# Australian Agriculture, Horticulture, Conservation and Land Management Industry Sector

## Annual Update 2020

## IRC Skills Forecast and Proposed Schedule of Work

Prepared on behalf of the Agriculture and Production Horticulture Industry Reference Committee (IRC) and the Amenity Horticulture, Landscaping, Conservation and Land Management IRC for the Australian Industry Skills Committee (AISC).

# Contents

# Purpose of this Skills Forecast

This Skills Forecast and Proposed Schedule of Work presents the latest industry intelligence from the Agriculture and Production Horticulture Industry Reference Committee (IRC) and the Amenity Horticulture, Landscaping, Conservation and Land Management IRC, inclusive of national and industry data sources and input from key stakeholders. It further proposes vocational education and training (VET) Training Package review and development work that the IRC deems necessary to meet the needs of industry. The Australian Industry and Skills Committee (AISC) considers this information and includes commissioned work in the National Schedule1.

At its June 2019 meeting, the AISC changed the requirements for the annual Skills Forecast. IRCs are now required to submit comprehensive Skills Forecasts once every three years, with abridged annual updates in the intervening two years. As IRCs submitted comprehensive Skills Forecasts in 2019, the next are due in 2022.

This document is not intended to be representative of every issue encountered across all industry sectors; it identifies and addresses the challenges and opportunities that industry has determined as 'priority' for this stage of the schedule, and is a resource for industry and associated skills, learning and accreditation bodies seeking to act upon them.

Detailed information concerning industry skills needs across all sectors covered by the Agriculture and Production Horticulture IRC and the Amenity Horticulture, Landscaping, Conservation and Land Management IRC, including information from previous Skills Forecasts, can be found on the Skills Impact website: https://www.skillsimpact.com.au/agriculture/skills-forecast/.

# Method & Structure

This is an annual update to the comprehensive Skills Forecast submitted in 2019. IRCs are required to answer the questions in **Section A** to provide updates on issues such as industry skills and workforce development, and qualification utilisation.

IRCs are also permitted to propose additional Training Package development work projects to be included in the Proposed Schedule of Work. Where relevant, these are included in **Section C**, which includes:

- Evidence of employer and industry need for graduates;
- Alignment to Ministers' Priorities;
- Consultation plan.

**Section B** details the extensive, robust and ongoing industry consultation undertaken by IRC members and Skills Impact, including with rural, regional and remote stakeholders. In line with Skills Impact's values[2], this helps to ensure transparency and accountability in the process of industry research and Training Package development work.

This Skills Forecast and Proposed Schedule of Work is developed in line with:

- Standards for Training Packages 2012[3];
- Training Package Products Policy[4];
- Training Package Development and Endorsement Process Policy[5].

[1] https://www.aisc.net.au/content/national-schedule

[2] https://www.skillsimpact.com.au/about/

[3] https://docs.education.gov.au/documents/standards-training-packages-2012

[4] https://docs.employment.gov.au/documents/training-package-products-policy

[5] https://docs.employment.gov.au/documents/training-package-development-and-endorsement-process-policy-0

# COVID-19 Information

This Annual Update to the Skills Forecast does not include detailed responses to the COVID-19 situation, which are being provided separately to the Australian Industry and Skills Committee (AISC) and the Department of Education, Skills and Employment on a continuing basis. The material in this Annual Update was researched and written during 2019 and early 2020, which only includes the early stages of the response to the outbreak of COVID-19. This is a rapidly evolving situation and there are major differences to the short, medium and long-term skills and labour needs of industries. The IRC and Skills Impact are working with the Department of Education, Skills and Employment to determine contingency, response and recovery plans to address reduced training system capacities; ensure workforce continuity for critical occupations across the economy; and support an emergency, temporary workforce for critical sectors, where appropriate (including strategies to swiftly re-skill newly-unemployed individuals so that they may enter sectors requiring workers).

While the content of this Industry Skills Forecast Annual Update will remain pertinent as the Australian economy and industries recover, the IRC may identify additional work and changing priorities.

# Industry Reference Committee

The Agriculture and Production Horticulture Industry Reference Committee (IRC) and the Amenity Horticulture, Landscaping, Conservation and Land Management IRC are responsible for national training package qualifications relevant to agriculture, horticulture, landscaping, conservation and land management.

Qualifications overseen by the IRC are in the *AHC Agriculture, Horticulture and Conservation and Land Management Training Package.*

The Agriculture and Production Horticulture IRC and the Amenity Horticulture, Landscaping, Conservation and Land Management IRC are supported by the Skills Service Organisation, Skills Impact.

## Agriculture and Production Horticulture IRC

| Name | Organisation or Area of Expertise |
|---|---|
| Dianne Fullelove | Expertise in production horticulture and agricultural chemicals |
| Geoff Harvey (Chair) | Expertise in agricultural irrigation |
| Gordon Verrall | Expertise in agricultural business practice |
| Greg Owens | Northern Territory Farmers Association |
| Jacqueline Heap | Expertise in livestock and production horticulture |
| Jane Wightman | Horticulture Innovation Australia |
| Judi Forsyth | Expertise in livestock and broadacre farming |
| Meg Parkinson | Expertise in livestock - poultry production |
| Rebecca Fing | Expertise in broadacre – cotton and grain |
| Reginald Kidd | National Farmers Federation |
| Rick Whistler (Deputy Chair) | Expertise in livestock and agricultural support services |
| Rob Fenton | Expertise in organic farming |
| Ron Paynter | Expertise in livestock - dairy production |
| Shane Roulstone | Australian Workers Union |
| Trevor Whittington | Western Australian Farmers Federation |

# Amenity Horticulture, Landscaping, Conservation and Land Management IRC

| Name | Organisation or Area of Expertise |
|---|---|
| Des Boorman | Expertise in production nursery and weed management |
| Craig Hallam | Expertise in amenity horticulture landscaping parks and gardens |
| Esther Ngang (Chair) | Expertise in amenity horticulture landscaping parks and gardens |
| Geoff Harvey | Expertise in irrigation for amenity horticulture |
| Jen Ford | Australian Association of Bush Regenerators Inc |
| Jim Johnson | Expertise in amenity horticulture landscaping parks and gardens |
| Julie Heran | Expertise in indigenous conservation and land management |
| Jyri Kaapro | Expertise in pest management and weeds |
| Megan Flower | Expertise in amenity horticulture landscaping parks and gardens |
| Paul Janssens | Expertise in amenity horticulture landscaping parks and gardens |
| Peter Vaughan | Nursery and Garden Industry Australia |
| Reginald Kidd | National Farmers' Federation |
| Simone Staples | Australian Golf Course Superintendents' Association |
| Susan Brunskill | Expertise in permaculture and landcare and management |
| Virginia Solomon | Expertise in conservation and land management - permaculture |

# Executive Summary

The last year has seen dramatic events impacting on the whole of the agriculture, horticulture and conservation industry. The impacts of extreme drought, devastating bushfires and a global pandemic are having and will continue to have major impacts on all segments of agriculture, production horticulture, amenity horticulture, landscaping, and conservation and land management.

Both IRCs have been overseeing a major review of the AHC Training Package, which is the largest training package in the VET system, through a new unit sector approach. The first major changes under this approach will be submitted to the AISC this year, and the IRCs are proposing to continue this approach for an additional year. Projects have also been undertaken relating to agronomy, green walls and rooftop gardens, and medicinal crops, and these should be completed in the near future.

As identified in the Skills Forecast 2019 – 2022, projects are proposed in relation to Therapeutic Horticulture and Animal Reproduction. In addition, the IRCs are also proposing to undertake work in relation to the rehabilitation of mined land, which is a growing in demand and which requires some additional skills.

The Agriculture and Production Horticulture (APH) IRC have been following the work being done on digital agriculture and digital skills. This includes a report published this year by the Cotton Research and Development Corporation on behalf of a consortium of 12 CRCs on digital skills needs in agriculture. As a result, the APH IRC is undertaking further research on ways to continue this work and to develop training package solutions and approaches. This work may be accelerated as part of the response to the COVID-19 situation.

The Amenity Horticulture, Landscaping and Conservation and Land Management (AHLCLM) IRC has agreed to submit a joint research proposal with the Aquaculture and Wild Catch IRC to look at the ways that the IRCs can contribute to Closing the Gap and encourage increased employment in Aboriginal and Torres Strait islander communities. The AHLCLM IRC has responsibility for training relating to the work of Indigenous Rangers, including qualifications in conservation and land management, Indigenous land management and Aboriginal site works. As a result of the finalisation of land title claims, Aboriginal and Torres Strait islander communities are assuming greater responsibility for land and sea management across Australia, and this is resulting in potentially new ways of working and increased opportunities for commercial operations and employment growth.

# Section A: Overview

## Industry Developments

**The Vagaries of the Australian Environment**

The activities covered by the Agriculture, Horticulture and Conservation and Land Management AHC Training Package are constantly and unpredictably impacted by all varieties of natural, climactic and public health events experienced across Australia. Throughout 2019 and into 2020, there were a number of extreme events in every category. While these events demonstrated the resilience of AHC industry sectors, they have also led to major short-, medium- and (anticipated) long-term impacts, highlighting the need for appropriate skills and skills training to be available.[6]

In the first half of 2019, Australian agriculture was largely in a 'risk management phase' while dealing with the impacts of drought. However, with bushfires burning more than 12.6 million hectares[7] from August 2019, covering areas affected by a 1-in-20-year rainfall deficit, various Australian regions have entered states of emergency.

Climate change is impacting on agriculture in various ways[8], including:

- Increasing temperatures and the frequency of very hot days exacerbate the impacts of heat stress on crops, livestock and natural areas
- Fewer cold days may lead to inadequate winter chilling.
- Worsening storm intensity increases damage to crops and infrastructure.
- Higher $CO_2$ expands yields but can reduce quality.

Drought has led to a downturn in the number of jobs advertised. In October 2019, the National Farmers' Federation[9] wrote to Prime Minister Scott Morrison, asking for drought-affected farmers leaving the land to be able to access financial exit packages. They also requested that a drought forum be held every two years for government, community and farming groups to discuss drought-related strategies (regardless of prevailing conditions). The need for agricultural skills and knowledge has become even more crucial in these uncertain and challenging times, necessitating that efficiency and productivity is prioritised both during, and in anticipation of, favourable conditions and bad.

Water security, defined as a reliable availability of good-quality water for sustaining human life, well-being and economic development, is key to food security. Australia is the driest inhabited continent and amongst the highest per capita water users[10], partly due to the imperative of growing and sustaining crops and livestock. Higher temperatures and more severe drought spells have led to declining water availability but increasing demand; for example, irrigated farms[11] are experiencing an intensification of water buying and trading[12].
Planning and implementing land use strategies that harness and hold moisture in soil profiles, while using sustainable farming practices, is critical to ensuring food security into the future, as has been highlighted in crucial regions, such as the Murray Darling Basin, which sustains 9,200 irrigated agriculture businesses[13].

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[6] AustralianFarmers, 2020, *Australian farmers under pressure at home & overseas*, viewed February 2020 <https://farmers.org.au/news/australian-farmers-under-pressure-at-home-overseas/>

[7] ABC News, 2020, *The size of Australia's bushfire crisis captured in five big numbers,* viewed February 2020 <https://www.abc.net.au/news/science/2020-03-05/bushfire-crisis-five-big-numbers/12007716>

[8] F. Chiew, 2020, *Water futures under climate change and implications for irrigated agriculture in Australia*, CSIRO, ABARES Outlook2020 Conference, viewed March 2020 <https://www.agriculture.gov.au/sites/default/files/documents/outlook-2020-chiew.pdf>

[9] National Farmers' Federation, 2019, *National Drought Policy*, viewed February 2020 <https://www.nff.org.au/read/6597/national-drought-policy.html>

[10] *ibid*.

[11] ABARES, 2020, *Irrigated farms in the Murray–Darling Basin*, viewed March 2020 <https://www.agriculture.gov.au/abares/research-topics/surveys/irrigation>

[12] B.Haslett, 2020, *My water addiction: the views of a southern basin irrigator*, Woolenook Fruits/Nuffield Scholar, ABARES Outlook2020 Conference, viewed March 2020 <https://www.agriculture.gov.au/sites/default/files/documents/outlook-2020-haslett.pdf>

[13] Australian Government, 2020, *Discover the Basin*, Murray-Darling Basin Authority, viewed March 2020

In mid-2019, prior to the bushfire season, feedback was received from major Indigenous organisations, including the Northern Land Council, on the need to consider further work on skills relating to fire, particularly in a conservation and land management context. It is expected that natural fuel reduction by burning (and other beneficial approaches) will remain on the national agenda throughout 2020, aligned with increasing calls for a "sustainable funding model for Indigenous-led fire management programs, as well as cross-cultural training for both Indigenous and non-Indigenous fire managers to better work together."[14]

Conservation and land management workforce resources have been stretched due to the unprecedented response required to protect Australian flora and fauna before, during and after extreme conditions and events. Activities to relocate surviving species have increased substantially from the beginning of 2020 and will continue unabated for some time. A major concern is that, with many volunteers lacking access to appropriate training, their activities, while well-meaning, may have adverse environmental impacts.

Critical incidents require considered, coordinated and timely responses to prevent the situation from worsening. Most critical incidents that affect AHC businesses are of a physical nature, with bushfires, flooding, drought, biosecurity hazards and diseases, such as coronavirus/COVID-19[15], having different, but often simultaneous, impacts. At the same time, the farming community is facing socio-political challenges, with animal activists[16] using social media to post maps of farm locations and undertaking shock tactics to destabilise animal-based agricultural activities and endanger the social license of farmers and their practices.

At the time of writing, with daily and weekly updates to public health information and directives regarding coronavirus/COVID-19, agriculture and, more specifically, agricultural jobs are essential to Australia. Despite consumers 'panic buying' when confronted with the prospect of bare supermarket shelves, agriculture bodies have reassured the public that Australian farmers will continue to produce enough food to feed the nation[17]. Ironically, according to Emma Germano (vice president of the Victorian Farmers' Federation), in spite of early concerns that closing international and state borders would entail a massive shortfall in seasonal workers, COVID-19 has caused an upturn in city dwellers seeking to work on farms[18]. Similarly, there have been unexpected surges in nursery industry sales, as consumers look to become increasingly self-sufficient and healthy by acquiring fruit and vegetable plants and seeds[19]. Thus, as the social and economic impacts of coronavirus/COVID-19 continue to unfold, the food supply chain will remain vital to Australia, and so too will the skills and knowledge for delivering a full range of plant and animal food products.

**Landscaping scope of works**

Some landscaping industry sectors are reporting their concerns over potential changes to prevailing regulatory and licensing conditions. Landscaping businesses widely accept that licensing arrangements need to be modernised to enable them to conduct a broader range of work and so meet their clients' needs (which are driven by changing trends and products). Regulators are governed by, and refer to, existing Training Package content to determine technical parameters and are hesitant to allow licensing development or expanding businesses' scope of permitted work unless adequate technical qualifications can be established. At present, technical qualifications, based upon AHC Training Package units, have not been updated to meet current industry needs.

<https://www.mdba.gov.au/discover-basin>

[14] D. Bowman & B.J. French, 2019, Our land is burning, and western science does not have all the answers, *The Conversation*, viewed March 2020 <http://theconversation.com/our-land-is-burning-and-western-science-does-not-have-all-the-answers-100331>

[15] National Farmers' Federation, 2020, *Farm sector braces for coronavirus impact*, viewed March 2020 <https://nff.org.au/media-release/farm-sector-braces-for-coronavirus-impact/>

[16] AustralianFarmers, 2019, *Australia stands behind farmers against animal rights extremists,* viewed February 2020 <https://farmers.org.au/news/australia-stands-behind-farmers-against-animal-rights-extremists/>

[17] AustralianFarmers, 2020, *Agriculture 'essential' as COVID-19 escalates*, viewed March 2020 <https://farmers.org.au/news/agriculture-essential-as-covid-19-escalates/>

[18] ABC News, 2020, *Unemployment in Australia's cities amid COVID-19 downturn sees farmers inundated*, viewed March 2020 <https://www.abc.net.au/news/2020-03-28/covid-19-downturn-sees-farmers-inundated-by-jobseekers/12097012>

[19] ABC News, 2020, *Coronavirus panic buying takes root at nurseries selling fruit and vegetable plants and seeds*, viewed March 2020 <https://www.abc.net.au/news/2020-03-24/coronavirus-panic-buying-of-edible-plants-at-nurseries/12082988>

One basis for these concerns, raised specifically by non-landscaping construction bodies with the relevant Minister in Queensland, is the lack of appropriate construction-related training in the AHC Training Package. In a detailed submission to Skills Impact's current Green Walls and Rooftop Gardens project[20], Landscape Queensland reported:

> "Policy makers and regulators utilise recognised training packages and units for the basis of their 'Technical Qualification' requirements to regulate the various scopes of work under the individual jurisdiction's licensing regime. Licensing and regulation is more robust within the construction industry and this is the case or is likely to be so with respect to the construction aspects of green infrastructure. […] The simultaneous review of the current Cert IV Landscaping would result in this qualification being beefed up with the inclusion of CPC training units, relevant to addressing building codes and standards, building principles and other project management and WHS issues."
>
> [Landscape Queensland]

Most relevant AHC qualifications allow units to be imported from other Training Packages; however, there are few external units specifically defined as electives, not least from the Construction and Plumbing Services CPC Training Package.

The AHLCLM IRC have included Landscape units (and relevant qualifications) in the plan for Year 2 of the Unit Sector Approach, which is scheduled to commence in 2020. The content of some of the relevant qualifications has not been fully reviewed since 2010 and, as some were designed with a focus on horticulture rather than the broader scope of landscaping work, there are expected to be extensive changes recommended.

**Workforce**

In September 2019, Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) released the results of its 2018 farm survey[21]. It highlights that, over the past decade, the number of farms has declined as the size of farms has increased. The number of employees across the agricultural sector has risen, inclusive of low-skilled workers from overseas, particularly as seasonal (casual/contract) labour, in the horticultural industries.

In response to the ABARES report, the National Farmers' Federation (NFF) released a statement critical of its representation of the lived experience of farmers, arguing that labour shortages are far more pronounced in horticulture than in the dairy and broadacre sectors. NFF CEO Tony Mahar is quoted as saying, "agriculture's workforce deficit is one of the largest constraints to our sector's productivity growth and we need solutions".[22]

The ABARES report emphasises that family and other Australian workers who live close to farms still represent the majority of the workforce (despite the number of owner-managers and contributing family workers on family farms declining). Local workers are crucial to sustaining agricultural industries. As a result, addressing the ongoing education and training needs of regional, rural and remote communities is of vital importance for Australian agriculture.

Agriculture has experienced difficulties in recruiting for skilled (non-labourer) positions, notably in broadacre and dairy farms, due to applicants lacking the required capabilities and experience[23]. Furthermore, skilled visa requirements have tightened in recent years, with few farms employing skilled workers from overseas besides large enterprises with a turnover of greater than $1 million. A major challenge for Australian agriculture, then, is

[20] Skills Impact, 2020, *Green Walls & Rooftop Gardens Project,* viewed February 2020 <https://www.skillsimpact.com.au/horticulture-conservation-and-land-management/training-package-projects/green-walls-rooftop-gardens-project/>

[21] N. Dufty, P. Martin & S. Zhao, 2019, *Demand for Farm Workers: ABARES farm survey results 2018*, ABARES research report, Canberra, September

[22] NFF, 2019, *Farmers call out government workforce survey results*, <https://www.nff.org.au/read/6563/farmers-call-out-government-workforce-survey.html>

[23] N. Dufty, P. Martin & S. Zhao, 2019, Demand for Farm Workers: ABARES farm survey results 2018, ABARES research report, Canberra, September

to access, at all levels, the skilled workers to help implement and expand the areas identified by the NFF as crucial to achieving their goal of exceeding $100 billion in farm gate returns by 2030. Yet meeting the labour demand, inclusive of access to higher-level agricultural training and attracting new entrants to the industry, remains problematic.

In December 2019, the Federal Government established the National Agricultural Labour Advisory Committee[24] to develop a National Agriculture Workforce Strategy for exploring potential opportunities in:

- School education
- Vocational education and training
- Higher education
- Providing employees with competitive employment conditions.

This national strategy aims to stimulate the abilities of the agriculture industry in attracting and developing the skilled future workforce it requires, while considering new work methods and rapid technological advancements.

