one area can have on other – or *all* – areas. The phasing out of native timber harvesting will change the structure of industry and have significant effects on:

- the industry supply chain
- value chain partnerships; for example, sawmills operating in those areas may lose their key suppliers
- local communities and their workforces.

Skills and training needs

Due to the phasing out of native timber harvesting, there will be significant training needed to skill workers transitioning into other sectors or industries due to job losses. The impact is not only on the workforce in forest operations but also sawmills that rely on timber harvested in those areas.

Current crossovers and divisions of the value chain in the VET system

Within the VET system in Australia, there are several cross-over points between the forest and wood products industries and related industries.

Qualifications, skill sets and units of competency are housed in particular training packages but used, sometimes extensively, by other industries. There are 432 instances of FWP units being imported into non-FWP Training Package qualifications. The most heavily utilised outside of FWP are skills and knowledge to maintain chainsaws, and trim and cut felled trees as part of arboriculture, agriculture, conservation and land management, local government, emergency services and other government agency operations.

Such crossovers are only likely to increase with the implementation of initiatives such as the Australian Government's *Farm Forestry: Growing Together Plan*⁵, which details new opportunities for farmers looking to invest in farm forestry.

⁵ DAWE (2022); *Farm Forestry: Growing together*, Department of Agriculture, Water and the Environment, Canberra, February. CC BY 4.0.

There is also crossover around firefighting, fire prevention and fire management. Forest Managers maintain their own fire brigades of highly skilled individuals who work alongside state fire agencies in bushfire response and operations and some are fully incorporated into state fire agencies. Qualifications and units relating to fire management and response are mostly contained in the *Public Safety (PUA) Training Package*, and many PUA units are imported into FWP qualifications. Industry feedback indicates, however, that there are issues associated with recognition of prior learning (RPL) and training across state borders, which may be addressed in future projects.

Other current cross-overs requiring collaboration include:

- Construction
 - Timber plays a critical role in building in Australia, and is a foundation component of most residential and mid-size building
- Furnishings & Textiles
 - Timber is a foundation product for furniture manufacturing and textile use
- Manufacturing
 - There remains some cross-over with manufacturing, particularly in relation to the manufacturing of furniture
- Professional Support Services
 - Supportive occupations such as waste management, sales and marketing
- Transport & Logistics
 - The disruptions of the COVID-19 pandemic, especially during 2020 and 2021, highlighted the importance of access to forest and wood products. This is partially covered by the Transport and Logistics (TLI) Training Package
- Research
 - Significant research efforts are being undertaken that inform industry, including in waste minimisation, sustainability and consumer trends

Biosecurity, Invasive Species and Pest Control

Please see the *Agribusiness, Food and Fibre Industries Skills Report* for more details on the critical importance of, and shared responsibility for, biosecurity across the primary industries. Plant and animal (including pest control) biosecurity controls and skills are increasingly important to enact a continuum of biosecurity practices, including prevention, detection, containment and eradication, that safeguard Australian communities and industries.

Australia has few of the significant pests that affect timber and forests in other countries because of its geographic isolation and robust border biosecurity systems. This has contributed to the successful development of the Australian softwood plantation industry, and has resulted in relatively low costs associated with pest management practices in the forest and wood products industries generally.

Biosecurity concerns associated with the increasing movement of people and products across the world, however, have highlighted potential risks to Australia's forests from pest incursion. Industry leaders and associations have been focussing on preparedness strategies, including to improve early detection capabilities and the chances of successful eradication should exotic pests invade native and plantation forests.

The National Forests Biosecurity Coordinator at Plant Health Australia is currently working with the plantation sector and federal, state and territory governments to establish partnerships and skills standards

that support the objectives of the *National Forest Biosecurity Surveillance Strategy 2018-2023*⁶.

Other key biosecurity, plans, manuals and resources for the forestry industry include:

- The *Plantation Forest Biosecurity Plan* summarises key threats to the industry, how to identify and categorise exotic pests, and details risk mitigation and contingency plans. Such biosecurity planning provides a mechanism for the plantation timber industry, government and other stakeholders to assess current practices and future biosecurity needs, both for ongoing monitoring and minimising the impact should a pest incursion occur. Forest and Wood Products Australia is currently supporting the development of an updated Plantation Forests Biosecurity Plan⁷.
- The *Biosecurity Manual for Plantation Timber Industry* contains information to help producers and plantation managers to implement biosecurity measures. The biosecurity practices covered include plantation monitoring for the early detection of pests and diseases, planting and propagating material, managing people and machinery movement, and biosecurity and Quality Assurance⁸.

Sustaining Trees and Forests

Sustaining forests requires the development of sophisticated skills and knowledge. Depending on what is being grown and where, workers need the capabilities to be able to undertake forest nursery production and silviculture operations that involve handling seeds, maintaining seed orchards, propagating trees, growing tree stock, carrying out soil sampling and testing, applying irrigation techniques, monitoring tree health and nutrition, and pruning and trimming trees as appropriate.

Maintaining forest health further involves preparing and undertaking activities required to spread fertiliser and soil ameliorants, control weeds, control plant pests, diseases and disorders, and applying pest animal control techniques, including using firearms to humanely destroy animals where necessary. There are also important skills and knowledge for fire and bushfire impact mitigation, such as prescribed burning to reduce fuel in forested areas.

Ecosystem and Biodiversity Management, and Continuing Climate Adaptation

The forest and wood products value chain relies on the health and wellbeing of the ecosystem. The management of biodiversity and protection of standards is central to the ongoing operations of the industry.

Sustainability standards and work practices

Current certification schemes and industry codes of practice regulate the way forests are managed across Australia. They contain stringent requirements for protecting ecosystems and maintaining biodiversity, and cover issues such as forest carbon cycles, soil and water resources, plant and animal populations, waste management, the use of chemicals, and genetic diversity.