**Business development and leadership skill needs**

Agriculture is a business environment with legislative and regulatory requirements that mean farms must develop robust planning frameworks in order to achieve the desired balance of economic, environmental and social outcomes. This is further complicated when taking account of wider contexts of rapid population growth, shifting consumer demands (especially towards high-quality food and provenance information), evolving food safety and biosecurity issues, and challenges associated with globalisation and digitalisation. Business development and leadership skills have become increasingly vital in responding to – and surviving in – this ever-evolving industry[25].

For many businesses in industries across Australia, budgeting is a relatively predictable process, with inputs and outputs not deviating too far from what is generally expected. Not so with farming: agriculture is uniquely *defined* by unpredictability and instability. Variables associated with climate (e.g. drought), environment, animals (e.g. breeding), fruit/vegetables (e.g. yields), and national and international markets constantly fluctuate. This necessitates that planning and budgeting takes addresses both the long and short term, while maintaining flexibility so that farms can adapt to the unexpected or address strategic needs (when possible), such as investing in new technologies – all the while adhering to regulatory and policy requirements, and coping with the rural-to-urban migration. Contributing to agricultural stability is thus incredibly difficult and demands agile workers.

> "I believe there are potential opportunities for highly trained and qualified people, especially in leadership roles, because farms want to do more with less; they want smarter operators who can implement efficiencies because the cost of inputs and operations generally have continued to rise while profits have not increased at the same rate."
>
> [Luke Cuthbertson, Senior Consultant, Lucas Group]

Agricultural recruiters are experiencing difficulties in filling middle-management positions satisfactorily due to a reported shortage of leadership skills (which leads to struggles in retaining and getting value out of staff). There is also a shortage of financial skills, for example, in creating/working with gross budgets in investment agriculture. This is being exacerbated by Australia's increasing urbanisation and the declining number of these services in small and rural towns.

As family-run farms upscale their operations (often due to multiple family farms merging) they must increasingly implement corporate and WHS policies and thorough budgeting. Financial and reporting skills are, therefore, required on those farms that have operated without formal management structures.

[24] Australian Government, 2019, *Agricultural Workforce*, viewed March 2020 <https://www.agriculture.gov.au/ag-farm-food/agricultural-workforce>

[25] SpencerStuart, 2015, *Agribusiness Leadership Of The Future*, <https://www.spencerstuart.com/-/media/pdf-files/research-and-insight-pdfs/agribusiness-leadership-of-the-future_080216.pdf>

**Digital capabilities in focus**

In 2019, Food Agility launched a new platform, Agtech Finder[26], which is a comprehensive and independent online directory to enable users to search and compare available technology solutions to meet their needs. There remains, however, challenges in encouraging and developing farmers' networks and capabilities in using potential digital solutions.

Research by the United States Studies Centre at the University of Sydney indicates that Australia agriculture has leadership shortcomings, especially relating to its participation in the networks that enable and encourage AgTech adoption[27]. According to their analysis of proprietary LinkedIn data, Australia's AgTech networks are significantly less cohesive and interconnected than in the US and New Zealand. While the latter's networks are smaller than Australia's, theirs are – critically – more connected to those in the United States, the largest and most developed AgTech market in the world. This means innovators and farmers in Australia are less likely to collaborate and share knowledge with each other, or learn from, or conduct business with, others, which is identified as a barrier to skills development[28]. As AgriFutures puts it, there is "a critical need for [young leaders] to build real networks and create their own supportive culture of innovation, practice change and risk taking."[29]

In 2019, the Cotton Research and Development Corporation (CRDC) managed a project on behalf of 11 RDCs to develop an Agriculture Workforce Digital Capability Framework to assist in responding to a rapidly changing agricultural environment and enhance industry competitiveness in the context that "in the next ten years one in three new jobs created in Agriculture, Forestry and Fishing will be tech related"[30]. Hoping to provide a pathway for lifting the industry's digital maturity, the CRDC published several linked documents, including a 'self-assessment approach', 'self-assessment questionnaire' and 'training and curricula handbook for education and training providers'[31]. The SSO providing support to both IRCs, Skills Impact, was a co-author of the main report.

Key insights in the lead report are as follows:

1. While digital literacy in some sectors may be growing in regards to awareness of available technologies, the maturity of most digital capabilities – as defined in the digital capability framework – remain low in the current state.

2. While many technologies currently exist, there is on average a slow uptake of digital solutions, that could be due to various reasons, including but not limited to, a lack of digital literacy among the industry, a lack of clear value propositions from technology providers, a lack of understanding of the value proposition of the available technologies, difficulties to identify the 'right' solution for the business, serviceability issues or connectivity barriers (regardless of available technology solutions industry needs to work around this limitation).

3. The ageing workforce is weakened by a shrinking labour supply, however numerous valuable opportunities are available to fill the gap.

4. There is an increasing need for non-traditional agricultural skills in the workforce such as technological, scientific and management competencies, also assessed to possess more mature digital capabilities.

[26] Food Agility, 2019, *AgTech Finder – About us*, viewed February 2020 <https://agtechfinder.com/about-us>

[27] United States Studies Centre, 2020, *Isolated agtech in australia? A social network analysis of an innovative sector*, viewed February 2020 <https://www.ussc.edu.au/analysis/isolated-agtech-in-Australia-a-social-network-analysis-of-an-innovative-sector>

[28] ABC News, 2020, *To overcome bushfires and floods, Australian agriculture needs to innovate and collaborate*, viewed February 2020 <https://www.abc.net.au/news/2020-02-26/australian-agriculture-fresh-produce-bushfire-destroyed-image/11994398>

[29] AgriFutures Australia, 2017, *Next generation of agriculture's 'can-do' attitude key to shaping the industry's future*, viewed February 2020 <https://www.agrifutures.com.au/news/next-generation-of-agricultures-can-do-attitude-key-to-shaping-the-industrys-future/>

[30] KPMG and Skills Impact, with contribution from Faethm and The University of Queensland, 2019, p.8, *Agricultural workforce digital capability framework*, KPMG and Cotton Research and Development Corporation, Australia.

[31] https://www.crdc.com.au/growing-digital-future

5 The workforce are aware of the value of big data collection and while collection of data has been growing, significant barriers remain in understanding what data is required, collecting data digitally and interpreting this data to yield maximum use.

6 Education and training pathways are trapped in a trade-off between reflecting current industry conditions and incorporating future-focused digital and technological training.

Regarding current digital capabilities training provision, key insights included:

1 There is currently no systematic approach to defining digital capabilities across the formal and informal training sectors. While universities and informal training providers, such as industry associations and agribusinesses, deliver privately-designed educational courses, only the VET sector publicly specifies national skills standards for job roles that utilise digital technologies.

2 Most digital capabilities training in the VET sector focus on lower-level, applied technology operation, while universities' emphasis is on agricultural science and data analysis. There are also a variety of informal, online and industry-driven options for bespoke training solutions.

3 There is potential for increasingly embedding digital capabilities development within agricultural education; however, training availability is limited due to providers' difficulties in attracting staff with suitable knowledge and experience, expensive equipment requirements and low demand from an industry that is lacking in digital technologies leadership and adoption.

4 Generally, industry possesses low levels of knowledge about existing training opportunities. To drive a national development agenda, there is the need for increased industry involvement and a coordinated national plan to utilise and publicise digital capabilities standards across educational activities.

**Australian Farm Data Code**

The National Farmers' Federation (NFF) has released a first version of the Australian Farm Data Code[32], which is designed to help farmers embrace new technologies while establishing trust in how data is used. The Code was designed by the NFF in collaboration with agricultural technology providers, researchers, industry experts and farmers.

**Plant-based proteins and foods**

There is increasing consumer demand for alternatives to, or substitutes for, traditional meat and dairy products[33]. While products such as meat-free burgers have been available for decades, targeting the vegetarian and vegan markets, 2019 saw an upsurge in alternative versions of meat-based foodstuffs, intended to appeal to flexitarians and carnivores. The majority of the plant-based ingredients used, including soy, pulses, nuts, seeds and grains, are produced by the Agriculture and Production Horticulture industy. Non-traditional protein sources, including insects and algae, have also garnered greater attention nationally, especially for their potential as livestock feed[34]. CSIRO estimates that the global edible insect market is expected to grow from US$34 million in 2014 to over US$520 million by 2023[35].

[32] National Farmers' Federation, 2020, *Farm Data Code*, viewed February 2020 <https://nff.org.au/wp-content/uploads/2020/02/Farm_Data_Code_Edition_1_WEB_FINAL.pdf>

[33] Food & Beverage Industry News, 2019, *Top food trends for 2020*, viewed January 2020 <https://www.foodmag.com.au/top-food-trends-for-2020/>

[34] AgriFutures Australia, 2019, *The Changing Landscape of Protein Production: Opportunities and challenges for Australian agriculture*

[35] CSIRO, 2017, p.24, *Food and Agribusiness: A Roadmap for unlocking value-adding growth opportunities for Australia*

Demand for alternative proteins is driven by consumers' desire to eat healthier, ethically-produced food, and reduce environmental impacts. The sustainability of alternative protein production – which has been estimated to use 99% less water, 93% less land, 46% less energy and produce 90% fewer greenhouse gas emissions[36] than beef production – is increasingly appealing to the growing population in Australia and in key export markets, especially Asia. With animal farming under heightened levels of scrutiny[37], agricultural producers are responding to emerging market opportunities.

> "Alternative proteins will have a key role in the food of the future. But so will meat. With the number of mouths to feed growing by on average 1.8 times the size of Australia's population per annum for the next 32 years, there will be an increased need for protein sources. Plant-based proteins are expected to make up 33 per cent of the protein market by 2054 up from a current market share of less than five per cent by value (600 per cent increase). Both meat and alternative plant or algae-based proteins will clearly have a critical role to play in filling the dietary needs of two billion extra people, but our farming systems also need to dramatically evolve to produce more food using less land and resources."
>
> [KPMG, 2018, p.34, Talking 2030: Growing agriculture into a $100 billion industry, National Farmers' Federation]

*Proposed approach*

The IRC will continue to monitor the growth of this market and research the need for skills not currently covered within the Training package.

**Indigenous Bush foods**

The burgeoning Indigenous bush food industry involves sourcing, processing and selling plant and animal products that are indigenous to Australia and sometimes to a specific region. According to a peak sector body, Australian Native Food and Botanicals (ANFAB), demand for native foods is ever-increasing due to consumer demand for products with proven health benefits and uniquely marketable provenance. Aboriginal communities have long known the nutritional benefits of bush foods, such as riberries, desert limes, bunya nuts and lemon aspen, but the potential of this Australian industry is as yet unrealised[38]. The Government of Victoria, for example, announced in February 2020 that they will be partnering with the Federation of Victoria Traditional Owner Corporations to support the development of a native food and botanicals industry and support local jobs[39].

There is clearly an appetite – and market – for Indigenous foods at all levels. World-renowned restaurants such as Attica in Melbourne[40] are increasing integrating bush foods within their menus. Something Wild is the largest Indigenous-owned company supplying Indigenous produce, such as green ants and magpie goose, to restaurants wholesale (e.g. Noma Australia and Vue de Monde) and to the public through their retail store in Adelaide's Central Market. The next generation are also increasing their awareness; for instance, Year 12 food technology and hospitality students from North Queensland's Tully State High School prepared a four-course dinner for more than 200 guests to showcase Indigenous bush foods grown in the school garden or wild-

[36] M.C. Heller & G.A. Keoleian, 2014, *Beyond Meat's Beyond Burger life cycle assessment: A detailed comparison between a plant-based and an animal-based protein source*, Michigan: Centre for Sustainable Systems, University of Michigan; viewed February 2020 <http://css.umich.edu/publication/beyond-meats-beyond-burger-life-cycle-assessment-detailed-comparison-between-plant-based>

[37] AgriFutures Australia, 2019, *The Changing Landscape of Protein Production: Opportunities and challenges for Australian agriculture*

[38] ABC, 2019, *Australian bush tucker industry push to transform native foods for international consumption*, viewed February 2020 <https://www.abc.net.au/news/2019-11-17/native-bush-foods-australian-bush-tucker-going-global/11658008>

[39] Premier of Victoria, 2020, *Nurturing Victoria's Native Food Industry*, viewed February 2020 <https://www.premier.vic.gov.au/nurturing-victorias-native-food-industry/>

[40] ABC, 2019, *Indigenous community starts harvesting red bush apple that has high-end restaurants lining up*, viewed February 2020 <https://www.abc.net.au/news/rural/2019-11-21/attica-restaurant-lines-up-for-taste-of-indigenous-bush-apple/11713876>

harvested from the local area with the help of traditional owners[41]. Multi-national companies are also embracing them, with Peters Ice Cream launching an Australian native collection of the Connoisseur range[42]. Cape Byron Distillery use the Davidson Plum in their slow gin, and co-founder Eddie Brook has called for more farmers to grow native fruits, while pressing that education is vital for expanding industry's use of native ingredients[43].

Bush foods have social, cultural and economic significance for Aboriginal and remote communities. In 2014, the Palngun Wurnangat Association in the Northern Territory invested in technology for handling and processing Kakadu plums, with 148 pickers, including many women, registered in 2015[44]. Enngonnia, in far western New South Wales, harvests bush tomatoes, munyeroo (a type of portulaca or pigweed) and marsdenia ('bush bananas')[45]. The community intends to expand its operations for producing these 'superfoods', providing much-needed employment and empowerment in this remote area.

Despite such developments, Bushfoods Sensations[46], an alliance of businesses that promote Indigenous Australian food, found that only 1% of the industry's produce and revenue is generated by Aboriginal people[47]. To address this deficit, the University of Queensland (UQ) and the Australia Research Council's Training Centre for Uniquely Australian Foods is working in partnership with an Indigenous governance group to convert selected bush foods into branded products, focussing on technical information to support market development and legal arrangements[48]. Similarly, in 2019, First Hand Solutions partnered with the Indigenous Land and Sea Corporation and UTS Business School to present the inaugural National Indigenous Bush Food Symposium to share expertise and business strategies[49].

With only around 18 native foods currently in commercial production (from roughly 6,400 varieties), and in the context of growing international demand[50], the industry is lacking support in expanding its markets. According to ANFAB deputy chair, Russell Glover, there are skills shortages in working with the strict food safety regulations in order to commercialise bush food products. Meanwhile, the CRC for Remote Economic Participation is working to identify how national policies and institutions can support the meaningful inclusion of Aboriginal and Torres Strait Islander peoples in the commercialisation of their traditional plant foods[51]. They also point to skills needs, such as developing "species management plans that identify sustainable harvest yields and strategies to improve yields."

*Proposed Approach*

Further research is needed to establish whether the Agriculture, Horticulture and Conservation and Land Management (AHC) and Food, Beverage and Pharmaceutical (FBP) Training Packages already cover the capabilities required for this industry or if new or additional skills and knowledge must be described. Initial investigations into the needs of this industry has identified characteristic tasks, including propagation and growing; harvesting plants, seeds, leaves and fruit; identifying wild and farmed plants; preparing, treating, cooking; packaging, bottling and labelling food (sometimes including meat). It will be important to monitor if any additional skills needs are created with the adoption of new production systems, such as planned cultivation, propagation and harvesting (as have been introduced by some Indigenous producers).

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[41] ABC, 2019, *Tully high school students grow, gather and serve up Deadly bush foods feast*, viewed February 2020 <https://www.abc.net.au/news/2019-09-16/deadly-bush-foods-dinner-served-up-by-tully-students/11510554>

[42] http://www.connoisseuricecream.com.au/ranges/australian-native-collection/

[43] Food & Beverage Industry News, 2020, *Making the most of indigenous ingredients*, viewed February 2020 <https://www.foodmag.com.au/making-the-most-of-indigenous-ingredients/>

[44] http://www.uq.edu.au/research/impact/stories/the-tree-of-shelf-life/

[45] ABC, 2019, *Remote disadvantaged community thriving thanks to native bush food it's cultivating*, viewed February 2020 <https://www.abc.net.au/news/2018-06-15/native-bush-food-helping-remote-nsw-community-thrive/9870698>

[46] Bush Food Sensations, 2020, *Bush Food Sensations*, viewed March 2020 <http://bushfoodsensations.net/>

[47] ABC, 2019, *Bush food industry booms, but only 1 per cent is produced by Indigenous people*, viewed February 2020 https://www.abc.net.au/news/rural/2019-01-19/low-indigenous-representation-in-bush-food-industry/10701986

[48] University of Queensland, 2020, *ARC Training Centre for Uniquely Australian Foods (2019–2024)*, viewed February 2020 <https://researchers.uq.edu.au/research-project/35854>

[49] https://gunaikurnai.org/national-indigenous-bush-food-symposium-27-and-28-november-in-sydney/

[50] ABC, 2019, *Australian bush tucker industry push to transform native foods for international consumption*, viewed February 2020 <https://www.abc.net.au/news/2019-11-17/native-bush-foods-australian-bush-tucker-going-global/11658008>

[51] CRC for Remote Economic Participation, *An inclusive governance framework for bush food commercialisation,* viewed February 2020 <https://www.ipaustralia.gov.au/sites/default/files/submission_-_ninti_one.pdf?acsf_files_redirect>

Three Industry Reference Committees – Food, Beverage and Pharmaceutical, Agriculture and Production Horticulture, and Amenity Horticulture, Landscaping, Conservation and Land Management – are already examining current Training Packages to establish whether this industry requires products to be developed to describe any job roles, functions and skills not yet covered in the VET system. Further consultation will be held with food processors, food organisations and Indigenous communities. Additional IRC (Meat or Aquaculture and Wild Catch) involvement may be desirable. If it transpires that the available qualifications, skill sets and units of competency do not adequately meet the needs of industry, a Case for Change regarding skills in Indigenous bush food production may be submitted at a later time, perhaps with the 2021 Annual Updates.

**Natural capital on Australian farms**

Environmental stewardship, responsibly using and protecting the land and environment through sustainable practices and conservation, is receiving increasing attention. Stewardship by Aboriginal and Torres Strait Islander peoples is recognised as a critical way for meeting biodiversity and climate change goals52, and there are various calls for assessing and advancing interventions for promoting local stewardship, while improving the frameworks that support their influence53. Farmers, as managers of the land and environment, are seeking to formalise their best-practice activities, but many small- and medium-sized farms experience difficulties in gaining recognition.

> **"Farmers have always been frontline stewards of Australia's environment, managing 51% of our continent's landmass. Unfortunately, efforts to incentivise and reward environmental practices historically have been short-term, or based on ad-hoc grants and programs. They have also been interfered with through complex and poorly understood regulatory requirements. We need a comprehensive approach that delivers the right incentives, and the right outcomes for farmers and the environment."**
>
> *NFF President, Fiona Simson[54]*

Following calls from the NFF, the Australian Government has launched the Environmental Stewardship Program[55], under the National Landcare Program, to provide support for stewardship activities. This contains the four-year, $34 million Agriculture Stewardship Package[56], with objectives of improving agriculture's social license through the development of a national biodiversity policy and incentivising the adoption of ecosystem-boosting practices.

Responding to this new emphasis, farmers are looking to harness the benefits of their natural capital[57]. An emerging methodology is regenerative agriculture, a system of farming principles and practices that increases biodiversity, enriches soils, improves watersheds and enhances ecosystems. Regenerative agriculture aims to capture carbon in soils and above-ground biomass, reversing current global trends of atmospheric accumulation. The purpose of these principles is to enhance natural ecosystem services, resulting in sustainable production and resilience to change.

A project commissioned by the Australian Government Department of the Environment and Energy in 2018 concluded that regenerative management has "the potential to increase the health of Australia's grassy woodlands and at the same time improve financial and farmer wellbeing". It showed that regenerative farmers generated higher levels of profit, particularly in dry years[58].

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[52] National Geographic, 2018, *Indigenous peoples defend Earth's biodiversity—but they're in danger,* viewed February 2020 <https://www.nationalgeographic.com/environment/2018/11/can-indigenous-land-stewardship-protect-biodiversity-/>

[53] N.J. Bennett, T.S. Whitty, E. Finkbeiner, J. Pittman, H. Bassett, S. Gelcich & E.H. Allison, 2018, Environmental Stewardship: A Conceptual Review and Analytical Framework, *Environmental Management* 61, 597–614

[54] National Farmers' Federation, 2019, *NFF & KPMG reveal opportunities to unlock new income for farmers,* viewed February 2020 <https://nff.org.au/media-release/nff-kpmg-reveal-opportunities-to-unlock-new-income-for-farmers/>

[55] Australian Government, 2020, *Environmental Stewardship Program*, viewed February 2020 <http://www.nrm.gov.au/national/continuing-investment/environmental-stewardship>

[56] Australian Government, 2020, *Sustaining the Future of Australian Farming*, viewed February 2020 <https://www.agriculture.gov.au/about/reporting/budget/sustaining-future-australian-farming>

[57] Australian Farm Institute, 2019, *Valuing Agriculture's Natural Capital*, viewed February 2020 <http://farminstitute.org.au/news-and-events/ART_2019/Roundtable-2019_copy>

[58] Vanguard Business Services, 2018, *Summary Report Number 1: Farm Profit*, viewed February 2020 <https://www.vbs.net.au/wp-content/uploads/2018/10/1-summary-financial.pdf>

George Chapman, evokeAG.'s 2020 Future Young Leader[59] states that regenerative agriculture can "greatly contribute towards producing food and fibre in a way that will benefit the environment, economy and strengthen rural communities."

> "A great opportunity now presents itself for us as farmers, agribusinesses, and the next generation coming through, to harness technology and regenerative agricultural practices to further build the resiliency of our farmland as well as rural communities."
>
> [George Chapman, evokeAG.'s 2020 Future Young Leader]

There is a strong link between regenerative agriculture and various other methods and systems that are attracting consumer and, therefore, producers' attention; for example, permaculture, the circular economy[60], biological farming[61], carbon farming and organic farming (revenue for which is forecast to grow at an annualised 15% - the highest of any industry – over the five years through 2024-25, reaching $3.7 billion[62]).

Regenerative agriculture is now attracting attention at all educational levels. In recognition that there were disparate resources available but no complete units compiling key learning areas, a Tamworth teacher, Kate Spry, developed the first curriculum in Australia that explores regenerative agricultural principles and practices[63]. It is structured around project-based learning for students in Years Three to Ten and can be applied in science, agriculture, history and geography classes. It has so far been acquired by more than 50 schools in New South Wales, Victoria and Tasmania.

In late 2019, Southern Cross University launched the world's first degree in regenerative agriculture. It focusses on developing specialist knowledge on a whole-of-system approach to farming, food distribution and production, examining human ecology, agro-ecology, regenerative agronomy, soil management and planning rural landscapes[64]. Graduates can expect potential future careers including in farm management, regenerative agronomic consultancies, carbon trading, local government, regional land services and catchment management bodies.

Such holistic farming systems and practices are becoming increasingly important as the world adapts to and counters climate change, and consumer demand for best-practice agricultural products rises. There is likely to be strong interest in training and education in regenerative agriculture, especially to build on school-level learning, and bridge the gap to science-focussed university curricula through the delivery of applied skills training.

**Mined Land Reclamation**

According to The Australian Institute, who released the 'Dark Side of the Boom'[65] report in 2017, there are an estimated 60,000 abandoned mines across Australia. This research was conducted as the mining boom was 'winding down' and a strong environmental concern was emerging from the community, including for mine site rehabilitation.

Mining operations are carried out predominantly in Rural, Regional and Remote (RRR) areas, where there are generally small settlements, including Aboriginal communities, who are relatively powerless compared with

[59] evokeAG, 2020, *Meet our evokeAG. Future Young Leaders – George Chapman*, viewed February 2020 <https://evokeag.com/evokeag/meet-our-evokeag-future-young-leaders-george-chapman/>

[60] The Conversation, 2019, *Climate explained: regenerative farming can help grow food with less impact*, viewed February 2020 <https://theconversation.com/climate-explained-regenerative-farming-can-help-grow-food-with-less-impact-123090>

[61] W. Armitage, 2014, *Sustainable Milk Production: the vital role of Soil for Feed Integrity*, A Nuffield Farming Scholarships Trust Report

[62] IBISWorld, 2020, *IBISWorld Reveals Industries Set to Fly and Fall by 2030*, viewed February 2020 <https://www.ibisworld.com/industry-insider/press-releases/ibisworld-reveals-industries-set-to-fly-and-fall-by-2030/>

[63] ABC News, 2019, *Regenerative agriculture for students launched in Australian-first curriculum to maintain healthy soils*, viewed February 2020 <https://www.abc.net.au/news/rural/2019-05-15/tamworth-teacher-reeducation-in-agriculture/11112832>

[64] Southern Cross University, 2019, *Southern Cross University regenerative agriculture degree a world first*, viewed February 2020 <https://www.scu.edu.au/engage/news/latest-news/2019/southern-cross-university-regenerative-agriculture-degree-a-world-first.php>

[65] The Australian Institute, 2017, *Dark Side of the Boom*, viewed March 2017, <https://www.tai.org.au/sites/default/files/P192%20Dark%20side%20of%20the%20boom%20%5Bweb%5D.pdf>

resource companies when implementing strategies for the closure of mines[66]. Various research projects, including work by Susan Gould, has called for an improved understanding of, and skills for, rehabilitation processes, especially in Australia's monsoonal tropics, where large mining proposals are seen as one option for developing northern Australia. This aligns with growing public concerns over the environmental impacts of closed mine sites, where "Rehabilitation, including habitat restoration, is seen as a key strategy for minimising or even reversing human impacts on biodiversity" [67].

Across multiple jurisdictions, rehabilitating former mining sites is required by legislation, regulation or operating/licensing agreements with government bodies. Rehabilitation practises are ideally instilled throughout the lifecycle of the mine, but often are implemented on closure.

In 2018, the Amenity Horticulture, Landscaping and Conservation and Land Management IRC identified required skills relating to the rehabilitation of former mine sites, and throughout industry consultations in 2019 skills gaps for training were established. There is an opportunity in Australia for determining best practices for current and future mine site rehabilitation in collaboration with multiple stakeholders and developing these through a project outlining appropriate skill sets and units of competency. In this way, we can counteract landscapes that are, as WA Today puts it, "ugly, dangerous or even toxic"[68].

# VET Qualifications & Employment Outcomes

The Agriculture and Production Horticulture and Amenity Horticulture, Landscaping and Conservation and Land Management IRCs note that, when defining their staffing needs, employers have to consider a range of operational complexities, and AHC qualifications need to be considered in this context. Many AHC-related businesses are located in rural, regional and remote (RRR) Australia. Attracting suitable, qualified candidates from their urban bases or from other regional areas for employment in these communities remains difficult. The main barriers include vast infrastructure deficits, and a lack of available services and quality housing options. In addition, social challenges associated with family disruption and a lack of connectivity, both in a physical and digital sense, must be taken into account[69]. Improving basic services and infrastructure may incentivise people with the desired skills and knowledge to consider agricultural positions in RRR communities. The industry has also begun to offer enhanced remuneration packages, inclusive of housing, to attract suitable candidates.

There is also an image issue for rural agriculture that is slowly shifting away from the 'traditional farmer' to showcase industry diversity, including young, technologically savvy people who are succeeding and shaping the future of the industry. According to AgriFutures Australia, "The question we are now faced with is how do we support this cohort of young leaders and help them to keep pace with the skills, research, information and technology they will need to keep Australian agriculture thriving?" [70]

Stakeholder engagement reveals that corporate and family farming businesses are seeking to recruit people with university-level digital and engineering technology qualifications but, conversely, may be neglecting the skills and knowledge of individuals with industry experience and applied vocational training. Focussing on capabilities development, including performing operation tasks, that *complements* research and technological advances, presents opportunities for on-farm efficiencies and so agricultural communities' economic growth.

Participants in NCVER research[71] reported that there are weak links between education and industry, with the labour market not creating opportunities for the skilled and technical work for which mid-level qualifications

[66] B.D. Blackwell and A.E. Fordham, 2018, *The Remote Community Mining Toolkit*, Ninti One Ltd, Alice Springs.

[67] S.F. Gould, 2011, Does post-mining rehabilitation restore habitat equivalent to that removed by mining? A case study from the monsoonal tropics of northern Australia, *Wildlife Research*, 2011, 38, 482-490

[68] WA Today, 2019, *Ten thousand abandoned mines in WA and no fix in sight: Inquiry*, viewed March 2020 <https://www.watoday.com.au/national/western-australia/ten-thousand-abandoned-mines-in-wa-and-no-fix-in-sight-inquiry-20190325-p517fd.html>

[69] Infrastructure Australia, 2019, *Small towns, rural and remote areas: Australian Infrastructure Audit*, viewed February 2020 <https://www.infrastructureaustralia.gov.au/sites/default/files/2019-08/Audit%20Fact%20Sheet%20-%20Small%20Towns%2C%20Rural%20and%20Remote.pdf>

[70] AgriFutures Australia, 2017, *Next generation of agriculture's 'can-do' attitude key to shaping the industry's future*, viewed February 2020 <https://www.agrifutures.com.au/news/next-generation-of-agricultures-can-do-attitude-key-to-shaping-the-industrys-future/>

[71] G. Moodie, A.L., Wheelahan, N. Fredman & E. Bexley, 2015, *Towards a new approach to mid-level qualifications*, NCVER, Adelaide.

(diplomas, advanced diplomas and associate degrees) prepare learners. AHC graduate data shows that:

- 50% of those not employed before training became employed after training.
- 18% of those employed before training became employed at a higher skill level after training.
- 86% of those employed after training received at least one job-related benefit.
- 27% of those employed after training were in the 'Agriculture, Forestry and Fishing' industry.

While the figures above do not provide a great deal of insight into specific training/job outcomes for the different AHC industries, stakeholder feedback has related that there are sectors, such as Landscaping, arboriculture, sports turf and conservation and land management, that strongly value applicants with VET qualifications. These industries require high levels of skill and may involve high risk or significant work in remote or unsupervised situations. Some industries are seeking to become regulated, and employers are requesting evidence of skills through qualifications, both as a barometer of employees being able to safely and effectively operate in the workplace and to ensure that, if regulation is implemented, employees will be able to meet imposed standards.

In Northern Australia, Conservation and Land Management has strong enrolment figures as qualifications are mandatory to work in government department jobs. Members of Arboriculture Australia and other arborist associations have agreed voluntarily to equate the AQF level of qualifications held by graduates with the level of expertise they possess. They have, furthermore, developed industry standards to support training and are currently working with Safe Work Australia to minimise future deaths and injury[72].

Other than qualifications, businesses consider various skills, attributes and evidence of proficiency, whether gained formally or informally, when employing people. Rationales for targeting people with VET qualifications (or not) depend on organisations' location, size, culture, industry and other factors.

When seeking new recruits, businesses in the nursery industry advertise for people with horticultural knowledge and only *sometimes* for those with a nursery qualification. An analysis of SEEK job advertisements in the 'gardening' sector shows that employers tend to specify that 'experience in horticulture' is a requirement but qualifications in retail nursery are usually no more than 'desirable'.

Howe *et al*. discuss how growers sometimes require farmhands with certification and licenses to operate or drive machinery on a year-round basis, who would usually be remunerated at Level 3 or above under the Horticulture Award[73]. Other examples of qualifications having direct links to employment opportunities or conditions include:

- The medicinal cannabis industry actively seeks certified individuals due to strict regulation and the skill requirements for performing the job.
- The Certificate IV in Wool Classing is a specialist wool classing qualification for wool classers and enables them to apply for registration with AWEX Ltd. as a professional Australian wool classer. Certificate III in Wool Clip Preparation graduates can apply for registration with AWEX Ltd as an Owner Classer.

While many employers look to fill full-time and permanent positions with suitably qualified individuals, Nettle *et al*. identify that "Some cotton employers employed people casually who had experience working on cotton farms and with qualifications (i.e. vocational or trade level) to manage machinery."[74]

In RRR areas, employing people who already have VET qualifications may not be an *option* for employers due to a limited pool of applicants. Howe *et al*. found that, in lieu of an *existing* qualified workforce, some growers and communities develop programs to encourage career development through VET. For example, the Victorian Skills Commissioner's report on skills demand in the Mallee region[75] led the state government to invest in new farm-based training cadetships for agriculture and horticulture, with the intention of facilitating participants'

[72] Arboriculture Australia, 2017, *Industry License Information Brochure*, viewed February 2020 <https://arboriculture.org.au/getassets/d2c1c183-f5ee-e911-90fb-00505687f2af/Industry_License_Brochure_2017-Web3.pdf>

[73] J. Howe, S. Clibborn, A. Reilly, D. van den Broek & C.F. Wright, 2019, p.62, *Towards a Durable Future: Tackling Labour Challenges in the Australian Horticulture Industry*, The Univerity of Adelaide

[74] R. Nettle & G. Kuehne, K. Lee & D. Armstrong, 2018, p.49, *A new framework to analyse workforce contribution to Australian cotton farm adaptability*, Agronomy for Sustainable Development, Vol. 38: 38-57

[75] Victorian Skills Commissioner, 2017, *Regional Skills Demand Profile: The Mallee*, viewed February 2020, <http://www.vsc.vic.gov.au/wp-content/uploads/2017/10/Mallee-Regional-Skills-Demand-Profile-PDF.pdf>

career pathways. To support this objective, the Victorian Skills Commissioner is working to strengthen links between local schools, registered training organisations (especially TAFEs) and growers so as to introduce students to the work opportunities available and to allow businesses to identify potential candidates with greater ease.

Rural Industries Skill Training (RIST), an independent agricultural college in Western Victoria, offers a Job Ready program[76], working closely with farmers to employ graduates from a range of VET qualifications, including the Certificates II, III and IV and Diploma of Agriculture, as well as the Certificates II and III in Shearing, Certificate III in Wool Clip Preparation and Certificate IV in Wool Classing.

Longerenong College in Victoria reports that a high proportion of their graduates become employed by local and interstate agribusiness services and farmers prior to or on completion of their studies. They include a series of testimonials on their website to highlight success stories[77].

The Queensland Agriculture Workforce Network (QAWN)[78] aims to address agriculture's labour and skill needs, in part by developing relationships between TAFEs, growers and community organisations to facilitate horticultural skills training and work experience for unemployed people and refugees. The QAWN has assisted in developing the Farm Ready Hub[79] as a means to promoting engagement between horticulturalists and RTOs. Once an individual signs-up for their FarmReady Card they have access to the unit *AHCWRK204 Work Effectively in the Industry*, with the offer to arrange further training through FarmReady's consultancy service.
In the context of increasing urbanisation (and the rising urban-centrism of AHC training), the likelihood of skilled practitioners being based, or staying, in RRR areas is diminishing. These are often 'thin markets' for training provision, particularly in outer regional and remote areas where a low population density can render it untenable for Registered Training Organisations (RTOs) to operate or provide a broad range of educational programs. Where there are limited opportunities in VET, businesses are increasingly choosing to train staff on-the-job, which, in turn, further reduces the viability/demand for RTOs in these areas. One South Australian grower in Howe *et al*.'s research[80] stated that, because local TAFEs in rural areas do not provide the courses that would allow locals to attain skilled jobs in horticulture, the system is "broken". This illustrates a broader perspective of participants that wider VET reforms are needed so that the system is more responsive to the needs of industry and the workforce.

In many of the RRR agricultural production areas across Australia the current labour market is so tight that businesses often cannot afford to reject a potential employee, no matter the relative shortcomings of their experience or training. The production horticulture sector face shortages throughout the production cycle[81], but especially during the harvest period. The seasonality of fruit and vegetables production entails that many employers are employing on a casual basis, without a specific recruitment plan or workforce development program in place. This means that farms' intellectual property, embodied by their seasonal workers (such as pickers or contractors), is lost at the end of every production cycle. As a result, industry has looked to skilled workers from overseas to fill workforce gaps; but, at the same time, access to skilled visas has constricted in recent years, with amendments to and then abolishing of the Temporary Work (Skilled) visa (457)[82]. To fill labour shortage in rural Australia, then, the Australian Seasonal Worker Program brings in low-skilled labour sourced from nine Pacific island countries and Timor-Leste, while backpackers take up working holiday visas[83]. The NFF continues to call for the introduction of an Agricultural Visa to ease horticulture's labor crisis[84].

[76] Rural Industries Skill Training, 2020, *Study With RIST Agricultural College*, viewed January 2020 <https://rist.edu.au/home>

[77] Longerenong College, 2020, *Careers & Testimonials*, viewed February 2020 <https://www.longy.com.au/why-longy/careers-testimonials>

[78] Qld Farmers' Federation, 2018, *Queensland Agriculture Workforce Network (QAWN)*, viewed January 2020, <https://www.qff.org.au/projects/rural-jobs-skills-alliance/queensland-agricultural-workforce-network-qawn/>

[79] Farm Ready Hub, 2020, *Industry providers*, viewed February 2020, <https://farmreadyhub.com/industry-providers>

[80] J. Howe, S. Clibborn, A. Reilly, D. van den Broek & C.F. Wright, 2019, p.67, *Towards a Durable Future: Tackling Labour Challenges in the Australian Horticulture Industry*, The Univerity of Adelaide

[81] NFF, 2019, *Farmers call out government workforce survey results*, <https://www.nff.org.au/read/6563/farmers-call-out-government-workforce-survey.html>

[82] N. Dufty, P. Martin & S. Zhao, 2019, p.21, *Demand for Farm Workers: ABARES farm survey results 2018*, ABARES research report, Canberra, September

[83] S. Zhao, B. Binks, H. Kruger, C. Xia & N. Stenekes, 2018, *What difference does labour choice make to farm productivity and profitability in the Australian horticulture industry? A comparison between seasonal workers and working holiday makers*, ABARES

[84] NFF, 2019, *Worker shortage holds farmers to ransom*, viewed February 2020 <https://nff.org.au/media-release/worker-shortage-holds-farmers-to-ransom/>

Howe *et al*.'s research determined that "lower-skilled jobs are generally those that do not require formal qualifications or certifications, such as packing," which "would generally be paid at Level 1 (the lowest level) under the Horticulture Award, with induction training the only training required to perform the job"[85]. They go on to report that most employers require a higher proportion of lower-skilled workers, with some businesses operating on the basis that 20% of their employees/jobs should be higher-skilled and 80% should be lower-skilled. This is loosely reflected in NCVER's findings for the 'agriculture, forestry and fishing' industries' engagement with VET, be it in their demand for qualified applicants or facilitation of nationally-recognised training:

### Table 1: Employers' use of the VET system, 2017 and 2019 (%)

| Employer characteristics | The VET system | | | | | |
|---|---|---|---|---|---|---|
| | Employers with vocational qualifications as a job requirement | | Employers with apprentices/trainees | | Employers using nationally recognised training | |
| | *2017* | *2019* | *2017* | *2019* | *2017* | *2019* |
| **Industry** (Base: all employers within industry) | | | | | | |
| Agriculture, forestry and fishing | 18.5 | 15.7 | 9.6 | 12.6 | 21.3 | 21.5 |

*Source: NCVER, 2019, p.13, Australian vocational education and training statistics: employers' use and views of the VET system 2019*

[85] J. Howe, S. Clibborn, A. Reilly, D. van den Broek & C.F. Wright, 2019, p.61, *Towards a Durable Future: Tackling Labour Challenges in the Australian Horticulture Industry*, The Univerity of Adelaide

# Vocational qualification leads to mid-life career change

**At any age or stage in your career, a vocational qualification can provide a pathway into new and existing career.**

At 55 years old and after 30 years in the printing industry, Phil started to seriously think about what to do next. Over the past few years, Phil had experienced retrenchments, stints of casual work and periods of unemployment. The printing industry had changed and shrunk its workforce and with another retrenchment looming, Phil knew that he needed to change directions and find something that was going to keep him in work for the next ten years.

Phil said he has always loved gardening, but he knew it would be a challenge to find someone willing to employ an older worker without experience. He thought vocational education and training could be the answer to growing a career in the horticultural industry.

“I’ve loved gardening for years and am passionate about native plants and I realised this was what I really wanted to do for the rest of my working life. I took a risk and decided to study horticulture,” said Phil.

Phil enrolled in the Certificate III in Horticulture with Melbourne Polytechnic. By December 2019 he had completed all of his course work and had sent his resume to at least fifteen different companies.

“I knew my chances weren’t great. I was 56 by then, passionate and knowledgeable, fit and ready to work, but had no horticulture work experience.

“I got a job one day after finishing my course work. I couldn’t believe it. Although it was a low-skilled casual job I knew that this was the break I needed. So I took it.