The Responsible Wood program standard AS4708 has recently been amended to include requirements around ensuring operators hold nationally recognised skills to the standard within the units of competency for the work being undertaken.

In this context, sustainable work practices and skills are a key focus of forest and wood products operations. In the forest management and harvesting sectors there are environmental care and protection measures

⁶ Department of Agriculture and Water Resources (2018); *National Forest Biosecurity Surveillance Strategy*; Plant Health Australia

⁷ Plant Health Australia (2020); *Plantation forestry*; <https://www.planthealthaustralia.com.au/industries/plantation-forestry/>; viewed 01/09/2022.

⁸ Plant Health Australia (2020); *Plantation Forests Biosecurity Plan*; (Version 3.1 – 2022) Plant Health Australia, Canberra, ACT.

including:

- impact minimisation strategies
- environmental hazard identification, including threats to native vegetation, flora and fauna
- land use and management
- protection of heritage and archaeological artefacts, and rehabilitation strategies and activities.

In down-stream processing sectors, such as sawmilling, and timber and wood panel products manufacturing, key training requirements for sustainability focus on housekeeping, resource optimisation and applying waste disposal, recycling and re-use guidelines.

Skills and training needs

Skills and training are required to assist forest managers and contracted forest operators to meet their requirements under relevant certification schemes and codes of practice.

The main barrier to this skills and training is the lack of training providers registered to deliver this type of training mainly due to access to trainers with expertise in this area.

A Billion trees

There is Australia-wide support for increasing plantations both to meet increased domestic and global demand for wood and fibre and to transition to a greener, lower-emission economy. Research shows the need for 400,000 hectares of new plantations by 2030 to meet Australia's demand for wood⁹. This would amount to one billion trees in new plantations, in addition to the 70 million trees planted every year to replace the trees harvested in Australia's plantations.

Principal Economics¹⁰ reports that potential carbon sequestration associated with the proposed plantation forestry expansion could significantly contribute to Australia meeting its net zero emissions target by 2050. The report asserts that forestry is one of the most efficient and effective methods of sequestration; and plantation expansion would help Australia meet its future wood needs, increase carbon stores in the built environment, and contribute to the circular economy through the sustainable, renewable and recyclable potential of timber products¹¹.

Identifying and securing land to establish new plantations is one of the main barriers to achieving this goal. To address this challenge, the Federal Government and industry are exploring ways to stimulate farm forestry¹² and make better use of private native forests and Indigenous-owned and managed forests suitable for commercial use.

Expanding production tree planting is seen to have the following benefits:

- Helping generate new income for landowners
- Increasing biodiversity and habitat for wildlife
- Helping to supply vitally needed timber for the construction of the built environment.

⁹ Australian Forest Products Association (2022); *National Farm Forestry Strategy Submission*

¹⁰ Principle Economic (2021); *Potential for carbon sequestration in Australian plantations forests to contribute to Australia's 'net Zero by 2050' target*; Australian Forest Products Association

¹¹ Australian Forest Products Association (2022); *National Farm Forestry Strategy Submission*

¹² DAWE (2022); *Farm Forestry: Growing together*; Department of Agriculture, Water and the Environment, Canberra, February. CC BY 4.0.

Skills and training needs

Growth in plantations and new demands in relation to the sustainable management of native forest timbers will require additional skills in forest planning and establishment, silviculture, and fire protection and prevention.

Climate change mitigation

The Food and Agriculture Organisation (FAO) of the United Nations released a *State of the World's Forests Report* in May 2022 which reinforces that sustainable forestry is essential to help curb the global climate crisis and help avert major biodiversity loss¹³.

Australia's forest and wood products industries play a major role in mitigating climate change, growing regional communities and stimulating economic activity. AFPA note that:

- 'Trees capture the most carbon when they are in their early to mid-growth phase, which is why the continuous harvest-and-replant cycle of Australia's forestry operations deliver such good carbon sequestration'
- 'The average timber framed house stores as much carbon as is emitted by a car driving two-thirds the way around the world'
- 'Wood products in use in Australia store enough carbon to offset the emissions generated by all the cars on our roads for one year.'

Australian Forest Products Association (2021); Storing Carbon For a Cleaner Future: a Snapshot

Climate change remains a key driver of the trajectory of the forest and wood products industries, including through the push to plant more trees, the development of value-added products and less carbon intensive construction materials and methods, and the use of biomass for energy and other purposes. As stated above, expanding the plantation estate, including the goal of expanding farm forestry in Australia, is key to pursuing this objective.

In January 2022, the Clean Energy Regulator announced a new plantation forestry method under the Emissions Reduction Fund (ERF). The new method aims to provide more opportunities and remove barriers for the plantation forestry industry to participate in the ERF.

Skills and training needs

Skills and training will be required for establishing new plantation estates, including maintaining plantation health and harvest planning. This may involve farmers and farm workers; however, many will rely on contracting businesses to undertake work to establish, maintain and harvest plantations.

¹³ Australian Forest Products Association (2022); *Sustainably managed, working forests, vital for halting deforestation and delivering climate goals*; <https://ausfpa.com.au/sustainably-managed-working-forests-vital-for-halting-deforestation-and-delivering-climate-goals/>; viewed 04/05/2022.

Digital and Automation Practices

Please see the *Agribusiness, Food and Fibre Industries Skills Report* for additional information and data on digital and automation practices, including the *Agricultural Workforce Digital Capability Framework*, digital ecosystems (including connectivity issues in regional areas) and digital and automation skills delivery.

Technology has always been a key driver of change in the forest industry. Digital technology, drones and remote sensing systems, in-field technologies and optimisation equipment are supporting the industry to be more productive, environmentally sustainable and safer.

The main objective of these technologies is maximising output while maintaining quality, and being able to measure, track and plan production to be at its most efficient. As a result, many job roles require different levels of technical and digital skills than before.

As in other industries, data collection and analysis are becoming increasingly important. The Department of Environment, Land, Water and Planning has made Victoria's largest ever acquisition of data on public forests using Lighting Detection and Ranging (LiDAR) technology¹⁴. LiDAR will allow the creation of detailed, accurate forest maps, providing the foundation for long-term monitoring programs and management strategies.

Trials are underway to use radio-frequency identification tracking for prefabricated timber systems, making information about components available immediately and so improving on-site processes.

The use of robotics is increasing for materials handling, processing and surfacing. Virtual reality machines are being used to envisage work-steps and machine states as well as for machine control. High-performance sensor systems for material detection are making saw technology safer.

Drone usage

The forest industry utilises drones for the collection of data. Forest managers variably use a combination of specialist drone companies, especially for piloting the drones, and in-house drone technology.

Drones have been used, or trialled, in:

- fauna survey visualisation and pre-harvesting animal welfare surveying
- tree count and height assessment in mid and long rotation
- damage assessments
- aerial ignition to support safe and effective hazard reduction burning and
- control burning monitoring.

Skills and training needs

Industry operators are required to use a range of skills relating to programming and interpreting data, digital and spatial technologies and optimisation of processes and equipment.

There are some gaps in the *FWP Forest and Wood Products Training Package* in relation to digital technology that need to be addressed. These gaps refer to:

- Development of digital forest operational maps

¹⁴ Forest Tech (2019); *Victoria's largest acquisition of forest LiDAR*; <https://foresttech.events/victorias-largest-acquisition-of-forest-lidar/>; viewed April 2020.

- Development of cutting instructions files for forestry harvesters
- Management and analysis of harvesting optimisation data
- Collection of forestry data using uncrewed aerial vehicle (UAV).

QA & Regulatory Compliance

Please see the *Agribusiness, Food and Fibre Industries Skills Report* and the *FWP Forest and Wood Products Training Package Implementation Guide*¹⁵ for more details on legislation, environmental regulations, industry codes of practice, and information on regulated occupations. These documents detail the complex knowledge and skills requirements for compliance with forest policy in Australia, which is developed and implemented at national, state and territory levels. State and territory governments have primary responsibility for forest management.

Industry codes of practice

There are a number of codes of practice used throughout the industry. In Tasmania, for example, the Forest Practices Code was recently updated and published in March 2022. The guidelines and standards in the Forest Practices Code cover:

- Planning
- Building access into the forest (roads, bridges, quarries etc)
- Harvesting of timber
- Conservation of natural and cultural values
- Establishing and maintaining forests.

The Log Haulage Code of Practice is currently being considered by the National Heavy Vehicle Regulator (NHVR). The code will identify and assess the risks along the supply chain for log haulage and establish standards and procedures to mitigate risks with respect to the Heavy Vehicle National Law (HVNL). The code of practice will specifically cover the haulage of logs and consider risks relating to loading and unloading, log restraint, rollover prevention, and safe driving practices.

Skills and training needs

Requirements of codes of practice are reflected in units of competency where relevant, and businesses need to verify that operators have received the required training to ensure compliance.

¹⁵ Australian Government (2022); *VETNet: Forest and Wood Products Training Package*; <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0d96fe23-5747-4c01-9d6f-3509ff8d3d47>; viewed 01/09/2022.

Certification

Certification gives customers confidence that the products they buy are based on sustainable forestry operations and good management practices. For a forest to be certified as sustainably managed, an audit is undertaken by an independent third-party certification body. The audit assesses the forest management practices of a forest manager or owner against the standard for certification. Both native forests and plantations can be certified.

For certification, audit and quality purposes, businesses need to implement a chain of custody certification system, including a register of documents that can include timber source information, processing records, quality records, and details for numbering/labelling systems. These processes ensure traceability of products as they move through the supply chain.

Australia has two active certification schemes:

1. Australian Forestry Standard (AFS) now known as Responsible Wood – recognised through the Program for Endorsement of Forest Certification (PEFC)
2. Forest Stewardship Council

Skills and training needs

Skills and training are required in the areas of certification and chain of custody requirements, as outlined in the relevant recognised standards. These needs are across the whole supply chain, and at all levels within businesses.

There are training and skills needs for operational staff around applying practices and procedures that comply with the relevant certification system. Supervisors and managers need training to ensure that policies meet the needs of the organisation and are correctly implemented.

The *Forest and Wood Products Training Package* Version 8.0 will include three new units of competency regarding chain of custody certification.

A barrier to this type of training being linked to the national VET system is the difficulty for RTOs to be across all areas of speciality. As with many areas, the experts that can provide the training are working within the businesses, or within the certification bodies. The industry preferred model of VET delivery through partnerships between industry experts, regardless of where they are employed, and forestry training providers would remove this barrier and provide a successful and viable training delivery model.

Workplace and Value Chain Risk Management and Safety Culture

Safety has always been a key focus across all sectors and job levels within the forest and wood products industries. Forestry and timber growing, harvesting and haulage contracting, sawmill operations and timber products production all contain high-risk activities that must be carefully monitored and managed.

Production workers, operators and technicians need to be trained to follow and apply procedures and work practices covering a wide range of safety matters, including:

- equipment operation and isolation
- emergency and evacuation procedures
- use of safety equipment, first aid and firefighting equipment
- wearing of personal protective equipment and clothing

- hazard identification, risk control and mitigation, handling and elimination of hazardous materials and substances
- manual handling including shifting, lifting and carrying
- fatigue management and
- safe forest practices including required actions relating to forest fire.