“I am now in a full time, ongoing position in property maintenance. I’m loving being outdoors, learning new skills and using what I learnt on my course. I’m so thankful to be employed during the COVID-19 crisis. If I hadn’t done that course it’s likely I’d be either unemployed or working casually in printing factories, wishing I was out in the sunshine,” said Phil.

Horticulture has been identified as a field where skilled workers are constantly needed, and it’s an industry that is expanding as innovations and technology in the field create new opportunities.

As with other vocational training programs, graduates of horticulture courses learn from people with real industry experience, obtaining practical skills and knowledge that relate to real work situations.

***Phil Ward, Maintenance Horticulturalist, Maintaining Melbourne Pty Ltd***

# Other Training Used by Employers

**Workplace Training outside of VET**

Extensive training is undertaken outside of the nationally recognised accredited training system for the AHC industries that is not usually acknowledged through a qualification or credential[86]. The extent of unaccredited training is unknown as it is not publicly recorded or consolidated[87].

The last wide-scale national survey to report on training outside of the national system was the Australian Bureau of Statistics' 'Employer Training Expenditure and Practices', conducted in the financial year 2001-2002[88]. There is a compelling case to repeat this extensive survey. The Agriculture and Production Horticulture and Amenity Horticulture, Landscaping and Conservation and Land Management IRCs support further research to collect and present statistics and evidence around this issue, which is of relevance across all Training Packages. Formal research of this type would seem to be outside the capabilities and funded work of the individual IRCs.

Smaller-scale research, such as NCVER's 2019 'Survey of Employers' Use and Views of the VET System'[89], has found that around 40% of 'agriculture, forestry and fishing' employers use unaccredited training (a program of structured training or unstructured, on-the-job instruction), which is roughly double the proportion who use nationally-recognised training.

### Table 2: Use of the VET system and unaccredited training in the last 12 months by employer characteristics, 2017 and 2019 (%)

| | Employers using nationally recognised training | | Employers using unaccredited training | |
|---|---|---|---|---|
| **Industry (Base: all employers within industry)** | ***2017*** | ***2019*** | ***2017*** | ***2019*** |
| Agriculture, forestry and fishing | 21.3% | 21.5% | 43.0% | 41.6% |

*Source: NCVER, 2019, Australian vocational education and training statistics: employers' use and views of the VET system 2019*

White *et al*.[90] note that employers are less concerned about who provides training, and whether it is accredited, because they focus more on the perceived relevance of the training to meeting their needs. According to Mawer and Jackson[91], many employers are more comfortable and satisfied with unaccredited training, citing flexible structures, shorter durations, and a focus only on relevant equipment and workplace practices. As a result, "employers have consistently rated satisfaction with unaccredited training significantly higher than with nationally recognised training and with the training to apprentices and trainees provided through the VET system" [92].

Howe *et al.* describe that a potential downside of training outside of the VET system is that Modern Awards closely correspond with VET-related AQF levels. Howe et al found that "the absence of a coordinated system

[86] T. Griffin, 2016, *Costs and benefits of education and training for the economy, business and individuals*, NCVER, Adelaide, viewed January 2020, <https://www.ncver.edu.au/publications/publications/all-publications/2873>

[87] G. Moodie, A.L. Wheelahan, N. Fredman, & E. Bexley, 2015, *Towards a new approach to mid-level qualifications*, NCVER, Adelaide.

[88] Australian Bureau of Statistics, 2003, *6362.0 - Employer Training Expenditure and Practices, Australia, 2001-02*, viewed January 2020, <https://www.abs.gov.au/Ausstats/abs@.nsf/0/00D5FE2BE9FCA5B1CA256CFB008083B0?Open>

[89] NCVER 2019, *Australian vocational education and training statistics: employers' use and views of the VET system 2019*, NCVER, Adelaide.

[90] I. White, N. De Silva & T. Rittie, 2018, *Unaccredited training: why employers use it and does it meet their needs?*, NCVER, Adelaide

[91] G. Mawer & E. Jackson, 2005, *Training of existing workers: issues, incentives and models*, NCVER, Adelaide, viewed January 2020 <https://www.ncver.edu.au/__data/assets/file/0014/5144/nr3017.pdf>

[92] I. White, N. De Silva & T. Rittie, 2018, p.12, *Unaccredited training: why employers use it and does it meet their needs?*, NCVER, Adelaide

of structured training in horticulture hurt both growers and the workforce, because it dragged down productivity and inhibited workers from demanding higher wages." [93] The experiences of and feedback received by the Agriculture and Production Horticulture and Amenity Horticulture, Landscaping and Conservation and Land Management IRCs would appear to be consistent with this research.

Some specific examples of training outside of the national system relevant to work conducted for the Annual Update include:

- There is no accredited training in therapeutic horticulture; however, non-accredited training is offered by CERES, Cultivate NSW, and the Horticultural Therapy Association of Victoria.
- There are a number of university subjects or short courses in mined land rehabilitation and there are companies that specialise in offering services for mine site closure and rehabilitation.
- The Northern Land Council use private RTOs to deliver non-endorsed units in dry season land burning.

## In-house training as an alternative

Botanica Nurseries are a production nursery in regional NSW. They move over 10,000 plants per day and their biggest customers are Bunnings and the landscaping industry. There are various skills required at their production nursery, including pest management, irrigation, planting, potting and horticulture. Botanica do not employ students who complete Certificate III in Production Nursery, instead choosing to hire unskilled labour and training them internally.

**Extension**

As noted in the ABARES farm survey results[94], agriculture has a culture of 'family businesses' (with informal, passed-on knowledge systems) rather than large 'professional/corporate enterprises' (who are largely responsible for investing in formal staff development). Training hence occurs across a multitude of formats and providers, with an emphasis on learning through trusted peer networks, including Rural Research Development Corporations (RDCs) and industry associations, who offer various programs, both online and face-to-face. In addition, agribusinesses facilitate technological service provision and capacity building on-farm in a personalised format.

Extension, defined as education to improve farmers' techniques (usually based upon research and science-driven assessment of their practices), is delivered through various models, methods and media:

### Table 3: Models, methods and media used for extension in Australia

| Extension model | Methods and media |
|---|---|
| Technology transfer or information access | Events such as field days to demonstrate new farming technology<br>Meetings to present information to the farming community<br>Print media, including rural newspapers, magazines, newsletters, books and leaflets<br>Radio, television and videos<br>Computer applications Information centres<br>World Wide Web |

[93] J. Howe, S. Clibborn, A. Reilly, D. van den Broek & C.F. Wright, 2019, p.67, *Towards a Durable Future: Tackling Labour Challenges in the Australian Horticulture Industry*, The Univerity of Adelaide

[94] N. Dufty, P. Martin & S. Zhao, 2019, *Demand for Farm Workers: ABARES farm survey results 2018*, ABARES research report, Canberra, September

| | |
|---|---|
| Programmed learning model | Training programs/workshops<br>Groups of landholders, community members, etc, to increase understanding or skills in defined areas |
| One-to-one advice or information exchange | Farm management consultancy<br>Diagnostic services<br>Rural financial counselling<br>Informal information exchange between farmers |
| One-to-one technical advisory services | Formal or structured education and training University courses<br>TAFE courses<br>Training modules in Property Management Planning programs<br>Other structured learning programs such as PROGRAZE<br>One-off events based on adult learning principles |
| Group empowerment | Landcare groups<br>Catchment groups<br>Community development workshops |

*Source:* S. Kilpatrick and P. Millar, 2006, Aligning the Extension and Vocational, Education and Training Sectors, table *adapted from Black (2000) and Coutts & Roberts (2003)*

Current examples of extension work include:

- RDC Extension programs that deliver workshops to farmers and farming groups.
- Extension programs delivered by the state department of primary industries (which, despite having decreased in frequency, are usually well-attended).
- Over 50 farmer leader research groups established around Australia conduct research projects which lead to field days demonstrating outcomes.
- Kondinin Farming Ahead magazine is an initiative of a farmer-led research group. This publication is published quarterly and has approximately 7,000 subscribers.
- Agricultural machinery and production field days are conducted around Australia.
- Industry associations conduct workshops and distribute newsletters.
- Machinery dealers and service organisations provide induction training when farmers purchase new machinery and some ongoing instruction during operation.
- Further examples of other ways farmers and production horticulturists undertake training can be found on websites such as Farm Table: https://farmtable.com.au/ag-events/month/
- Further examples include: https://www.smallfarms.net/rural-skills-training/

**Rural Development Corporations: tailoring innovative agricultural solutions for industry in situ**

Dairy Australia have identified that "Concerns exist with the aggregation of the Vocational Education Training (VET) sector and what is perceived to be declining quality of advice to farms. […] Given the identified barriers, training is only likely to be effective if provided in a local regional setting."[95] This shows a concern both for the *location* and *relevance* of VET delivery.

RDCs deliver a broad range of events to help producers develop their capabilities, and are involved in tailored programs that focus on specific production processes which help develop farmers' knowledge:

[95] Dairy Australia, 2019, pps.44 & 25, *Defining future dairy industry services sector skills*, SED Regional Advisory

- Several RDCs support and fund farmer-based research groups across Australia to conduct research trials focussing on providing local solutions.
- Hort Innovation is developing case-study vegetable farms in each state for research and extension – including training events and field days – and will develop video and fact-sheet resources to showcase potential applications of relevant precisions technologies.
- Farmers2Founders (F2F)[96] is a program run in partnership with five RDCs: Agrifutures, MLA, Wool Innovation, GRDC and Wine Australia. It equips producers to help them act as frontline innovators and supports them to develop entrepreneurship and technology capabilities. The program starts with a free one-day 'Innovation and ideation' workshop where participants learn how technologies are shaping the future of agriculture and how these technologies might be used to benefit their business.

**Agribusiness: on-farm management and methods consultancy**

The agribusiness service industry works directly with farmers to improve production methods and farm management and implement precision technology. All farms are unique businesses, with their own operational and geographical/environmental constraints – variables include the farmer's capabilities and knowledge, availability of capital, land and soil types (and quality), and production methods. The advantage of engaging agribusinesses' agronomy services is that they will generally tailor training and advice according to the client's economic and geographical contexts and long-term objectives.

**In-depth training with product developers/manufacturers: a no-risk learning strategy**

Machinery and digital product developers often include training and maintenance as part of the 'package' when employers invest. For the developer, this helps to build relationships and brand loyalty. For the employer, the benefit is that they receive training on-site, with the very equipment that they will be using. This is often seen as mitigating the perceived disadvantages of engaging in formal training, which may include:

- Being limited in the choice of training provider in rural and remote locations
- Lack of tailoring and flexibility in VET program delivery (relating to sector, equipment, etc.)
- Training seasonal workers not being seen as a good investment because, for example, fruit and vegetable farms' intellectual property leaves every year with the seasonal workers
- Employees might not complete training
- Cost
- Productivity is lost due to time off the job
- Concern that employees with enhanced capabilities are more attractive to other employers
- Administrative requirements of seeking a training provider and enrolling (and potentially supervising) staff.

**Member-based associations: agenda-shaping communities facilitating peer learning**

Industry associations are formed to support the welfare of their designated sectors and members by providing information and advocacy. Peer learning is prevalent amongst members, who can network, share information and organise follow-up events.

[96] Farmers2Founders, 2019, *Supporting producers to transform agrifood and fibre*, viewed August 2019 <https://www.farmers2founders.com/>

# Enrolment Levels

*Please note: NCVER's database, VOCSTATS, only displays enrolments for the years 2015-2018 at present. This is partly because it only became mandatory for RTOs to report their training activity from 2014. NCVER have now stated that "2014 was a transition year" and that only data from 2015 is considered reliable. This Industry Skills Forecast Annual Update, therefore, presents only data for the years 2015-2018 because many RTOs did not report their activity in 2014, and combining new and old datasets could result in spurious trends being shown.*

It is likely that there will be recommendations to the AISC that will result in a minimum of seven fewer qualifications in the AHC Training Package at the completion of the current projects in 2020. There is an expectation that similar results can be achieved in future implementation of the Unit Sector approach to review of the AHC Training Package.

**Systemic challenges causing low enrolments**

In common with other IRCs, the Agriculture and Production Horticulture (APH) and Amenity Horticulture, Landscaping and Conservation and Land Management (AHLCLM) IRCs face competing priorities regarding the standards that govern their activities and the ministers' objective to delete superfluous qualifications. The IRCs are required to support "nationally consistent qualifications that reflect the skills and knowledge required to successfully operate in a particular occupation", while training products must reflect "occupational skills needs of an industry, or a group of industries, to facilitate employment and vocational outcomes for individuals"[97] Thus, the IRCs' role is to engage with industry to describe current (and future) occupational skills standards, and *not* to ensure formal RTO enrolments within the VET system.

The IRCs agreed to develop an innovative approach to the review of the Training Package, mostly to accelerate the speed of introduction of updated skills standards, but also as a way of addressing the ministers' priorities, especially in addressing duplication and superfluous units. Whatever approach is utilised, it remains the IRCs role to recommend new qualifications to meet new job roles, and new units of competency to address new skills needs in job functions, if no other options are available in the Nationally Accredited System.

The IRCs are aware of the need to reduce units, but while new ways of working are introduced, older methods of work are still in use. Wherever possible, units are written in ways that allow for the incorporation of differing technologies into the same unit, however this is often not possible, while remaining within the Standards set for the development of Training Package products.

RTOs choose to deliver units based on viability, local markets and the availability of appropriate people and resources. As a result, many units are underutilised despite reflecting current skills within industry. The APH and AHLCLM IRCs believe that low levels of unit or qualification delivery may be signalling that the system places unreasonable demands upon RTOs to deliver training in areas for which they do not have the resources.

Development of updated training may partially assist in addressing this issue, and the IRCs are trying to forecast future skills needs as well as address current skills needs. For example, permaculture had low enrolments since its creation, but there has been a recent upsurge in enrolments in the Certificate IV in Permaculture. This has been largely led by enrolments in WA, and an increasing interest in the trend towards regenerative production.

Representatives of the APH and AHLCLM IRCs have discussed these issues with representatives from other IRCs, and report that there are several shared challenges across Training Packages. In the case of the APH and AHLCLM IRCs, feedback from employers, industry participants, members' associations and other stakeholders indicate that general reasons for low and no enrolments include:

- Students are subject to variable fees for training provider courses and, as discussed in Skills for Victoria's Growing Economy Issues Paper[98], the model for student loans and study support needs to be improved.

[97] Australian Industry and Skills Committee, 2019, pps.4-5, *Industry Reference Committees: Operating Framework for the Development of Training Packages*, viewed February 2020 <https://www.aisc.net.au/sites/default/files/documents/IRC%20Operating%20Framework%20-%20201912_0.pdf>

[98] Skills for Victoria's Growing Economy, 2020, p.32, *Skills for Victoria's Growing Economy Issues Paper*

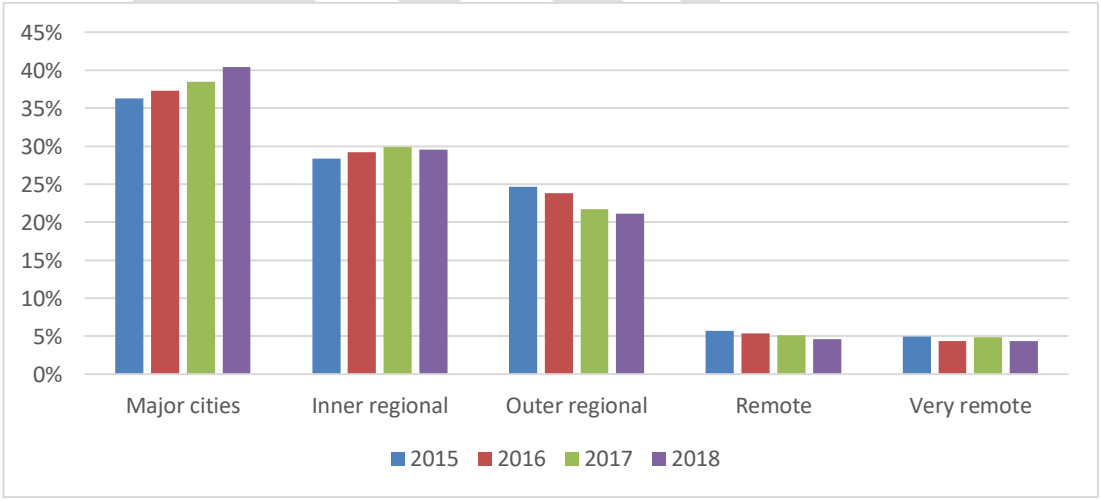
    - On the MySkills website, it details that fees for the Certificate III in Horticulture range from $3,000 to $12,826.
- Employer and learner inability to access funded apprenticeships and traineeships, as well as other potential support. The traditional supervised learning models used in the VET system are not always compatible with industry working structures.
- RTOs struggle to afford the simultaneous expenses of assessment and training materials, hiring trainers with industry currency, maintaining regulatory compliance, dispersed workplace visits and significant capital expenditure.
- The job role reflected in the qualification has small numbers and low turnover, but is critical to the industry, resulting in training only being offered every few years rather than annually (see the associated discussion of shearing qualifications below).
- The use of non-accredited training (as detailed in part 3), usually to address delivery issues, enable tailored upskilling of industry participants and avoid navigating the complexities of the Recognition of Prior Learning process.
- An industry-wide inability to attract new (especially younger) workers, especially in the occupations that are related to VET qualifications[99].

The IRCs note the views of various bodies and groups that there is a lack of organisation of information pertaining to VET enrolment choices that may also have an impact on VET participation. While recognising this issue, the APH IRC would advise that this is less of an issue when the training is organised through employers, who tend to work directly with preferred training providers and are able to influence offerings, supporting the need for greater industry involvement throughout the system and more opportunities for apprenticeships and trainee offerings. As well as the lack of available apprentices and trainees, a barrier for these employers is the inability of RTO to deliver preferred units and qualifications due to either the strict regulatory requirements on RTOs, or the viability of doing so based on the costs, vs the funding and contributions available to them

**Regional, rural and remote delivery issues**

Since 2015, learners in outer regional, remote and very remote areas have decreased in real numbers and as a proportion of overall AHC enrolments (see Figure 1).

### Figure 1: Proportions of AHC qualification enrolments by 'student remoteness region' and year




*Source: NCVER VOCSTATS, TVA program enrolments 2015-2018*

[99] KPMG, 2018, p.25, *Talking 2030: Growing agriculture into a $100 billion industry*, National Farmers' Federation

While there is the desire and ability to enrol in VET programs, people in RRR areas have fewer options and opportunities than those in metropolitan areas, which means RRR students often need to relocate at considerable financial and social cost[100], or else travel significant distances (or simply pursue other options). Online and distance learning may be an option for students of various other disciplines, but the nature of VET and agriculture requires that the learner be on-site, in real farm conditions.

Another issue is accessing available, qualified trainers and educators to deliver in RRR areas. The overall trend of regional-to-urban migration[101] is reflected in many trainers' choice to relocate to the cities, where there is perceived to be a larger pool of training organisations seeking skilled employees at competitive salary rates. RTOs in RRR areas subsequently may struggle to employ people with industry skills that are complemented by local, contextual knowledge.

In addition to the logistical challenges (such as low internet connectivity and trainer development) for RTOs delivering in RRR areas, they must cater to different learning preferences, demographics and needs (such as language, literacy and numeracy issues). As Agriculture Victoria[102] discusses:

> "Some groups may have difficulties undertaking the skills development they require because of where they live or their specific needs. This can include farmers working in remote areas, women, those new to farming, young farmers, culturally and linguistically diverse populations, Aboriginal and Torres Straight Islanders, and those considering transitioning out of agriculture."
>
> [Agriculture Victoria]

**Proposed Approach**

When supported, RRR communities have shown that they can more effectively respond to economic challenges and better adapt to structural changes[103]. Enhancing provisions for education and training pathways in RRR areas may therefore have positive benefits for equipping future agricultural employees, who possess local and practical knowledge, with the requisite skills to succeed in the industry[104].

Undoubtedly, the costs associated with VET delivery in RRR areas are greater. This is due to the unavoidable complexity of, and resulting expense of delivering, the skills that are required, especially in the context of widely dispersed markets for which greater investment in travel and provisions are necessary.