Safe and Skilled Essential Training Standards

Essential Training Standards are enshrined through the industry program 'Safe and Skilled', which was developed by the Australian Forest Products Association (AFPA) and the Australian Forest Contractors Association (AFCA)¹⁶.

Through the program, Forest Managers commit to ensuring that all workers in the forests hold a Statement of Attainment of nationally recognised units of competency when undertaking any task that involves:

- driving heavy plant or log trucks
- using handheld motorised equipment
- ground based workers working near heavy plant and tree felling operations.

The Safe and Skilled program requires that forest operators are trained to national competency standards in environmental care, workplace health and safety (WHS), and the technical (often machinery) equipment being operated.

Skills and training needs

The availability of online training programs and training and assessment materials, particularly in the areas of safety and environmental care, will support RTOs and provide better access to nationally recognised training.

Natural disaster planning, response and recovery

Impact of bushfires and flooding on industry

The impact of recurrent bushfires in forested areas and recent major flood events in NSW and Queensland, affects the forestry industry:

- Destruction of trees and forestry areas which may take years to recover before replanting can occur
- Lower availability and quality of log resources, which negatively impacts on businesses and employment in the industry
- Workers require skills for responding to natural disaster events

The Forest and Wood Products industries are still recovering from extreme and widespread bushfire events in 2019/2020, when around 40% of domestic softwood sawlog supply was decimated (Table 1 shows the extent of the fire area that was forested). There have since been major impacts from floods, particularly in

¹⁶ Australian Forest Products Association (2018); *Safe & Skilled*; <https://www.afca.asn.au/news-projects-2/safeskilled>; viewed 01/09/2022.

NSW and Qld. The impacts are especially being felt by sectors that rely on the resources that were affected, especially timber processors, harvest and haulage contractors and down-stream processing facilities.

According to a Timber NSW survey conducted in May 2022, 57 timber-related businesses had been affected by the floods in Northern NSW., with the combined results of loss of tree and logs, lack of access to forests to undertake operations with hundreds of damaged and closed roads, and major limitations on harvesting activity due to saturated soils. The impacted businesses employ 1,000 people in the region, with monthly costs including \$15.6 million and employee costs of \$5.8 million. This flood damage was on top of the continuing impact of Northern NSW bushfires in which 30% of all forest stock was burnt by modest or high intensity fire. A full inventory of damage is ongoing¹⁷. A similar assessment of damage in the industry in Southern Queensland is not yet available.

Table 1: the area of Australia’s forest in the 2019-2020 bushfire season

Jurisdiction	Fire Area ('000 hectares)	Forest area in fire area ('000 hectares)	Proportion of fire area that is forested
Australian Capital Territory	90	83	93%
New South Wales	5,682	5,123	90%
Northern Territory	0	0	0%
Queensland	574	514	90%
South Australia	313	137	44%
Tasmania	45	30	65%
Victoria	1,583	1,457	92%
Western Australia	2,044	1,143	56%
Total	10,331	8,686	82%

Source: Fire extent derived from the Department of Agriculture, Water and the Environment National Indicative Aggregated Fire Extent Dataset (v20200428) current to 28 April 2020.

¹⁷ Australian Forests & Timber June 2022 https://issuu.com/provincialpressgroup/docs/aft_june_2022 accessed 13 September 2022

Case Study - Impacts of the Bushfires in the NSW Snowy region

In NSW, fires were concentrated in the Snowy Region, including areas around Tumut, Tumbarumba and Bombala, and affected around one quarter of the forest estate. The *Annual Report 2020-21 of Forestry Corporation NSW*¹⁸ notes that, from financial year commencing in 2022, sawlog production in the Snowy Region will reduce by over 50% to reset supply to a medium-term sustainable level. This in turn has had a significant impact on the number of contractors engaged for production operations in the region.

Immediately after the bushfires, the activity of local forest harvesting contractors was sustained by log salvage operations, which generated a harvest rate of around two to three times more than the seasonal average. The activity of timber mills was also sustained by the supply from salvage operations. However, salvage operations in all affected areas have been completed and industry is now experiencing a significant downturn in its timber harvesting and processing activity.

To support bushfire recovery, response and preparedness activities in NSW, the Snowy Valley Skills Development Service (SVSDS) is being co-funded by the Commonwealth and state governments under the Bushfire Local Economic Recovery Fund¹⁹. The SVSDS is having a significant impact in the region, especially with its priorities to:

- Identify business and employment opportunities in the region which might be suitable for forest and timber industry businesses and workers
- Support businesses and workers to understand the current and emerging employment opportunities in the region
- Support at least 40 businesses and 400 workers in the forest and timber industry to identify the skills needed to capitalise on new opportunities in the region
- Support workers in the forest and timber industry to access employment-focused upskilling and training opportunities.

Changes to workplace and skills requirements – firefighting

Following the 2019/2020 bushfires, forest workers have been deployed in ways that are distinct from their usual work activities as forestry operations contractors and managers. Workers have performed roles including:

- Defending resource and forestry assets;
- Suppressing fires in farming and national parks land;
- Undertaking salvage operations after fires have been extinguished;
- Removing dangerous trees (make-safe operations) and road clearing; and
- Re-establishing plantations.

Some state and regional firefighting agencies have experienced capacity shortages, including in the available workforce, and these gaps are being filled by the native forest industry. Industry stakeholders are calling on governments to facilitate planning, support and training activities to fill these gaps.

¹⁸ Forestry Corporation of New South Wales (2021); *Annual Report 2020-21*

¹⁹ ForestWorks (2022); *Snowy Valley Skills Development Service (SVSDS)*; <https://forestworks.com.au/services/svsds/>; viewed 01/09/2022.