To achieve the National Regional, Rural and Remote Tertiary Education Strategy's recommendations for "improving access to high quality VET programs in RRR areas" and "increasing opportunities to undertake work-integrated learning in RRR areas"[105], as well as ACYS's call for training that needs to relate to local context and current labour demands[106], a major solution is to significantly raise the level of funding for the delivery of complex agricultural skills.

[100] Commonwealth of Australia, 2019, p.13, *National Regional, Rural and Remote Tertiary Education Strategy,* <https://docs.education.gov.au/system/files/doc/other/national_regional_rural_and_remote_tertiary_education_strategy.pdf>
[101] Australian Bureau of Statistics, 2018, *Population Shift: Understanding Internal Migration in Australia*, <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2071.0~2016~Main%20Features~Population%20Shift:%20Understanding%20Internal%20Migration%20in%20Australia~69>
[102] Agriculture Victoria 2018, p.10, *Victoria's Agriculture Skills Statement: Smarter, safer farms*, http://agriculture.vic.gov.au/__data/assets/pdf_file/0009/438039/DEDJTR-AG-Vic-Smarter-Safer-Farms-Final-2018-Web.pdf
[103] Infrastructure Australia, 2019, *Small towns, rural and remote areas*, <https://www.infrastructureaustralia.gov.au/sites/default/files/2019-08/Audit%20Fact%20Sheet%20-%20Small%20Towns%2C%20Rural%20and%20Remote.pdf>
[104] Australian Clearinghouse for Youth Studies, 2015, p.5, *Engaging Young People in Regional, Rural and Remote Australia*, <https://docs.education.gov.au/system/files/doc/other/young_people_in_regional_rural_and_remote_australia.pdf>
[105] Commonwealth of Australia 2019, p.6-7, *National Regional, Rural and Remote Tertiary Education Strategy,* <https://docs.education.gov.au/system/files/doc/other/national_regional_rural_and_remote_tertiary_education_strategy.pdf>
[106] Australian Clearinghouse for Youth Studies, 2015, p.14, *Engaging Young People in Regional, Rural and Remote Australia*, <https://docs.education.gov.au/system/files/doc/other/young_people_in_regional_rural_and_remote_australia.pdf>

This should extend to provisions for encouraging capable agricultural trainers and assessors to take up positions for RRR-based VET. As ACYS states[107], local trainers and providers are highly valued in rural communities for their roles in helping young people develop through teaching, facilitating opportunities and mentoring, but a lot is asked of them. ACSY recommend that "RRR contexts, challenges and opportunities are explicitly included in the selection, preparation, appointment and on-going professional support of educational leaders"[108]. The Victorian State Government, for example, has recognised this issue and is investing "$12.8 million to increase the number of high-quality teachers specialising in VET and VCAL so that more students from country areas can access and complete apprenticeships, traineeships and further education"[109]. Such positive steps are indicative of the challenges and possible approaches to dealing what is an extremely complex issue facing agriculture specifically, and VET more broadly.

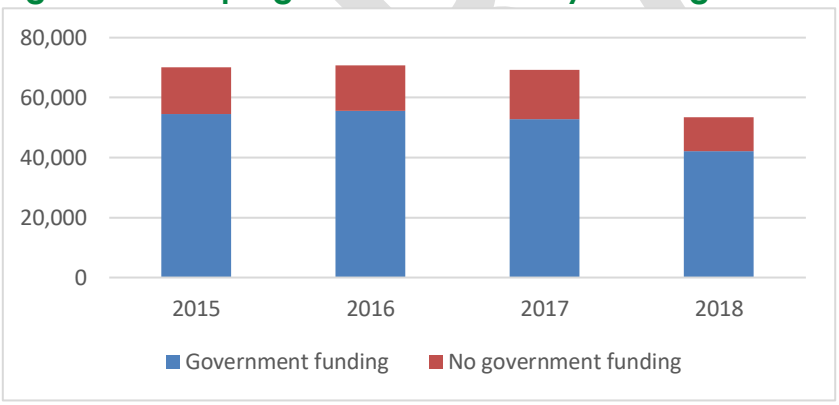
**Technological advancement, training delivery and leadership**

Training Package products are designed to reflect current and emerging industry practices and standards, and are contextualisable such that they may be delivered using appropriate technologies according to the cohort and region. However, RTOs often struggle to deliver training on the full range of technologies when they are used only sporadically, both in terms of geography and different sectors, across agriculture. As such, this is less a Training Package issue and more one of *resources*.

Leonard *et al*.[110] state that "Digital agriculture in Australia is in an immature state in many parts including strategy, culture, governance, technology, data, analytics, and training. This is to the detriment of innovation and producer adoption of digital agriculture in Australia." It also entails that investing in or accessing expensive technologies, knowledge or markets to enable digital capabilities training delivery is unviable for many RTOs. If learners' options for choosing qualifications with digital technologies units are therefore limited, and if farmers are then not accessing an appropriately trained workforce who can assist in implementing digital methods (and do not necessarily have the capacity themselves to re-train), many will continue to look outside of VET for leadership in driving digital capabilities development (as discussed in the section on **Error! Reference source not found.**).

An accelerating rate of technological change requires *greater* development of new and more complex skills and knowledge, which is at odds with the trend of declining formal training delivery, including a reduction in government-funded enrolments (see Figure 2Figure 1).

**Figure 2: AHC program enrolments by funding source**




*Source: NCVER VOCSTATS, TVA program enrolments 2015-2018*

[107] Australian Clearinghouse for Youth Studies, 2015, p.48, *Engaging Young People in Regional, Rural and Remote Australia*, <https://docs.education.gov.au/system/files/doc/other/young_people_in_regional_rural_and_remote_australia.pdf>

[108] Australian Clearinghouse for Youth Studies, 2015, p.5, *Engaging Young People in Regional, Rural and Remote Australia*, <https://docs.education.gov.au/system/files/doc/other/young_people_in_regional_rural_and_remote_australia.pdf>

[109] Victorian State Government, 2019, *Targeted initiative to attract more teachers*, <https://www.education.vic.gov.au/about/educationstate/Pages/targeted-initiative-to-attract-more-teachers.aspx>

[110] Leonard, E. (Ed), Rainbow, R. (Ed), Trindall, J. (Ed), Baker, I., Barry, S., Darragh, L., Darnell, R., George, A., Heath, R., Jakku, E., Laurie, A., Lamb, D., Llewellyn, R., Perrett, E., Sanderson, J., Skinner, A., Stollery, T., Wiseman, L., Wood, G. and Zhang, A. 2017, p.3, "*Accelerating precision agriculture to decision agriculture: Enabling digital agriculture in Australia*" Cotton Research and Development Corporation, Australia.

At present, there appears not to be a misalignment between the perceived importance of technology adoption and training to use that technology. In a recent AgriFutures Australia report gauging industry stakeholders' thoughts on how to achieve the NFF's vision of agriculture becoming a $100 billion industry by 2030, 'skills and capability' are classified as a 'lower priority'[111]. Later[112], 'skills and capability' are acknowledged as a barrier to the adoption of digital technology. The CRDC's 'Precision to Decision' report, "digital agriculture could increase the gross value of Australian agricultural production by $20.3 billion"[113], which represents a significant proportion of the growth required to realise the NFF's $100 billion target. There are challenges for realising this target if 'skills and capability' remain a 'lower priority'. However, influential reports, such as the *Agricultural workforce digital capability framework*[114], indicate an emerging leadership in stimulating digital agriculture, which includes recognition of VET's role in facilitating the capabilities of the workforce.

**AHC Training Package products that should be retained and rationale for retention**

*Please note, all enrolment figures below are inclusive of the current and any superseded versions of qualifications where there is data provided by NCVER. This is to more accurately assess demand for, and uptake of, a particular occupational skill need.*

Enrolment volumes usually have very little relationship with the criticality of skills to different sectors, or the value of those skills to the wider economy, nor the risks to society of not having properly trained workers in niche occupations or industry activities. The COVID-19 pandemic demonstrates that, while some AHC Training Package products may have low enrolments, they are essential to Australian society because they describe the skills and knowledge required for delivering products vital to the food supply chain.

**Low industry demand at present, but future opportunities**

Numerous AHC-related industries are vastly affected by environmental conditions beyond their control, which impacts on periodic demand for training delivery. For example, Meat & Livestock Australia (MLA) report that the national sheep flock has reached its lowest level in more than a century[115]. Drought and associated shortages of feed and water are hugely concerning for industry's immediate future. Australian wool production is forecast to continue to drop significantly[116].

As training delivery is informed by, and reflects, industry trends, it is understandable that AHC shearing and wool-related qualification enrolments have declined over the past few years. Following this logic, MLA's projections that "longer term, high prices across both sheepmeat and wool provide a strong incentive for producers to rebuild their heavily depleted breeding flocks once conditions allow,"[117] suggests that enrolment figures will likewise increase as the industry rebuilds and expands. Thus, while there are low enrolments in the meantime, there is a risk of deleting qualifications or units which will later become needed.

[111] AgriFutures Australia, 2019, p.19, *Agriculture - a $100b sector by 2030?*, <https://www.agrifutures.com.au/wp-content/uploads/2019/08/AGF-NRI-100bn-Report-S3V1-Digital.pdf>

[112] AgriFutures Australia, 2019, p.25, *Agriculture - a $100b sector by 2030?*, <https://www.agrifutures.com.au/wp-content/uploads/2019/08/AGF-NRI-100bn-Report-S3V1-Digital.pdf>

[113] Leonard, E. (Ed), Rainbow, R. (Ed), Trindall, J. (Ed), Baker, I., Barry, S., Darragh, L., Darnell, R., George, A., Heath, R., Jakku, E., Laurie, A., Lamb, D., Llewellyn, R., Perrett, E., Sanderson, J., Skinner, A., Stollery, T., Wiseman, L., Wood, G. and Zhang, A., 2017, p.1, Accelerating precision agriculture to decision agriculture: Enabling digital agriculture in Australia. Cotton Research and Development Corporation, Australia.

[114] KPMG and Skills Impact, with contribution from Faethm and The University of Queensland, 2019, *Agricultural workforce digital capability framework*, KPMG and Cotton Research and Development Corporation, Australia.

[115] Meat & Livestock Australia, 2020, *Industry projections 2020: Australian sheep*, viewed February 2020 <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/sheep-projections/mla_feb-2020-australian-sheep-industry-projections-1.pdf >

[116] Australian Wool Innovation Limited, 2019, *Australian Wool Production Forecast Report*, viewed February 2020 <https://www.wool.com/globalassets/wool/market-intelligence/wool-production-forecasts/australian-wool-production-forecast-report-august-2019.pdf>

[117] Meat & Livestock Australia, 2019, *Industry projections 2019: Australian sheep*, viewed February 2020 <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/sheep-projections/mla_australian-sheep-industry-projections-2019.pdf>

## Table 4: Cyclical industry demand

| Current Qualification | Enrolments | | | |
|---|---|---|---|---|
| | 2015 | 2016 | 2017 | 2018 |
| AHC33116- Certificate III in Advanced Wool Handling | 138 | 96 | 74 | 94 |
| AHC32916- Certificate III in Shearing | 149 | 118 | 104 | 65 |
| AHC33016- Certificate III in Wool Clip Preparation | 251 | 655 | 130 | 54 |
| AHC42216- Certificate IV in Shearing Contracting | 0 | 0 | 0 | 0 |

*Source: NCVER VOCSTATS, TVA program enrolments 2015-2018*

### Specialist industries

Some qualifications cannot be reasonably be expected to encourage high enrolment figures when they are intended for employment in a niche occupation or specialist industry (which, by their nature, tend to have low turn-over of staff and relatively few new entrants). Such qualifications often facilitate socially and environmentally valuable or geographically specific skills that are critical for jobs with few employees nationwide.

The *Diploma in Organic Farming* not only provides the framework for produce to be grown organically and sustainably, it also imparts the leadership skills for companies seeking to be certified as organic. This industry is projected to grow at an annual rate of 15% – which, according to IBISWorld, is the highest of *any* industry – over the five years through 2024-25, reaching $3.7 billion[118]. This is a reflection of rising consumer demand for information about the provenance of their food and assurances that farming practices take into account climate change by harnessing natural capital through methods such as regenerative agriculture (as discussed in the industry update at the outset of this Annual Update).

## Table 5: Qualifications for specialist industries

| Current Qualification | Enrolments | | | |
|---|---|---|---|---|
| | 2015 | 2016 | 2017 | 2018 |
| AHC51816- Diploma of Organic Farming | 45 | 43 | 58 | 32 |
| AHC31818- Certificate III in Beekeeping | 14 | 46 | 108 | 90 |
| AHC32516- Certificate III in Aboriginal Sites Work | 20 | 39 | 40 | 32 |
| AHC31516- Certificate III in Indigenous Land Management | 217 | 107 | 12 | 15 |

*Source: NCVER VOCSTATS, TVA program enrolments 2015-2018*

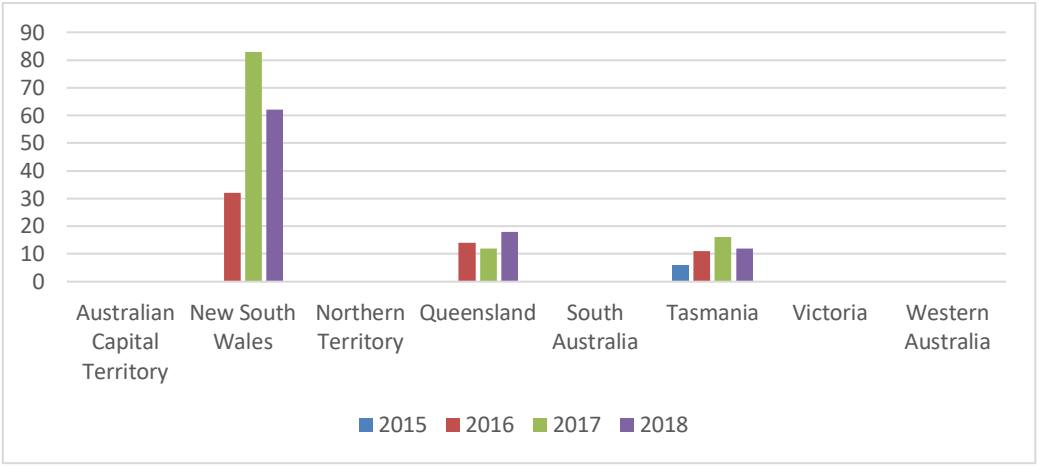
The *Certificate III in Beekeeping* facilitates essential skills for the future of agriculture. Since the AISC-approved project to update the qualification, there has been a significant rise in enrolments. The importance of bees to pollination and the primary food production ecosystem has been much-discussed over recent years[119]. As AgriFutures[120] puts it, bees "contribute to the Australian economy, indirectly, through free pollination services." They further describe that 45% (around 9,000) of Australia's 20,000 registered beekeepers are in New South Wales, which is where the majority of training is delivered.

[118] IBISWorld, 2020, *IBISWorld Reveals Industries Set to Fly and Fall by 2030*, viewed February 2020 <https://www.ibisworld.com/industry-insider/press-releases/ibisworld-reveals-industries-set-to-fly-and-fall-by-2030/>

[119] N.W. Calderone, 2012, Insect Pollinated Crops, Insect Pollinators and US Agriculture: Trend Analysis of Aggregate Data for the Period 1992–2009, *PLoS ONE* 7(5), e37235

[120] AgriFutures Australia, 2017, *Beekeeping (honey bees)*, viewed February 2020 <https://www.agrifutures.com.au/farm-diversity/beekeeping-honey-bees/>

## Figure 3: Delivery locations of Certificate III in Beekeeping




*Source: NCVER VOCSTATS, TVA program enrolments 2015-2018*

The *Aboriginal Sites Work (AHCASW)* and *Indigenous Land Management (AHCILM)* sectors also represent great social, cultural, environmental and, increasingly, economic importance to Australia. Indigenous land management strategies have received increasing media attention due to the recent bushfire crisis[121]. On a televised Q+A Bushfires Special[122], Victor Steffensen, an Indigenous Fire Practitioner, stated:

> "Teaching traditional practices and reading landscapes, and the fact of the matter is that we don't have the expertise in the current land management sectors to look after the landscape the right way. […] We're not seeing change and we're not seeing any preparedness with these fires coming in the first place, with looking after our country, looking after the bushlands, and we need to look at some hope, in a sense, of education and to allow people to start learning about country and to look at ways that we can start working as a community. […] And in every region around Australia now, there are communities that are wanting to get cultural fire projects going, and there are Rural Fire Services willing to support that, and other agencies, and the broader community are starting to understand that now. […] If we follow these practices, it's going to provide hope, and it's going to provide training: I'm talking three-year training programs. And we have Aboriginal communities all over Australia that are willing to help practitioners.."
>
> [Victor Steffensen, Indigenous Fire Practitioner]

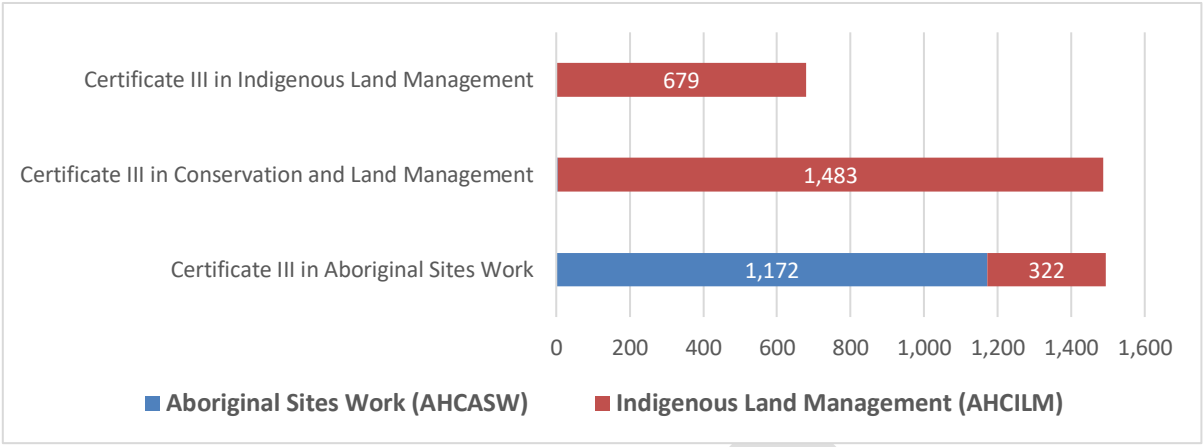
The Certificate III-level qualifications for the AHCASW and AHCILM sectors have seen decreasing enrolments over the last few years (see Table 5), yet enrolments for *units* in these sectors remain high. Regarding AHCILM sector units, this is partly due to their being popular across multiple qualifications, principally the Certificate III in Aboriginal Sites Work and Certificate III in Conservation and Land Management (see Figure 4[123]).

[121] CSIRO, 2020, *Three practical ways to support Indigenous landscape burning in Australia*, viewed February 2020 <https://ecos.csiro.au/three-practical-ways-to-support-indigenous-landscape-burning-in-australia/>

[122] ABC, 2020, *Q+A Bushfires Special*, viewed March 2020 <https://www.abc.net.au/qanda/2020-03-02/11906192>

[123] Please note that these enrolment figures pertain only to the displayed qualifications – overall enrolments in these units are higher than the totals shown for these three qualifications.

## Figure 4: Unit sector enrolments by selected qualification, 2015-2018




*Source: NCVER VOCSTATS, TVA subject enrolments 2015-2018*

The AHLCLM IRC is proposing to partner with the Aquaculture & Wild Catch (AWC) IRC to undertake a research project on qualifications that cover Indigenous skills and knowledge, and, as such, those qualifications will not be included in the Year 2 Unit Sector Approach as was originally planned. The project will examine reasons for the disparity between the relatively low enrolments in Indigenous-related qualifications and high enrolments in the associated units of competency. It will further include objectives to investigate the ways in which the qualifications are utilised, the employment outcomes for Indigenous people, and the use of non-accredited and accredited training outside of Training Packages.

**Qualifications recently reviewed/updated**

Several AHC qualifications with few or no enrolments over the past four years have recently been reviewed and redeveloped. Demand may reasonably be expected to rise when a qualification has been significantly updated to meet industry needs (as defined through extensive consultation).

For example, the Certificate III in Rural and Environmental Pest Management was reviewed and redeveloped in December 2018 and, as such, is considered to be reflective of current industry practices and occupations. Based on feedback during the project consultation, it is expected that this qualification will attract a wider audience over the next few years and that businesses will be seeking employees with this qualification.

## Table 6: Qualifications recently reviewed/updated

| Current Qualification | Enrolments 2015 | 2016 | 2017 | 2018 | Release 1 Current Qualification |
|---|---|---|---|---|---|
| AHC51019- Diploma of Sports Turf Management | 90 | 113 | 125 | 91 | 21/10/2019 |
| AHC20919- Certificate II in Sports Turf Management | 17 | 20 | 53 | 19 | 21/10/2019 |
| AHC31818- Certificate III in Beekeeping | 14 | 46 | 108 | 90 | 19/12/2018 |
| AHC51519- Diploma of Viticulture | 43 | 61 | 80 | 77 | 21/10/2019 |
| AHC41119- Certificate IV in Irrigation Management | 21 | 14 | 4 | 18 | 21/10/2019 |
| AHC51619- Diploma of Irrigation Design | 9 | 0 | 3 | 2 | 21/10/2019 |
| AHC30318- Certificate III in Rural and Environmental Pest Management | 53 | 65 | 60 | 0 | 19/12/2018 |
| AHC21119- Certificate II in Irrigation | 10 | 0 | 0 | 0 | 21/10/2019 |
| AHC31918- Certificate III in Rural Machinery Operations | 0 | 0 | 0 | 0 | 19/12/2018 |

*Sources: a) NCVER VOCSTATS, TVA program enrolments 2015-2018, b) training.gov.au*

**AHC Training Package products in project finalisation stage**

The Advanced and Graduate Diplomas of Arboriculture have been involved in extensive industry consultation. The main issue that has been addressed is the reasons for low enrolments in both these qualifications. The prerequisites of the current qualification made it impossible for any enrolments to occur prior 2019. Due to the RTO's were not willing to commit nor add either qualification on to their delivery scope. They were not prepared to invest in the development of training resources and the units of competency had restrictions in the ability of RTO trainers being able to successfully deliver the units competency.

The review has relaxed the stringent prerequisites and opened up that any person who has gained a qualification since AQF RUH98 the units of competency have been redeveloped to make them more deliverable by an RTO, although retaining the level of competency desired by the industry. This full review will allow a mass increase in enrolment as government agencies strive to gain employees and contractors, in particular consultants to have a higher level of qualification. The amendment and improvements made to bother qualification will assist and address the issue why arborists remain on the occupation skills shortages list.

## Table 7: Qualifications in project finalisation stage

| Current Qualification | Enrolments 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|
| AHC60516- Advanced Diploma of Arboriculture | 0 | 0 | 0 | 0 |
| AHC80116- Graduate Diploma of Arboriculture | 0 | 0 | 0 | 0 |

*Source: NCVER VOCSTATS, TVA program enrolments 2015-2018*

**AHC Training Package products due for review**

The qualifications below will be reviewed as part of the Year 2 Unit Sector Approach, with a view to possible deletion. Should any be recommended for deletion, the unit sectors specific to those qualifications may be amalgamated into a broader qualification; for example, the Seed Production unit sector contains nine units that describe important job functions that are still being carried-out in industry to produce high quality certified seed for agriculture. Industry may be using these Training Package products to establish the correct professional standards within their working operations and, as such, there is a risk that deletion would deprive industry of a much-needed resource.

## Table 8: Qualifications due for review

| | Enrolments | | | |
|---|---|---|---|---|
| **Current Qualification** | **2015** | **2016** | **2017** | **2018** |
| AHC32116- Certificate III in Commercial Seed Processing | 0 | 0 | 0 | 0 |
| AHC33416- Certificate III in Seed Production | 0 | 0 | 0 | 0 |
| AHC33516- Certificate III in Seed Testing | 0 | 0 | 0 | 0 |
| AHC40516- Certificate IV in Parks and Gardens | 8 | 8 | 4 | 3 |
| AHC41416- Certificate IV in Seed Production | 0 | 0 | 0 | 0 |
| AHC41516- Certificate IV in Seed Testing | 0 | 0 | 0 | 0 |
| AHC42016- Certificate IV in Landscape | 0 | 0 | 0 | 0 |
| AHC51216- Diploma of Community Coordination and Facilitation | 34 | 32 | 15 | 0 |
| AHC52016- Diploma of Landscape Project Management | 0 | 0 | 0 | 0 |

*Source: NCVER VOCSTATS, TVA program enrolments 2015-2018*

**AHC Training Package products that potentially should be deleted (low enrolment or otherwise)**

The IRCs may require additional information concerning qualifications within the Training Package that may appear to cover a narrowly defined job role. These job roles may no longer need to be so narrowly defined or may not be serving the purpose originally intended. The IRCs will seek further information about these qualifications, and make recommendations in the next Annual Update.

## Table 9: Qualifications for potential deletion

| | Enrolments | | | | | |
|---|---|---|---|---|---|---|
| **Current Qualification** | **2015** | **2016** | **2017** | **2018** | **Release 1 Current Qualification** | **RTOs approved to deliver (as at Jan '20)** |
| AHC32216- Certificate III in Commercial Composting | 16 | 0 | 7 | 10 | 27/06/2016 | 2 |
| AHC32316- Certificate III in Conservation Earthworks | 0 | 0 | 0 | 0 | 27/06/2016 | 0 |

*Sources: a) NCVER VOCSTATS, TVA program enrolments 2015-2018, b) training.gov.au*

# Reasons for Non-Completion

The Agriculture and Production Horticulture and Amenity Horticulture, Landscaping and Conservation and Land Management IRCs suspect that it is likely that the AISC has access to more accurate and timely information concerning these issues. The IRCs would be interested in obtaining any information from exit surveys and other sources that may be available to RTOs or NCVER, though not to the IRCs.

In Skills for Victoria's Growing Economy Issues Paper[124], published in March 2020, it is identified that:

> ***"While completions in VET are low, the reasons for this are varied. A much better understanding of the drivers of non-completions is needed to inform an effective policy response."***

There is a critical concern over attracting the next generation of workers to industry training and demonstrating potential occupation pathways to them. While the data suggests low 'success' rates in the AHC Training Package (shown in Table 10 below), more research is required to establish the true extent of course non-completion issues[125].

It is widely believed throughout the VET sector that state- and territory-based funding models play significant roles in non-completion figures. Funding is often only available to RTOs when learners enrol in full qualifications, even when their intent is to achieve competency in one or a cluster of units for specific work purposes. Learners will cancel the qualification after completing these units, having achieved their objective, but will be recorded as a non-completion against the full qualification; they will be recorded as a 'failure' when in fact they – and potentially their employer – are satisfied customers.

### Table 10: Completion rate

| Training Package | Completion Rate (2017) |
|---|---|
| Agriculture, Horticulture and Conservation and Land Management | 37.8% |

*Source: NCVER, private data request*

Certainly, as 88.8% of AHC graduates in 2018 were 'satisfied with the overall quality of training' and 84.6% 'achieved their main reason for training'[126], this suggests that non-completions are a far more complex issue than is implied by the completion rates alone. For instance, if the purpose of vocational training is to obtain employment, achieving this aim prior to completing a qualification may lead learners to discontinue their formal education.

The cost of training remains high for many students and employers, with resources directed at the training required to ensure the employee can carry out job functions, and not at employees obtaining full qualifications. This is particularly true in regional, rural and remote areas where there may be a lack of available assessors to ensure timely completion of qualifications.

[124] Skills for Victoria's Growing Economy, 2020, p.31, *Skills for Victoria's Growing Economy Issues Paper*

[125] Building on work by NCVER, such as: A. Bednarz, 2014, *Understanding the non-completion of apprentices,* NCVER, Adelaide.

[126] NCVER, 2019, *VET graduate outcomes*, SAS Visual Analytics

Where learners have not completed their courses, the IRC has indicated that, for people in agriculture, managing a healthy work/life balance is notoriously difficult. The demands of the job mean that participating in formal, inflexibly scheduled training often slips down peoples' immediate priorities list. Furthermore, there appears to be a lack of clarity over employment pathways, which is likely to sustain low completions rates:

> ***"The development of pathways between lower-skilled and higher-skilled work to encourage workers to build careers in horticulture is another strategy that could help to address the industry's attraction and retention problems."***[127]

An emerging issue is the inclusion of irrelevant learning through the use of imported and cross-sector units. In designing qualifications, the IRC encourages the importation of units from other Training Packages to avoid duplication. Feedback from learners and RTOs is that this often results in additional classroom or online training with too much content which is not relevant to learners or cannot be contextualised to the learners' job roles in the teaching context. This demotivates learners and is resulting in higher drop-out rates, subject failures and poor RTO feedback. This may be a fruitful area for further research by the NCVER or AISC, although it appears outside of the scope of these IRCs.

**Purpose for completing qualifications and skill sets**

The APH and AHLCLM IRCs do not have access to RTO-submitted AVETMISS data that would allow them to track AHC enrolees' 'study reason' and collate statistics on those who complete qualifications or skills sets. They can, however, access NCVER's 'VET graduate outcomes' data visualisation tool, which uses data sourced from the National Student Outcomes Survey (which, by its nature, collects data on students' retrospective reflections).

Of AHC graduates, 84.6% achieved their main reason for training (although 'reasons for study' are undefined). Graduates perceived personal benefits after their training, including:

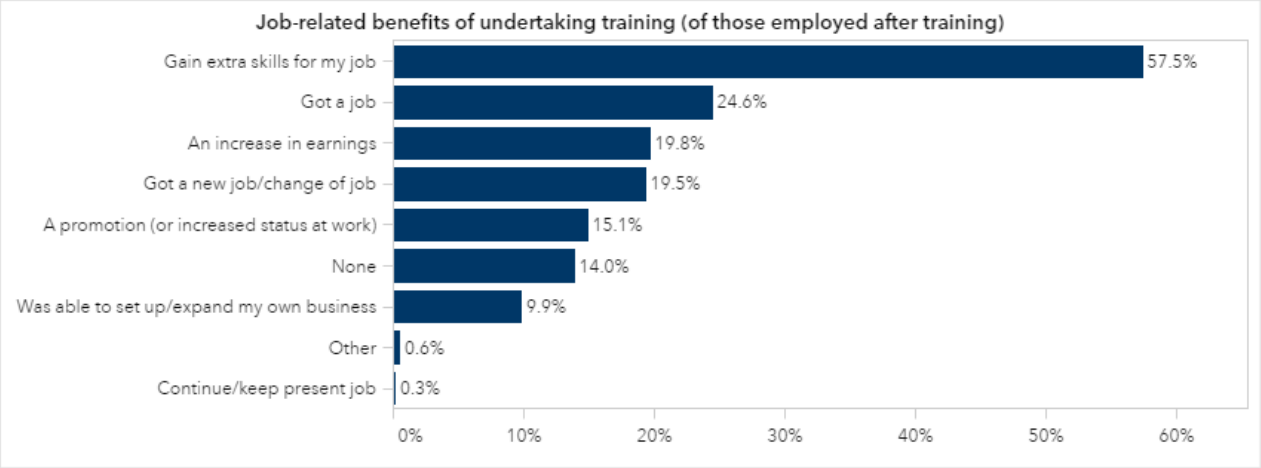
## Figure 5: Personal benefits from training (AHC)


*Source: NCVER, VET graduate outcomes*

[127] J. Howe, S. Clibborn, A. Reilly, D. van den Broek & C.F. Wright, 2019, p.66, *Towards a Durable Future: Tackling Labour Challenges in the Australian Horticulture Industry*, The Univerity of Adelaide

The job-related benefits of undertaking training (of those employed after training) perceived by AHC graduates are as follows:

**Figure 6: Job-related benefits of undertaking training (of those employed after training) (AHC)**




*Source: NCVER, VET graduate outcomes*

Despite recent improvements in NCVER data[128], there are many areas in which a higher level of detail would facilitate more nuanced analyses. For example, future data releases on graduates could include data so that they can be assessed according to variables such as their Training Package qualification and 'student remoteness region' to allow comparison of outcomes in major cities, regional and remote areas.

As described above, some units (e.g. *AHCCHM307- Prepare and apply chemicals to control pest, weeds and diseases*) and qualifications (e.g. *AHC33016- Certificate III in Wool Clip Preparation*) satisfy regulatory requirements for chemical handling and machinery operation or enable applications for professional licenses.

# Cross-Sector Units

The AHC Training Package is one of the most significant in the Australian system. The industry sectors that it covers employ almost 350,000 people, with more than 53,000 program enrolments[129] serviced by 824 RTOs in 2018[130]. It is also one of the most complex and diverse Training Packages given that it must cater to an industry that experiences rapid technological advancements, changing product markets and climate ecosystems, new work methods, evolving global priorities and trade agreement opportunities.

The Agriculture and Production Horticulture and Amenity Horticulture, Landscaping and Conservation and Land Management IRCs have undertaken a novel approach to analysing and updating cross-sector units in the AHC Training Package by reviewing units based on their industry sectors. This method is strategically more efficient than non-sector-based projects as it sets out a framework for reviewing the entire Training Package on a regular basis (over a four to six-year period), ensuring that the overall currency of training is retained and that there are more timely responses to industry skills needs. The current plan is to review the results of current projects to ascertain the value of continuing with this approach and seeking improvements.

The Unit Sector approach identifies job functions that occur across multiple industry sectors, and therefore

[128] COAG Standing Council on Tertiary Education, Skills and Employment (SCOTESE) agreed to the introduction of mandatory reporting of nationally recognised training activity from 2014 onwards. Under this mandatory reporting, all Australian training providers (excluding those exempted by regulators) delivering nationally recognised training to students, either in domestic or in overseas locations, are required to report their training activity to NCVER.

[129] NCVER, 2019, *VOCSTATS: TVA program enrolments 2015-2018*

[130] training.gov.au, 2020, *Organisation / RTO search*, viewed March 2020 <https://training.gov.au/Search/SearchOrganisation?nrtCodeTitle=AHC&scopeItem=TrainingPackage&tabIndex=1&ImplicitNrtScope=True&orgSearchByScopeSubmit=Search&IncludeUnregisteredRtosForScopeSearch=False>

establishes where units can be applied across multiple relevant qualifications. Members of Training Advisory Committees, subject matter experts and public consultation participants will have a greater relationship with the range of sectoral units under review, with fewer only interested in one or a small number of units, as happens with the traditional project-based approach.

Furthermore, the Unit Sector approach enhances the chances of identifying unit duplication and obsolescence, and so recommendations for deletion or merging are likely to be forthcoming. Also, as the approach will take account of all the qualifications across which a sector's units appear, it minimises potential delays to unit deletions due to their appearing in qualifications beyond the project's scope.

Skills Impact, under the direction of the Environmental Sustainability Expert Panel, is also working on an Environmental Sustainability cross-industry project that may create new units or establish skills that can be embedded across existing units.

# Changes to Skill Requirements

As reported in the Skills Forecast and Program of Works 2019 – 2022, the IRCs intend to seek approval proceed with planned projects for 2020 - 2021:

- Year 2 Unit Sector approach
    - Cluster 1: Landscaping, including Parks and Gardens
    - Cluster 2: Broad Acre and Seed
    - Cluster 3: Dairy and Milk Harvesting
- Therapeutic Horticulture
- Animal Reproduction (formerly known as Pregnancy Testing and Artificial Insemination)

In addition, the Amenity Horticulture, Landscaping and Conservation and Land Management (AHLCLM) IRC is recommending projects to take place in 2020 – 2021 relating to:

- Addressing skills needs for the Rehabilitation of Mined Land
- Research relating to Indigenous Consultation for Annual Updates and Future Projects (jointly with the AWC IRC)
- Digital AgriTech

The APH IRC is currently reviewing work on a project related to Digital Agritech and may submit a case for change during 2020. This work may be accelerated as part of the response to the COVID-19 crisis.

**Rehabilitation of Mined Land**

**Overview**: Addressing skills through the establishment of a stream within existing qualifications and skill sets, utilising existing units from multiple Training Packages and new units.

Large mining companies recruit Environmental and Rehabilitation Specialists and Advisors as part of their remit contract. These roles may be supervised be university-educated Environmental Engineers; however, the field workers that perform rehabilitation tasks are most suited to VET-qualified employees. The responsibility for this work is often being left with Indigenous groups (including Indigenous Rangers), either by agreement or by default.

The new skills required by these employees are:

- Topsoil inventory and characterisation
- Erosion awareness and control
- Species selection for mined land
- Establishment of plant growth
- Fauna recolonisation

- Use of GIS
- Mine waste characterisation
- Airborne contaminants
- Cultural Heritage Awareness
- Waste Management
- Water / Runoff testing and management
- Ant Monitoring

The jobs in the rehabilitation of mined land largely occur in regional, remote and rural areas.

**Indigenous Research Project**

Overview: Undertaking research and consultation to address issues raised by the AISC as identified in this Annual Update, and to improve Training Package product development for improved outcomes for Indigenous people

The purpose is to undertake Research & Development work to improve long-term skills outcomes for Indigenous participants in the Australian workforce and the VET system, and create greater opportunities for industry, through more effective Training Package product development.

The IRCs have identified key project deliverables to be achieved during the first year of the project (recognising that any extension beyond the first year or any consequent work will need to be separately submitted for approval):

- Submission of a report with evidence addressing:
    - Qualification and skill set utilisation
    - Training outside of the national system
    - The need for current qualifications with low enrolments
    - Barriers to training, including to apprenticeships and traineeships, especially in remote and very remote communities
- Guidance developed with Indigenous organisations to initiate effective consultation for the future development of Training Package projects
- Identification of potential solutions acceptable to Indigenous organisations to improve training and employment outcomes in remote Indigenous communities which can be achieved through training package standards, and which are within the responsibilities of the Aquaculture & Wild Catch (AWC) and AHLCLM IRCs
- Guidance for a future project for VET training to help AWC and AHLCLM organisations develop joint ventures and commercial opportunities with Indigenous communities and organisations
- Recommendations from the Indigenous communities and organisations relating to the potential for developing commercial, customary AWC and AHLCLM activities, including issues relating to the sharing of customary traditions and the opportunities that may exist to support development (focused on the skills and training needed to create outcomes) in areas such as fishing, conservation and land management (including fire)

It is anticipated that the deliverables will include useful information for a range of IRCs.

**Digital Agritech**

The agriculture industry is now facing challenges to quickly advance its workers' capabilities in utilising digital technologies, such as sensors and data analytics, and so convert insights on farm performance into productivity gains.

CISCO[131] predicts that, because many agricultural tasks are characterised as 'physical interactions' and 'monitoring and capturing information', many workers will be highly vulnerable to automation by 2030. Their analysis predicts a reduced demand for crop farm labourers and mobile farm plant operators because these jobs are largely routine and codifiable. Conversely, they forecast that the demand for gardeners will rise by 8%, as people in this occupation spend relatively more time on non-routine tasks such as thinking creatively and making human connections.

Expanding production and natural capital through automation and digital transformation cannot happen without concurrent skills development to enable these solutions to be implemented. CISCO expects that (re)training will be a crucial aspect of this:

> ***"As well as an overall reduction in headcount in agriculture, the rebalancing of demand for workers within the sector will lead to a significant reskilling challenge as new roles emerge. Our analysis suggests that more than half of the most likely talent pool to fill these vacancies (both from within and outside the sector) lacks some necessary skills, especially regarding monitoring, speaking and critical thinking. These skills are a core element of the available roles, meaning widespread retraining will be vital."[132]***

Nuffield Scholar, Bisi Oladele, asserts that evolving technologies do not necessarily make current workers redundant, but do require "skill shifts"[133] to adapt to new and augmented roles. As new methods become more embedded within operations, there will be a greater proportion of highly skilled employees in the agricultural workforce, including technicians and management, and there will be a growing emphasis on 'soft skills', such as leadership, communication and creativity. This will necessitate organisational changes for many companies, with potential redefinitions of job roles and internal culture. As a result, business analysts and management consultants are likely to be in high demand. Furthermore, there is likely to be more jobs in the supply chain, for instance associated with online retail, but these will not necessarily be situated on or near to farms.

There are numerous challenges presented in adapting to new skills requirements. As illustrated by Oladele[134], investing in change brings with it many uncertainties, not least during transitional periods. However, the rate and volume of change is projected to increase as more farmers witness evidence of others' investments in employees and technology bearing fruit.