Industry Summary and Trends

Market Summary

The forest and wood products industries have faced repeated disruptions, including from bushfires and COVID-19, that have had compounding effects on the industries and affected all 'business as usual' operations, value chains and labour supplies.

The short- to medium-term impact of these on residential construction activity is of concern for the forest and wood products industries. Residential construction is the largest customer for softwood sawnwood products in Australia, and accounts for a substantial proportion of the demand for wood-based panel products.

Ongoing trade disputes with China are also reducing industry export revenue; however, despite such challenges, Australia is still a strong performer in export markets for woodchips and whole logs²⁰.

The forest industry is being supported through the various challenges experienced, including through the mechanisms set out in the Australian Government's *National Forest Industries Plan*, which details a commitment to securing a strong, sustainable forestry industry by:

- meeting the challenges of the future
- underpinning growth in the renewable timber and wood-fibre industries
- innovating and using Australia's forest resources in a smarter manner
- assisting industry to realise its ambition to plant a billion new plantation trees during the decade to 2030.

The Forest and Wood Products industries generated \$23.12 billion in revenue and contributed \$6.36 billion to Australian gross domestic product ('industry value added') in the financial year 2021-2022.

Table 2: Industry Financial Activity

Training Package-Related Industries	Revenue (\$billion)	Industry Value Added (\$billion)
Forest and Wood Products (FWP)	\$23.12	\$6.36

Source: IBISWorld Industry Wizard, 2022

Resource availability pressures

Australia is currently experiencing a critical timber shortage at the same time as demand for timber and wood products is increasing due to the following factors:

- the decimation of available forest resource because of the 2019-2020 bushfires
- interruptions to global supply chains due to COVID-19 and other global issues

²⁰ IBISWorld (2022); *Forestry and Logging in Australia*

- the shortfall in new plantation establishment over the last decade
- innovative new products being offered due to advancements in timber processing technology
- government stimulus targeted at housing and construction (e.g. Homebuilder) placing increased demand on timber and other materials.

The Australian Forest Products Association (AFPA) and the Master Builders Australia have identified that, unless more plantations are established quickly, Australia will have a deficit of 250,000 house frames by 2035²¹.

Emerging skills, methods and materials

Advances in wood processing

Industry continues to invest in and produce innovative products, such as Laminated Veneer Lumber systems, Glue Laminated Timber, Cross Laminated Timber, panels systems and hybrid products. Projects utilising these products are increasing across Australia, particularly in mid-rise buildings.

This continued shift towards innovative timber product building solutions will also see new skills requirements related to design, quality control and installation.

There have been government initiatives to support the development of advances in wood processing and product innovation:

- The Clean Energy Finance Corporation (CEFC) is seeking to transform Australia’s approach to medium- and large-scale building construction with a \$300 million program to encourage mass-timber construction.
- In April 2022, the Federal Government announced the Accelerated Adoption of Wood Processing Innovation Program, which will provide \$112 million over four years to co-invest with wood processors to adopt new and upgraded wood processing facilities²².

The rise of Cross-Laminated Timber (CLT)

Global demand for CLT is growing by 15% annually. In Australia, CLT is becoming increasingly popular and in-demand. This is because of its aesthetic appeal, easy installation and low greenhouse gas emissions. Due to its environmentally friendly nature, governments in both Australia and New Zealand are promoting the utilisation of CLT in construction.

Skills and training needs

While the machinery used to produce engineered wood products is largely automated, skills are required in production planning, data management, optimisation and process and quality control.

Training in the use of machinery is often provided by the equipment manufacturer and is specific to the brand and machine type. This type of training is non-accredited and therefore not linked to the VET system. Consequently, RTOs struggle to maintain the currency of trainer and assessors’ skills in industry production techniques and operations, exacerbating the challenges faced by the VET sector in effectively servicing the industry.

²¹ AFPA (2021); *Annual Report 2020-21*

²² Australian Government (2022); *Forestry*; <https://www.awe.gov.au/agriculture-land/forestry>; viewed 01/09/2022.

Business & Workforce Summary

Forest Management businesses are landowners or state-owned agencies that oversee the development, growing, maintaining and planning of forest estates. These businesses employ, amongst others, tertiary qualified foresters.

The harvesting and haulage sector is predominately made up of a contracted workforce of small to medium harvesting crews. Forest Managers contract the harvesting crews to carry out operations as set out in the plans or schedules developed by the Forest Managers.

Timber and Wood Processing businesses can be small, medium or large businesses, and can have a widely variable range of log processing activities. In many cases, the facilities are in close proximity to the forest areas. The workforce is often local, and these business make significant contributions to local and regional communities.

Timber Building Solutions and Timber Merchandising covers frame and truss manufacturers, wholesalers and retailers. A lower proportion of this workforce is based in regional areas.

The industry employs around 63,000 people. This workforce is characterised as 'ageing' because around 55% are over 40 years of age, and 32% are over 50 years of age²³. Without effective government and industry policies to attract and retain new workers, this trend will worsen the significant skills and labour shortage already being experienced, especially in the regional and rural areas where businesses operate.

Table 3: Industry businesses and employment

Training Package-Related Industries	Businesses	Employment
Forest and Wood Products (FWP)	10,926	62,821

Source: IBISWorld Industry Wizard, 2022

Shortage of skilled workers

The Forest and Wood Products industries continue to be constrained by widespread shortages of skilled and low skilled labour, jeopardising the short- and long-term viability of many businesses.

Factors affecting access to skilled labour include:

- difficulties in competing for skilled workers with other industries (e.g. mining)
- reluctance of workers to move to regional, rural and remote areas
- lack of available workers with the required skills and qualifications²⁴.