**Turf Growing**

Feedback from turf growers this year has indicated an interest in access to skill sets based on the updated Sports Turf qualifications. Skill sets will be created using existing units only.

# Apprenticeship & Traineeship Barriers

Despite the strong employment prospects, apprenticeships and traineeships commencements have been in decline across Australia in all vocational sectors.

The Government of Western Australia[135] have identified barriers to the uptake of apprenticeships, including:

- Apprenticeships and traineeships are not widely promoted or understood by young people and the community.
- The VET sector is misunderstood and undervalued by the community, schools and employers.
- There is an absence of promotion and marketing of apprenticeships and traineeships in the wider community.

[131] CISCO, 2019, p.27, *Technology and the Future of Australian Jobs*, viewed February 2020 <https://www.cisco.com/c/dam/m/en_au/cda/cisco-future-of-australian-jobs-report2019.pdf>

[132] CISCO, 2019, p.28, *Technology and the Future of Australian Jobs*, viewed February 2020 <https://www.cisco.com/c/dam/m/en_au/cda/cisco-future-of-australian-jobs-report2019.pdf>

[133] O. Oladele, 2018, p.32, *Understanding Decision Making for Automation in Packhouse and Human Capital Requirement: Promoting career pathways in agriculture*, Nuffield Australia Farming Scholars

[134] *ibid.*

[135] Government of Western Australia, 2018, p.11, *Strategies to grow apprenticeships and traineeships in Western Australia*, State Training Board

- Young people need to receive quality career advice linked to labour market information.

The funding of VET influences the training being offered in industry sectors. Several state governments across Australia have established priority courses in areas of industry skills shortages for eligible candidates. A numbers of state government funding arrangements have changed, including withdrawing funding from some Certificate I or II qualifications, traditionally used as an introduction that exposes young people to the industry, while funding Certificate III and higher qualifications.

Many employers are having difficulties accessing funding for apprenticeships and traineeships due to:

a) The decreases in available funding or low incentives offered by the Commonwealth government

b) Increased requirements relating to reporting and administration

c) Having to meet RTO training requirements, especially dates for "out of workplace" training, which may not align with industry cycles

    i. Regional employers require greater flexibility, particularly around the scheduling of block release for apprentices.

d) Employers do not understand or are unaware of the training options available to them.

e) Lack of flexibility in apprenticeship and trainee models

f) Attracting young people into apprenticeships and traineeships.

There is a systemic issue requiring relevant bodies to support a different way of thinking about apprenticeships and traineeships. It is increasingly important as workplace models designed for major cities continue to fail in RRR areas and approaches similar to the "gig economy" and fee-for-service models are evolving and proving to be relevant in these areas.

Addressing this requires greater flexibility in concepts of supervision, workplace learning, self-directed learning and the nature of pathways to apprenticeships and traineeships. It may be that new models of funding need to be considered to provide support to learners to be distributed using a "crowd-share" approach to the entities providing "supervision" under the expanded model.

Many businesses are finding a reduced visibility for ongoing future demand for services and products with pipelines for work often less than three months. This is as a result of the rapidly changing economy and consumer preferences; incoming workflows are less secure and more volatile. This environment is not favourable to taking on trainees or apprenticeships with three to four-year learning programs.

# Other Relevant Activities

**National Farmers' Federation Report Card**

In October 2019, the National Farmers' Federation (NFF) released a report card[136] on progress towards its goal of $100 billion in farm gate returns by 2030. They forecast a modest decline in agricultural production, from about $60 billion to $59 in 2019-2020, due to widespread drought that affects mainly export commodities; yet income has remained relatively stable due to increased farm gate commodity prices. This report was produced prior to recent events affecting the industry in Australia, including the devastating bushfires and coronavirus.

NFF President Fiona Simpson said there have been significant gains made for sustainability and biodiversity but acknowledged areas requiring of more attention, including climate change, water and waste. The report acknowledges that "In an increasingly complex environment, the single certainty faced by Australian Agriculture is that 'business as usual' is no longer an option, and nor should it be." A major aspect of this agenda is skills development.

[136] National Farmers' Federation, 2019, *2030 Roadmap: 2019 Report Card*, <https://farmers.org.au/wp-content/uploads/2019/10/NFF_2030_Report_Card.pdf>

# Section B: Ongoing Consultation

Details of industry consultation undertaken by IRC members and Skills Impact, including with rural, regional and remote stakeholders will be included in the final document that is submitted to the Australian Industry and Skills Committee (AISC). Once submitted, the final document will also be published on the Skills Impact website.

# Section C: Proposed New Work

## 2020–2021 Project Details

## Project 1: Year 2 Unit Sector Approach

Cluster 1: Landscaping, including Parks and Gardens

Cluster 2: Broad acre cropping and seed production

Cluster 3: Dairy and Milk Harvesting

### Description

**Background/Overview**

This project continues the full review of the AHC Training Package outlined in the Skills Forecast and Program of Works 2019 – 2022. Full details relating to rationale and background were addressed in the submission in 2019, and will not be repeated here, given that the overall approach was approved by the AISC and Year 1 was authorised to proceed. This submission will focus only on matters relevant to the Unit Sectors to be addressed in Year 2.

The Unit sectors to be covered by the project during 2020 – 2021 are:

- Cluster 1: Landscaping
    - Landscaping AHCLSC (20 units)
    - Parks and gardens AHCPGD (20 units)
    - Design AHCDES (4 units)
- Cluster 2: Broad Acre and Seed
    - Broad Acre Cropping AHCBAC (29 units)
    - Seed Production AHCSDP (9 units)
    - Seed Processing AHCSDT (18 units)
    - Seed Testing AHCSPO (8 units)
- Cluster 3: Dairy and Milk Harvesting
    - Dairy AHCDRY (4 units)
    - Milk Harvesting AHCMKH (9 units)

In the 2019 – 2022 Skills Forecast, it was envisaged that a cluster covering Aboriginal-Sites Work AHCASW and Indigenous Land Management AHCILM would be covered during this period. The AHCCLM IRC, which has responsibility for these sectors, is recommending that this part of the review not proceed, while further work is undertaken relating to:

- The enrolment numbers in relevant qualifications, especially given the high enrolment rates in the relevant units of competency.
- The completion of work from Year 1 Unit sector approach, particularly relating to the Conservation and Land Management qualifications, which includes streams relating to Indigenous Land Management, to ensure that any issues relating to duplication can be addressed.
- Research and consultation relating to other issues related to Indigenous skills and training.

## Rationale

The rationale for taking a strategic approach to the review of the AHC Training Package, given its overall size and complexity, was fully outlined in the 2019 – 2022 Skills Forecast. The proposal is to continue the Unit Sector approach for Year 2 of the strategy.

**Project Aim**

The aim of this project is to review the existing units in the AHC Training Package to ensure current and future practices are identified and included in the AHC Training Package in a timeframe that ensures industry have timely access to updated and relevant skills.

**Key Drivers**

The key drivers for the Unit sector approach were outlined in the 2019 Skills Forecast.

**Skills and Knowledge Requirements**

Insert Information on Cluster 1: Landscaping

**Cluster 2: Broad Acre and Seed**

A number of units are developed on the grain trade standards and legislation. Grain Trade Australia oversees standards for wheat and coarse grain trade in the domestic and international markets and deliver a grain trader qualification.

**Broadacre Cropping**

The broadacre cropping vocational qualifications will give farmers and horticulturalists the ability to make informed decisions regarding production systems, the use of digital technologies to improve productivity and working with agronomists working as independent consultants or employed by retail-based companies.

Broadacre cropping (which includes cereals, oilseeds, lupins, sugarcane, legumes, hops, cotton, hay and silage) is an important Australian industry, contributing over $20 billion, or more than 50 per cent, of the gross value of agricultural production in 2009-10 (ABS 2011). According to national land use mapping, about 26.5 million hectares, or 3 per cent of the total area of Australia (Figure 1), was cropped in 2005-06 (ABARE-BRS 2010). Pasture production for animal grazing systems apply the same techniques to establish and maintain production and quality.

Improving soil condition is important to agricultural productivity and the quality of ecosystem services provided to the community from rural lands. Wind and water erosion, soil carbon rundown and soil acidification processes reduce the land's ability to provide clean air and water and productive soils, protect biodiversity and maintain the resilience of the landscape to climate change, whilst producing food and fibre.

**Seed Production (Certified Seed Production)**

Certified seed that has been produced to standards set down by Government in a quality assurance scheme. Seed certification is voluntary and adds value and marketability to the seed by documenting its genetic purity and physical quality.

The quality system is focused on maintaining the genetic identity of seed by ensuring the pedigree of certified seed (true to type) can be traced back to the seed originally developed by the breeder. A buyer of certified seed can be confident that the seed in the bag is true to label. A traceable pedigree is important because, although a farmer may choose a particular variety wisely, often the new cultivar cannot be picked by eye from other varieties growing in the paddock.

Certified seed is also grown and processed to meet a number of physical quality standards. These include purity of clean seed relative to chaff, dirt, etc; high germination, and a minimum of other crop and weed seeds.

**Seed Processing**

Seed processing or seed conditioning is the preparation of harvested seed for marketing to farmers. The processes involved include drying, threshing, pre- cleaning, cleaning, size grading, treating, quality testing, packaging and labelling.

Certified seed processing is a regulated sector, and only seed processors with a current authorisation agreement with Seed Services Australia (or other ASA accredited Certifying Agency) are eligible to process, label and sample certified seed.

Authorised Seed Processors agree to follow the procedures and standards as documented in the "Procedure Manual for Processors of Certified Seed" (also referred to as the Seed Processors Manual or SPM). Authorised Seed Processors are in general audited annually to ensure compliance.

- *Seed Certification Manual PIRSA*

**Seed Testing**

Seed testing is performed for a number of reasons, including research purposes or to determine if seed storage techniques are functioning. There are four tests most commonly done. For commercially sold seed, all four of these tests are done in dedicated laboratories by trained and usually certified analysts. The *tests* are designed to evaluate the quality of the *seed* lot being sold. In commercial settings, *tests* are usually made in either 200 or 400 seed samples. The following process is followed:

1. Germination *test* on the percentage of *seed* that germinated
2. Viability test that provides an early and quick snapshot of seed viability but is not a replacement for the more comprehensive seed germination test.
3. Purity test on the percentage of seed described on the label that is actually found in the quantity of seed.
4. Weed seed test will examines a sample of seed and identifies every seed that is different from the labelled seed kind.

**Cluster 3: Dairy and Milk Harvesting**

**Dairy**

The Dairy Industry is Australia's third largest rural industries and is located across the temperate and some subtropical areas of Australia. The industry has approximately 5700 dairy farmers producing over 9 billion litres of milk which is sold as fresh milk sales, milk powders, yogurts, butter and cheeses. The dairy industry directly employs approximately 42 600 people at dairy farms and dairy companies. Dr Davis Nation, Managing Director of Dairy Australia recently commented *"the dairy industry dependency on skilled labour will require more than 800 new employees on dairy farms by 2023."*

Over the last 20 years the family dairy farm model has changed to larger farms with expanding herd sizes. The farm workload has both specialised and increased. In fact, dairy farmers need more than 170 separate skills in 11 specialist areas to run a successful farm business. With this transition comes a consequent increased reliance on paid employees and the need for higher skill levels. Coupled with the rapid improvements of technology has seen industry uptake to increase labour saving inputs.

**Milk Harvesting**

Robot milking systems can be an efficient, high-welfare option for managing dairy herds. The initial infrastructure costs are high and a decision to invest must be carefully weighed up. Dairy farmers may also require significant upskilling to manage and operate the new milking technology.

On 1 January 2020, a new mandatory code for the milk industry was brought into force for the Dairy industry, and this code will need to be incorporated into existing training.

## Ministers' Priorities Addressed

**Obsolete and duplicate qualifications removed from the system**

The Unit Sector approach ensures clearer identification of duplication of unit/qualification outcomes and obsolete units/qualifications, ensuring they are deleted or merged with other units/qualifications. The approach minimises the potential for delay relating to deleting units caused by the needs of qualifications not within scope of a current project by reviewing units across qualifications.

**More information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed choices**

It is likely that there will be an easier pathway to correction of misalignment of units against the nominated AQF levels. The approach focuses the review on the job function relating to the unit, and aligns that function with the relevant AQF level, rather than trying to relate them to a number of specific qualifications. There is also a likelihood of greater flexibility in the context in which training is delivered, which can be outlined in relevant Companion Volumes.

**The training system better supports individuals to move more easily between related occupations**

The Unit Sector approach identifies skills needs to perform job functions that occur across multiple industry sectors. There is an increase in the likelihood of identifying job functions from a unit that can be applied across other relevant qualifications.

**Improved efficiency of the training system through units that can be owned and used by multiple industry sectors**

The Unit Sector approach will result in more efficient engagement of and use of the time volunteered by industry participants to consult on the review and redesign processes. Members of Training Advisory Committees, subject matter experts and public consultation participants will have a greater relationship to the whole of the units under review, with fewer only interested in a small number of units (or even individual units) as happens under the qualifications approach. Experts will not need to be brought in repeatedly (often annually) to provide their expertise as happens under the qualifications approach.

**Foster greater recognition of skill sets**

The approach will incorporate examination of new and emerging skills in the context of existing unit sectors, allowing the potential for improved identification of streams within existing qualifications or the utilisation of skill sets.

## Consultation Plan

The project will be undertaken by dividing the work into a number of sub-developments (from 3-5), with one IRC nominated to provide the overview management for each sub-development. Both IRCs will be consulted on the planning for sub-developments, including identification of relevant experts and stakeholders. Usually both IRCs will sign-off on the Case for Endorsement prior to submission.

For each sub-development, initial development work will be undertaken in consultation with relevant subject matter experts. Drafts changes will be created and reviewed by the experts. The drafts will then be made available for public consultation and feedback, with consultation sessions to be held around Australia. Following this, the final drafts will be validated through further consultation and Quality Assurance processes. The Case for Endorsement will be finalised and submitted to the IRCs for review and final approval, prior to submission to the AISC.

## Other Relevant Information

All AHC units were transitioned in June 2016 to meet the new standards and templates. This did not include review and updating to meet the changes in the way that work is undertaken and new/emerging job functions and roles.

The Unit Sector approach is based on reviewing all existing components over a four to six-year period.

## Scope of Project Overview

Overall timing: 14 months from delivery of signed Activity Order
Expected Date for Endorsement: Sept/ Oct 2021

**Key Activity Timing**

| Months | Activity |
|---|---|
| 1-2 | Project planning and briefing, identification of experts and consultation with IRCs |
| 3-5 | Workshops with subject matter experts including research and functional analysis |
| 6-7 | Development of draft documents in preparation for public consultation |
| 8-10 | Public Consultation |
| 11-12 | Review of public consultation and Equity Review |
| 12-13 | Validation and Quality Assurance, final consultation for STA |
| 14 | Approval of Case for endorsement to IRCs and submission to AISC |

## Summary of Components

| Training Package | AHC |
|---|---|
| Qualifications to be developed/revised: | - 14 qualifications to be reviewed<br>- Up to 30 qualifications to be updated<br>- Up to 10 qualifications to be deleted<br>- Up to 2 new qualifications to be created |
| Skillsets to be developed/revised: | - Up to 15 new skillsets to be created |
| Units of Competency to be developed/revised: | - 117 units to be reviewed<br>- Up to xxx to be updated<br>- Up to 12 units to be deleted<br>- Up to 5 new units to be created |

# Project 2: Therapeutic Horticulture

## Description

The project is for the development of new Skill Sets in Therapeutic Horticulture. The new Skill Sets will be designed to provide the needed skills and knowledge to provide services in this area of specialisation, either for health workers or those working in horticulture, looking to undertake work in this field.

The proposed skill sets will be comprised of existing units and two new units.

The proposed project will develop new units of competency and skill sets in therapeutic horticulture to meet the needs of emerging markets in Australia. The new skill sets will be designed to complement existing work experience and qualifications at Certificate IV level and higher. They will be specialisations associated with Landscaping, Horticulture, Allied Health, Community Services and Aged Care.

## Rationale

There is a burgeoning therapeutic horticulture industry in Australia, which has seen the level of work develop to the point where the industry now supports an industry association, the Therapeutic Horticulture Association. The association has set industry expectations used to determine membership, and members must have qualifications and experience in both health and horticulture. There is no course that offers skills in both industries and a skill set in therapeutic horticulture would provide practitioners to gain and show evidence of those extra skills.

There are a number of workers specialising in the area, however therapeutic horticulture is more often practised as a specialisation by workers undertaking other work, usually in landscaping, horticultural or health-related industries. Existing jobs in Occupational Therapy, Aged Care worker, disability coordinator, youth worker as well as practitioners in Landscape construction and Design and horticulturalists would benefit from specific skills

There is documented evidence on the benefits of horticulture on mental health and wellbeing and physical recovery. This can be in the form of exposure to a therapeutic garden or the act of actually gardening and realising the benefits of this. The Westminster School in South Australia commissioned a therapeutic garden which incorporated play areas for more engaged/extroverted kids and quiet space for introverted and autism spectrum students. Research conducted on the school showed that student engagement had risen and truancy had dropped.

Landscapers and horticulturists are being commissioned to build therapeutic gardens for schools and aged care facilities, which are designed to promote health outcomes.

The Amenity Horticulture, Landscaping and Conservation and Land Management (AHLCLM) IRC does not believe that there are sufficient job outcomes to support a qualification, and an analysis of the skills requirements specific to the industry have indicated that Skill Sets would provide the required training support, if there were two additional units of competency covering:

- Benefits of Therapeutic Horticulture on Health
- Identification of Therapeutic Plant species

Consultations have taken place with industry practitioners throughout 2019, to identify the skills that would need to be covered in developing a Skill Set. These skills are:

- Therapeutic benefits of greenlife
- Soils
- Plant Identification
- Irrigation
- Plant Physiology
- Landscape Design

- Garden Management
- Plant Production
- Environmental knowledge

As a result, the AHLCLM IRC believes Skill Sets can be developed consisting of combinations from the following units, which will be designed to suit different learner backgrounds:

- AHCPER215 Assist with garden soil health and nutrition
- AHCPCM303 Identify plant specimens
- AHCPCM301 Implement a plant nutrition program
- AHCNSY305 Prepare specialised plants
- AHCSOL301 Prepare growing media
- AHCIRG220 Assist with surface irrigation operations
- AHCDES502 Prepare a landscape design
- AHCPCM402 Develop a soil health and plant nutrition program
- AHCTHHXXX Benefits of Therapeutic Horticulture on Health
- AHCTHHXXX Identification of Therapeutic Species

## Ministers' Priorities Addressed

The proposed project addresses the following Ministers' Priorities:

**More information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed choices**

There is currently no information for industry, learners or product consumers on therapeutic horticulture, and the creation of Skill Sets will address this

**The Training system better supports individuals to move more easily between related occupations**

Therapeutic horticulture is related to numerous occupations, and the development of Skill Sets will help to create additional career pathways and additional work opportunities

**Foster greater recognition of Skill Sets**

The proposal is to create Skill Sets only, offering additional Skill sets to a number of occupations

## Consultation Plan

The AHLCLM IRC will oversee and guide the consultation, including identification of relevant experts and stakeholders. Initial development work will be undertaken in consultation with relevant subject matter experts. Drafts changes will be created and reviewed by the experts. The drafts will then be made available for public consultation and feedback, with consultation sessions to be held around Australia. Following this, the final drafts will be validated through further consultation and Quality Assurance processes. The Case for Endorsement will be finalised and submitted to the APH IRC for review and final approval, prior to submission to the AISC.

This project was included in the IRC Skills forecasts in 2018 and 2019.

In preparing the specific proposal, additional consultation has been undertaken with:

- Currently practising Therapeutic Horticulturalists
- Therapeutic Horticulture Australia
- Other practising Horticulturalists
- Kevin Heinze Grow
- Members of the Australian Institute of Horticulture

- TAFE NSW

## Other Relevant Information

There are no relevant qualifications or units of competency to be reviewed.

## Scope of Project Overview

This project is expected to be completed within 8 months from the date of signing of the activity order until submission to the department for consideration by the AISC.