The National Skills Commission (NSC) regularly reviews the national skills needs of Australia and, from June 2021, has responsibility for releasing a Skills Priority List (SPL) annually. A key element of the SPL is the determination of occupational shortages, when 'employers are unable to fill or have considerable difficulty filling vacancies for an occupation or cannot meet significant specialised skill needs within that occupation, at current levels of remuneration and conditions of employment and in reasonably accessible locations'²⁵. Occupations designated by the NSC with shortages and/or significant future demand in the forest and wood products industries are:

²³ ABS (2016); *2016 Census of Population and Housing*

²⁴ N. Anderson, H. Stewart & R. Keenan (2020); *Culture, Training and Skills Assessment Report*

²⁵ National Skills Commission (2021); *Skills Priority List Methodology*; p.5

ANZSCO Code	Occupation	Current national shortage overall?	Future demand (five-year period)
394213	Wood Machinist	Yes	Moderate
234113	Forester	No (shortage in NSW)	Strong
841311	Forestry Worker	No	Moderate
841312	Logging Assistant	No	Moderate
841313	Tree Faller	No	Moderate
133511	Production Manager (Forestry)	No	Moderate
331211	Carpenter and Joiner	No	Moderate
711313	Sawmilling Operator	No	Moderate
711314	Other Wood Processing Machine Operator	No	Moderate

Strategies for attracting industry employees

Attracting people to the industry has been identified by all 11 Regional Forestry Hubs as an industry priority. Industry stakeholders note that the industry is undergoing an image change to highlight the many technical roles available and so reframe perceptions of an industry dominated by manual labour. This is in part a reflection of evolving job roles that are being shaped by three main factors:

- Whole of industry efforts to efficiently utilise its primary resource (trees) by engaging in circular economy and sustainable practices
- Rapid developments in technology, including optimisation across many functions, and the greater use of digital and automation technologies
 - For example, even small harvesting crews are utilising log optimisation software in machine operations that are digitally linked between the forest manager and the sawmills who will use the logs being harvested.
- Industry restructuring due to changing forest types and the size of businesses utilising those forests.

To generate interest in industry jobs, industry stakeholders have undertaken promotional activities in schools. Timber Queensland is hosting industry tours called *Introduction to the Forest & Timber Industry: Grow, Harvest & Process* for school students in Grades 10, 11 and 12 from Hervey Bay State High School (proposals are in place to run the same tour for students from the Maryborough and Gympie regions). Attendees will gain first-hand insights into the working environment of three segments of the forest and timber industry supply chain, as well as an understanding of the Vocational Education and Training, apprenticeship, traineeship and career opportunities available in each area. During the tour, students will watch a newly developed industry career promotion video, experience VR headsets loaded with Forest Learning Virtual Reality experiences, and learn from a comprehensive industry career workbook featuring career profiles, case studies, 'day in the life' stories and career pathway information. Surveys prior to and after the event will gauge students' satisfaction, which will help to inform future events and illustrate students' perceptions of the industry before and after the tour.

Each forestry region either plans to or has undertaken similar types of tours and taster programs for young people. Some of these are facilitated by the Regional Forestry Hubs and others by local industry or State ITABs.

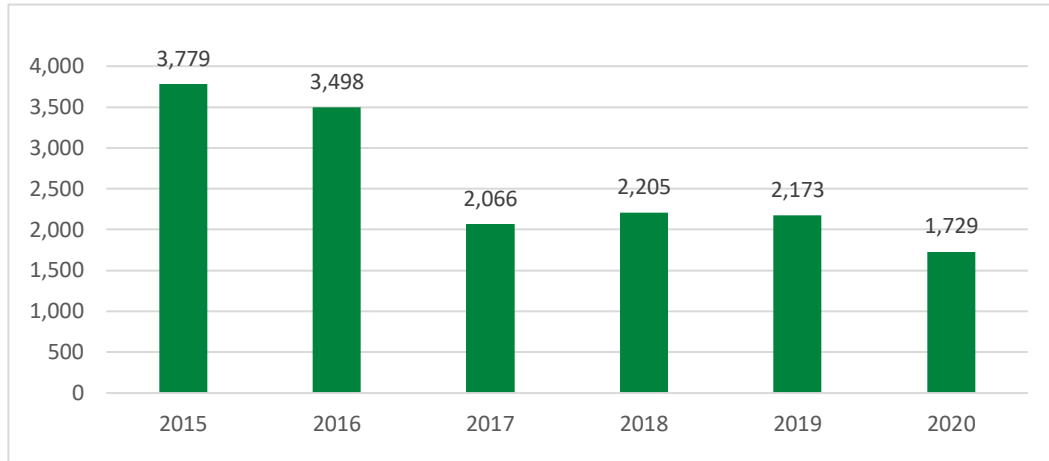
Training Summary

VET training products

Forest and Wood Products Qualifications

In 2020, there were 1,729 enrolments in *FWP Training Package* qualifications, and 480 qualification completions.

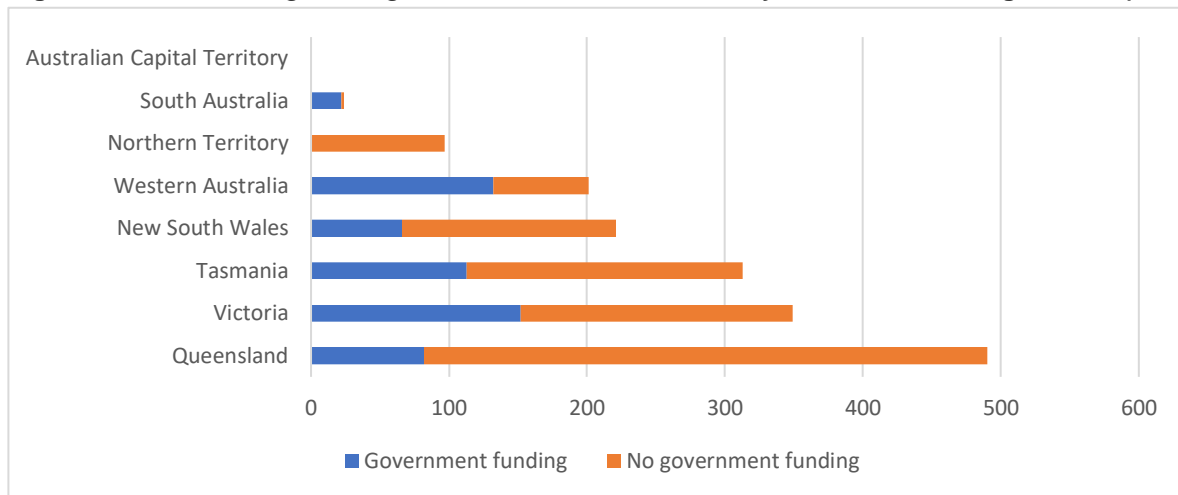
Figure 1: *FWP Training Package* Qualification Enrolments and Completions by Year



Source: NCVET VOCSTATS, TVA program enrolments 2015-2020

The greatest number of qualification enrolments in 2020 were in Queensland (490), followed by Victoria (349) and Tasmania (313).

Figure 2: *FWP Training Package* Qualification Enrolments by State and Funding Source (2020)

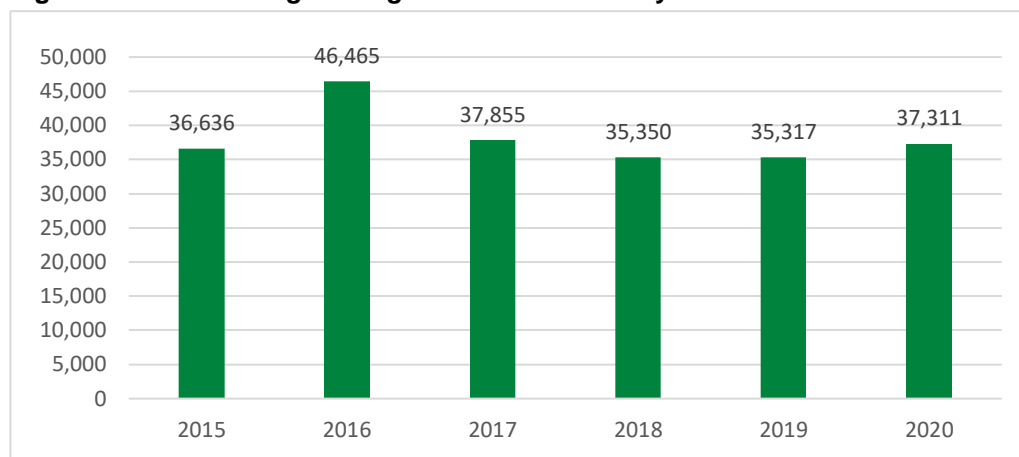


Source: NCVET VOCSTATS, TVA program enrolments 2015-2020

Forest and Wood Products Units of Competency

In 2020, there were 37,311 enrolments in FWP units of competency (hereafter 'units'). This includes enrolments through qualifications (in any training package), apprenticeships and non-apprenticeships, skill sets and micro-credentials.

Figure 3: FWP Training Package Unit Enrolments by Year



Source: NCVET VOCSTATS, TVA subject enrolments 2015-2020

Why learners undertake training

In the forest and wood products industries, the main drivers for training are when it is a requirement of the job. This is evidenced in the harvesting and haulage sector, where contracted crews undertake operations for a forest manager where there are compliance requirements to meet safety, quality and regulatory standards.

Individuals working in the industry report barriers to training include a lack of encouragement from employers, no flexible working arrangements, and a lack of access to training. There are often no pay incentives for undergoing training or holding higher qualifications. An added disincentive is a lack of innovative training options such as online training that could be undertaken flexibly.

In the timber and wood processing sectors there is generally a higher rate of non-accredited, in-house training due to the need for capabilities in specialised equipment being used in operations. This is often provided by the equipment supplier.

Barriers to nationally recognised training

Relatively low formal use of the *FWP Training Package* is an ongoing issue. Employers report that low enrolments are not a reflection of the quality of the training package, but rather a lack of access to RTOs who can deliver the training in a flexible manner while meeting specific workplace needs. This is partly due to the low financial viability for RTOs in continuing to offer such training when there is a relatively low workforce turnover, and hence a low or inconsistent pool of new enrollees.

While there are RTOs working hard to service the industry, they are so under-resourced and thinly spread, the service they provide can easily be constrained.

For some sectors of the industry there are extremely few RTOs with relevant qualifications and units on scope; for example, only two training providers in Australia offer the *Certificate II in Sawmilling and Processing*. In Western Australia, state-based funding is not available for this qualification as there is no

training provider delivering the qualification; yet no training provider will apply for permission to deliver the qualification without access to state funding. For the Victorian-based RTO, the administrative, financial and resourcing outlays pose a risk when there is no certainty of a viable market.

Thin training markets are a perennial issue for the forest industry, and this has eroded industry stakeholders' engagement with, and confidence in, the VET sector. Thin markets for VET are markets in which there are few potential learners or RTOs delivering training. In relation to the *FWP Forest and Wood Products Training Package*, thin markets are partly a result of remoteness, dispersed workplaces and insufficient demand to encourage RTOs to invest in training and assessment resources.

In a project undertaken by Skills Impact and ForestWorks in 2020 to understand low enrolments in the industry, all RTOs reported that:

- Government funding arrangements do not include enough consideration of the additional costs for RTOs in thin, regional markets with specialised equipment requirements to make training viable to deliver.
- RTOs have high compliance requirements, which compounds difficulties associated with marketing and business development, and attracting experts to become trainers and assessors.
- RTOs are unable to offer salaries and wages for trainers and assessors that are anywhere near what experienced operators earn in industry jobs.
- The current Training and Education (TAE) qualification requires learners to design and develop assessment tools, which leaves many operators feeling that the paperwork requirements of trainer and assessors is overly burdensome. This is also impacting operators in the industry who hold earlier versions of the TAE, but are unwilling to upgrade.

Other barriers reported by stakeholders include:

- The loss of productivity is too high when employees undertake off-the-job formal training
- Perceived difficulties in dealing with the VET system, particularly for small to medium enterprises
- Views that national competencies do not cover regional or specialised needs
- Training delivery needs to utilise enterprises' own large-scale equipment due to its cost, size and type, but this disrupts operations and causes lost productivity
- When a business upgrades its technology, training is often delivered by the supplier/manufacturer of the equipment, especially when RTOs are unfamiliar with the technology, or it does not align with nationally recognised training
- Regional employees having to travel large distances to receive training from an RTO.

Stakeholders note that if the nationally accredited training system can offer the training employers need in a cost-effective manner, then employers will likely opt for it. If not, they will continue to make the best of non-accredited training, delivered either by internal or external providers. The consequences of this mean they will miss out on nationally consistent, high-quality qualifications that will benefit their employees, their business productivity, the broader industry, and other industries requiring similar skills and qualified workers.

Future directions

Partnerships between RTOs and businesses utilising a workplace-based trainer and assessor model is seen as a solution to improving the disconnect between businesses and the VET system.

More industry experts would be attracted to becoming VET teachers and workplace assessors if the process of achieving the required TAE qualification was simplified and the model of workplace delivery with oversight and mentoring through an RTO was supported.

For many businesses, accessing information about nationally recognised training availability, funding and opportunities, is complex and overwhelming. The Improving Enrolments employer surveys suggest 75% of employers would like to see provision of assistance to engage with RTOs and to access government funding for training.

In recent years, the Tasmanian Skills Development Service (TSDS) (now completed) has provided funding for any training that is of benefit to industry (not just full qualifications). The program funded 3,289 training places and had completion rates of 98%. One of the main features of the program was to provide support and assistance to industry businesses to engage with an RTO for training. Such programs have been welcomed by industry and are seen as exemplars for future collaboration.

Regional, Rural & Remote Summary

Please see the *Agribusiness, Food and Fibre Industries Skills Report* for information on the many and intersecting challenges of stimulating industry growth, communities and skill and training opportunities in regional, rural and remote areas.

Aboriginal & Torres Strait Islander Peoples Summary

There are notable ongoing initiatives in the forest and wood products industries to support skills, training and employment opportunities for Aboriginal & Torres Strait Islander Peoples. There is also a growing recognition of the value of Traditional Knowledge, especially with Aboriginal groups now providing prescribed burning services to forest agencies to reduce dry fuel on forest floors as part of bushfire mitigation strategies.

In consultation with Indigenous communities and forest industries stakeholders, the Australian Government developed the *National Indigenous Forestry Strategy* in 2005. A key aim of the strategy is to encourage Indigenous participation in the forest industry through the formation of new business partnerships with existing operators; for example, in the forest plantation and timber processing sectors²⁶.

In Western Australia, the state government is implementing the recommendations of the *WA Sandalwood Taskforce Report*, including to support economic opportunities for Aboriginal people in the sandalwood industry. Further, changes to sandalwood harvesting quota allocations will encourage and support Aboriginal groups seeking sandalwood licences, and an Aboriginal sandalwood industry body will be created to assist in the implementation of other recommendations²⁷.

A remote Arnhem Land sawmill recently secured a significant contract to supply timber for the Northern Territory Government's revitalisation plan for Darwin's city centre²⁸. These preceded a situational analysis of the northern forestry and forest products industry by the Cooperative Research Centre for Developing Northern Australia (CRCNA), which included a recommendation to:

²⁶ Australian Government (2019); *National Indigenous Forestry Strategy*; <https://www.awe.gov.au/agriculture-land/forestry/policies/nifs>; viewed 01/09/2022.

²⁷ Government of Western Australia (2021); Government increases support for Aboriginal involvement in sandalwood industry; <https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/01/Government-increases-support-for-Aboriginal-involvement-in-sandalwood-industry.aspx>; viewed 01/09/2022.

²⁸ ABC News (2018); *Arnhem Land timber to help revitalise Darwin's CBD, a big win for remote Indigenous saw mill*; <https://www.abc.net.au/news/rural/2018-09-06/arnhem-land-gumatj-timber-deal-helps-revitalise-darwin-cbd/10169470>; viewed 01/09/2022.

'Promote [I]ndigenous forestry development through better engagement models and commercial arrangements between industry and [I]ndigenous landowners, and build [I]ndigenous forestry capacity and understanding of commercial forest resources including through forest resource inventory.'

CRCNA (2020); Northern forestry and forest products industry situational analysis; p.6

This reflects the CRCNA's projections that Indigenous engagement in timber production can generate large employment and production benefits. This includes the potential to generate '\$15 million in selectively harvested log income per year and produce \$100 million worth of sawn timber annually, while creating around 370 direct jobs for indigenous communities and industry partners'²⁹. The sustainability of local, self-sufficient employment opportunities 'requires training and skills development opportunities and integration with national training and skills recognition arrangements, for business development and management, through the entire forestry supply-chain to operator level'³⁰.

²⁹ CRCNA (2020); *Northern forestry and forest products industry situational analysis*; p.8

³⁰ CRCNA (2020); *Northern forestry and forest products industry situational analysis*; p.17.