### Key Activity Timing

| Months | Activity |
|---|---|
| 1 | Project planning and briefing, identification of experts and consultation with IRCs |
| 2 | Workshops with subject matter experts including research and functional analysis |
| 3-4 | Development of draft documents in preparation for public consultation |
| 5 | Public Consultation |
| 6 | Review of public consultation and Equity Review |
| 7 | Validation and Quality Assurance, final consultation for STA |
| 8 | Approval of Case for endorsement to IRCs and submission to AISC |

## Summary of Components

All work takes place in the AHC Training package

**Qualifications**
There are no qualifications to be reviewed or developed.

**Units of Competency**
There are two new Units of Competency proposed for development.

**Skill Sets**
Between one and three new Skill Sets will be created.

# Project 3: Animal Reproduction

## Description

The aim of this project is to review livestock units in AHC Training Package relating to animal reproductive practices, including impregnation techniques, pregnancy testing and birthing.

Manual diagnosis techniques to determine livestock pregnancy have been identified as work practices that can be modernised through the use of appropriate technology or procedures, including blood testing and milk testing in lactating dairy cows. Other animal reproduction practices to be included in the review include artificial insemination, embryo transfer of fertilised ova and semen collection.

Undertaking new pregnancy testing techniques has many advantages for producers, including the ability to re-breed sooner, identifying and selecting appropriate animals for specific breeding, and grouping animals accurately based on pregnancy status or anticipated due dates. This helps farmers plan to ensure that the required labour is available at birthing periods and enables the timely marketing of animals for sale. Farmers will also have the opportunity to decrease winter feeding costs and stop pregnant animals mistakenly being sent to abattoirs.

## Rationale

Ongoing implementation of new processes and technologies in the livestock industry helps to improve profitability, competitiveness and maintain a sustainable production system. Maintaining and improving production levels will require more skilled labour to fill skills gaps and meet the demand from employers. Continued demand for animal-based proteins from both the domestic market and internationally will place increasing pressure on farmers to use improved genetics in their breeding programs, including data-driven decision-making and more promptly determining non-productive animals so as to gain the most efficient production levels from the land available. This is particularly relevant to the outer pastoral and station country production systems.

The livestock industries are focussed on improving production strategically and efficiency. The NFF and associated members organisations are actively promoting that industry build its capabilities generally and those of employees specifically, while continuing to attract, train and upskill new entrants.

Access to appropriate training is an ongoing issue for Australian producers in remote and regional areas, and this presents challenges for RTOs when assessing the viability of training delivery. The agricultural industries encounter a number of barriers to training, not least if qualifications and units of competency are not representative of current and emerging practices. The units of competency included in this project will be reviewed to meet current industry need and practices.

## Ministers' Priorities Addressed

**Obsolete and duplicate qualifications removed from the system**

Qualifications/units of competency may meet one of the following criteria:

- Potential for deletion or amalgamation of units relating to livestock breeds' reproduction. If units are amalgamated there will be fewer units within the system, and the newly-developed units will reflect technological advancements (including skills for the adoption of new equipment and techniques, and adapting to changing product markets and trade opportunities).
- Reviewing qualifications that should be superseded, with the potential for reducing the number within the system by amalgamating multiple qualifications (that meet industry needs in light of technological advancements and the adoption of new equipment and techniques).

**More information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed choices**

In regional and rural locations, many jobs are undertaken by employees without formal training or qualifications. Most new entrants to the industry learn on the job and have little or no access to training unless they are prepared to leave their region to attend training at more centralised locations for extended periods of time.

**The training system better supports individuals to move more easily between related occupations**

The work proposed will enable learners to understand and apply modern animal reproduction methods and techniques flexibly across the agricultural sectors but also other industries that work with livestock.

**Improved efficiency of the training system through units that can be owned and used by multiple industry sectors**

The introduction of technological equipment (robotics/automation, advanced AI), associated with the Internet of Thing (IoT) and Industrial Revolution 4.0, will drive rapid productivity improvements in the agricultural industry, including many skills that are also currently being used in a range of other industries. This project has the potential for importing units relevant units from other Training Packages.

**Foster greater recognition of skills sets**

The proposed approach will include examining new and emerging skills in the context of existing unit sectors, allowing the potential for identifying streams within current qualifications or the utilisation of skill sets.

This project may consider replacing qualifications with skills sets that address demographic, social and economic challenges in regional and rural communities.

## Consultation Plan

The APH IRC will oversee and guide the consultation, including identification of relevant experts and stakeholders. Initial development work will be undertaken in consultation with relevant subject matter experts. Drafts changes will be created and reviewed by the experts. The drafts will then be made available for public consultation and feedback, with consultation sessions to be held around Australia. Following this, the final drafts will be validated through further consultation and Quality Assurance processes. The Case for Endorsement will be finalised and submitted to the APH IRC for review and final approval, prior to submission to the AISC.

Industry Sectors to be consulted during this project include:

- Cattle (Dairy, Beef, Feedlots)
- Sheep
- Pigs
- Alpaca
- Goats
- Chickens

## Other Relevant Information

The units of competency in the proposed project were included in a 2016 project to update units according to the new Training Package units template. Before this, the units were released in 2008 as part of the ACH10 Training Package.

- Northern Territory is currently funding skills sets that can include both endorsed, accredited and non-accredited units or subjects provided the skills set meets the vocational outcome.
- New South Wales: under the AgSkills Program
- Queensland's Department of Agriculture is funding skills sets. Organisations involved in the Rural Jobs and Skills Alliance are eligible to apply.

## Scope of Project Overview

This project is expected to take approximately 12 months to complete.

***Key Activity Timing***

| Months | Activity |
|---|---|
| 1 | Project planning and briefing, identification of experts and consultation with IRCs |
| 2-3 | Workshops with subject matter experts including research and functional analysis |
| 4-6 | Development of draft documents in preparation for public consultation |
| 6 - 8 | Public Consultation |
| 9 | Review of public consultation and Equity Review |
| 10-11 | Validation and Quality Assurance, final consultation for STA |
| 12 | Approval of Case for endorsement to IRCs and submission to AISC |

The aim of this project is to review the existing livestock units in AHC Training Package to undertake animal reproductive practices including impregnating techniques, testing and birthing practices.

## Summary of Components

| Training Package | AHC |
|---|---|
| Qualifications to be developed/revised: | - 10 qualifications to be reviewed |
| Skillsets to be developed/revised: | - Up to 4 new skillsets to be created |
| Units of Competency to be developed/revised: | - 19 units to be reviewed<br>- Up to 2 units to be deleted |

# Project 4: The Rehabilitation of Mined Land

## Description

Recent mine closures, especially across Northern Australia, have highlighted a skills gap in the current AHC qualifications for adequately training people to work effectively to rehabilitate closed mines. The Conservation and Land Management qualifications will benefit from a specialisation stream, and skill sets will be created to support this work.

**Rehabilitation services**

Industry operators undertake rehabilitation services at the end of a mine's operation, as mine operators must restore the land to pre-mine conditions or conditions laid down when mine was approved to comply with environmental regulations. This segment includes dozer seeding, drainage work, dam cleaning, sediment fencing, and irrigation supply. This segment also includes ongoing monitoring, remediation and reporting services that are necessary as part of state and federal regulations. This segment is typically counter-cyclical, as demand for rehabilitation services increases as mining establishments cease operations. Since 2013-14, the number of operational mining establishments in Australia has declined, increasing this segment's share of industry revenue over the past five years[137].

## Rationale

The Amenity Horticulture, Landscaping and Conservation and Land Management (AHLCLM) IRC identified a potential skills gap related to rehabilitating former mine site in 2018, and through 2019, guided consultations to identify any specific need for training. There is a burgeoning industry that surrounds the rehabilitation of mined land which ranges from environmental advisors working on a mine site to the production seeds that can survive in a land depleted of nutrients. Indigenous communities and Ranger groups are often involved in attempts to rehabilitate the land left behind after the closure of a mine.

Generally, the rehabilitation of former mining sites is required by legislation, regulation or operating/licensing agreements with government bodies. Mining companies' sites must rehabilitate the land they use after the mine closure and ideally rehabilitate areas progressively during the lifecycle of the mine site[138].

Large mining companies recruit Environmental and Rehabilitation Specialists and Advisors as part of their remit contract. These roles may be supervised by University educated Environmental Engineers however the field workers that perform the rehabilitation tasks are most suited to VET qualified employees. The responsibility for this work is often being left with Indigenous groups (including Indigenous Rangers), either by agreement or by default.

There are complexities to the rehabilitation of former mining sites. Mining sites are hazardous and not all hazards are removed on closure of the site. Structural ground issues can be encountered. There are also issues relating to contamination and rehabilitation of both soils and water. Topsoil is often depleted of nutrients and chemicals and heavy metals are left behind, giving rise to specialist nurseries, such as Nuts about Natives in WA, that propagate specific species that are hoped to thrive on rehabilitated mining sites. There is also a small-scale business to harvest native seeds for mine-site rehabilitation operating in Kakadu National Park[139].

The Centre for Mined Land Rehabilitation at Queensland University was able to provide guidance on the separation of work that should be covered through existing University level qualifications and the skills that can be delivered through VET. For example, decontamination of soils requires significantly more knowledge base than would be appropriate for Trade and Post-trade level qualifications. While higher level VET qualifications could be considered, the AHLCLM have concluded that this training is already suitably covered through current University offerings, and any VET qualifications would be unnecessary duplications.

[137] IBISWorld, 2019, *Industry Report B1090: Mining Support Services in Australia*

[138] Minerals Council of Australia, 2016, *Mine Rehabilitation*, viewed April 2020 <https://minerals.org.au/sites/default/files/Mine%20rehabilitation_Update%20AUG%202018_FINAL.PDF>

[139] CSIRO, 2014, p.92, *Biodiversity: science and solutions for Australia* <http://www.publish.csiro.au/ebook/download/pdf/6967>

The jobs in the rehabilitation of mined land largely occur in regional, remote and rural areas.

The skills that have been identified as required by workers are:

- Topsoil inventory and characterisation
- Erosion awareness and control
- Species selection for mined land
- Establishment of plant growth
- Fauna re-colonisation
- Use of GIS
- Mine waste characterisation
- Airborne contaminants
- Cultural Heritage Awareness
- Waste Management
- Water / Runoff testing
- Ant Monitoring

**Approach to development**

The AHLCLM IRC is recommending that the development approach is based on work currently being undertaken in the Year 1 Unit Sector Project.

The current project is redeveloping Conservation and Land Management qualifications with specialist streams. Given the use of current relevant units in Conservation and Land Management qualifications, it is recommended that:

- A stream in the updated qualifications as approved from the Year 1 Unit Sector Project be added for Mined Land Rehabilitation at a suitable level (likely to be trade Cert III or post-trade Certificate IV: only one stream to be created).
- Skill Sets be developed which would upskill existing qualification holders.
- Existing units should not be updated during this project, given review and updating is in progress, will take place in the Year 2 Unit Sector Project or have been recently updated.
- Expert participation be sourced through the Metalliferous Mining IRC.

***Current relevant units in AHC Training Package***

- AHCFAU201 Recognise fauna (currently under review)
- AHCFAU501 Manage fauna populations (currently under review)
- AHCNAR305 Collect native seeds (currently under review)
- AHCPCM402 Develop a soil health and plant nutrition program (currently under review)
- AHCPCM502 Collect and classify plants (currently under review)
- AHCPCM503 Specify Plants for landscapes (currently under review)
- AHCPCM301 Implement a plant nutrition program (new unit being developed)
- AHCPGD204 Transplant small trees
- AHCPGD301 Implement a plant establishment program
- AHCSAW301 Construct Conservation earthworks (currently under review)
- AHCSAW302 Implement erosion and sediment control (currently under review)
- AHCSAW401 Set out Conservation earthworks (currently under review)
- AHCSAW503 Plan conservation earthworks (currently under review)
- AHCSDT302 Identify Seeds
- AHCSOL401 Sample Soils and Interpret results (currently under review)
- AHCSOL503 Manage erosion and sediment control (currently under review)

- AHCASW301 Protect places of Aboriginal cultural significance

***Current relevant units that can be imported***

- RIICAR302D Rehabilitate small mine site
- RIICAR301D Rehabilitate exploration site
- MSS027018 Undertake complex environmental project work
- MARJ003 Ensure compliance with environmental management legislation
- SITTGDE008 Prepare specialised interpretive content on flora, fauna and landscape
- CPPSIS4038 Prepare and present GIS data
- PSPRAD002 Work safely with radioactive ores and minerals
- RIIENV202D Suppress airborne contaminants
- LGAPLEM612B Protect heritage and cultural assets
- RIIWBP501D Implement site waste and by-product management plan

***Potential New Units***

- AHCFAUXXX Monitor fauna populations
- AHCFAUXXX Plan fauna relocation
- AHCFAUXXX Conduct fauna relocation
- AHCRMLXXX Mine waste characterisation
- ACHMLRXXX Measure Ant life and soil health

## Ministers' Priorities Addressed

**Obsolete and duplicate qualifications removed from the system**

Qualifications are being reduced in the current Year 1 Unit sector Project and will also be reduced in the Year 2 Unit sector project when that commences. This project will not add any additional qualifications, and will add Skill Sets and a stream to an appropriate existing qualification. The project will avoid duplicating higher level qualifications already in existence outside of the VET system.

**More information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed choices**

The addition of specialist training in Mined Land Rehabilitation will provide training providers with a clear outline of industry's expectations in this field which is not currently available.

**The training system better supports individuals to move more easily between related occupations**

The project approach will encourage the movement of currently qualified workers into an additional specialist field, without affecting their ability to undertake work in current fields. In particular, it will allow currently qualified Indigenous workers in these areas to access training for additional skills and work opportunities.

**Improved efficiency of the training system through units that can be owned and used by multiple industry sectors**

The approach will incorporate current units in multiple Training packages and will limit the number of new Units to be developed.

**Foster greater recognition of skill sets**

The approach will create additional Skill Sets and improve recognition of the potential specialities available through upskilling.

## Consultation Plan

There has been extensive consultation to develop this Case for Change. While it was understood that there were issues relating to Mined Land rehabilitation, the AHLCLM IRC had to consider whether there was a training package solution that could assist to address these issues.

The Centre for Mined Land Rehabilitation provided guidance on the separation of work that should be covered through existing University level qualifications and the skills that can be delivered through VET. This was later confirmed in discussions with Natural Resource management organisations, particularly Rangelands and the NT NRM. The Kimberly Land Council and the Northern Land Council confirmed information about Indigenous communities and Ranger groups being asked to deliver services in this sector.

The AHLCLM IRC will oversee the process which will start with the identification and approval of Subject Matter Experts for the project. The Metalliferous Mining IRC will also be approached to nominate experts who have already worked directly with the rehabilitation of mined land and with training package projects, demonstrating their interest in training. This will ensure that the Minerals Council of Australia, the major employer body, will be aware of the project and may choose to participate.

## Other Relevant Information

The Conservation of and Land Management qualifications were reviewed in 2019 however the addition of a newly created specialisation stream in the rehabilitation of mined land was out of scope. The CLM units were reviewed from a standpoint that ecological restoration can be performed on any surface whether it be terrestrial, sea, riverbed, cliff face etc. so it is not envisaged that any existing AHC units will be updated as part of this project.

All states fund the Conservation and Land Management qualifications from the Cert II through to the Diploma. However, as far as can currently be ascertained, Skill Sets are only funded in NT and NSW.

## Scope of Project Overview

This project is expected to take approximately 12 months to complete.

## Key Activity Timing

| Months | Activity |
|---|---|
| 1 | Project planning and briefing, identification of experts and consultation with IRCs |
| 2-3 | Workshops with subject matter experts including research and functional analysis |
| 4-6 | Development of draft documents in preparation for public consultation |
| 6 - 8 | Public Consultation |
| 9 | Review of public consultation and Equity Review |
| 10-11 | Validation and Quality Assurance, final consultation for STA |
| 12 | Approval of Case for endorsement to IRCs and submission to AISC |

## Summary of Components

All work will take place in the AHC Training Package

**Qualifications**

- One qualification will be reviewed
- One qualification will be updated to include an additional stream
- No qualifications will be deleted
- No new qualifications will be created

**Units of Competency**

- 17 Units of Competency will be reviewed (technical review only, not updated for content

- No Units of Competency will be deleted
- Up to 5 new Units of Competency will be created

**Skill Sets**

- Between one and five new Skill Sets will be created

# Project 5: Indigenous Consultation for Annual Updates & Future Projects (Research & Development Joint Project)

Submitted on behalf of:

- Aquaculture and Wild Catch Industry Reference Committee
- Amenity Horticulture, Landscaping, and Conservation & Land management Industry Reference Committee

Skills Service Organisation: Skills Impact
Skills Impact will work with one or more Indigenous Organisation partners to be agreed with the Department.

## Purpose

To undertake research and development work to improve long-term skills outcomes for Indigenous participants in the Australian workforce and the VET system, and create greater opportunities for industry training and skills, including through more effective training package product development.

## Scope

- Identify potential solutions which create opportunities for increased Aboriginal and Torres Strait Islander participation in the workforce and build the capacity of Indigenous organisations to improve training and employment outcomes in remote Indigenous communities, which can be delivered in part through the *AHC Agriculture, Horticulture and Conservation and Land Management* and *SFI Seafood Industry Training Packages.*
- This work and its outcomes could be seen as a pilot for best practice for other sectors to benefit from.
- Develop evidence of current qualification utilisation, and employment of Indigenous people with and without VET qualifications, including the use of non-accredited and accredited training outside of training packages, and underlying reasons for usage.
- Identify current skills training outside the national system for the aquaculture and wild catch (AWC) and amenity horticulture, landscaping, and conservation and land management (AHLCLM) sectors and understand why it is used and trusted without it being linked to VET and national standards.
- Develop evidence relating to enrolments in specific Indigenous programs in the AHC Training Package, especially in the Aboriginal-Sites Work (AHCASW) and Indigenous Land Management (AHCILM) unit sectors.
- Work with Indigenous organisations to develop guidance to initiate effective consultation for future training package projects.
- Create guidance for future projects for VET training to help industry develop joint ventures and employment and training opportunities with Indigenous communities and organisations.
- Recommendations from the Indigenous communities and organisations relating to the potential for developing commercial, customary AWC and AHLCLM activities, including issues relating to the sharing of customary traditions and the opportunities that may exist to support development (focused on the skills and training needed to create outcomes) in areas such as fishing and land management (including fire).

## National Policy Project Drivers

**COAG Skills Council Terms of Reference Priority Actions, released October 2019[140]:**

- Ensuring VET programs and services strengthen opportunities for Aboriginal and Torres Strait

[140] Council of Australian Governments, 2019, *Council of Australian Governments Skills Council Terms of Reference*, viewed March 2020 <https://docs.employment.gov.au/documents/council-australian-governments-skills-council-terms-reference>

Islander learners to participate in the workforce and community and build the capacity of Aboriginal and Torres Strait Islander organisations.

**COAG Skills Council Vision for VET, approved in August 2019[141]:**

- Provides workforce skills and relevant, up-to-date qualifications that are well matched to the evolving opportunities and challenges of Australia's modern economy.
    - The IRCs note that "Australia's modern economy" includes the culture-based (or hybrid) economy which continues to develop nationally.
- Delivers high-quality education and training for all learners in recognition that VET and higher education are equally valued pathways into employment.
- Delivers positive opportunities and outcomes for all Australians regardless of geographic, social or personal circumstances. This includes access for learners in regional, rural and remote areas, and to foundational skills when individuals need them.

**COAG VET Reform Priorities, identified in September 2019[142]:**

- Accessibility: ensuring that all prospective learners and employers can access suitable information and training when and where it is required, including a specific focus on supporting access for disadvantaged Australians.

**Closing the Gap[143] Policies and Targets:**

- The national Indigenous employment rate target to halve the gap in employment outcomes between Indigenous and non-Indigenous Australians within a decade (by 2018).
    - The IRCs note the employment rate for Indigenous Australians has remained stable over the past decade in spite of new approaches, including Training Package development.
- The target to halve the gap for Indigenous Australians aged 20–24 in Year 12 attainment or equivalent by 2020.
- Addressing the main points of reform from the Coalition of Peaks: Developing formal partnerships between communities and the government at all levels; growing Aboriginal and Torres Strait Islander community-controlled services; and improving mainstream service delivery.
- Meeting the new framework for Closing the Gap which includes enabling more community control and embeds shared decision-making.

## Industry Project Drivers

- Improving Australia's productivity by identifying delivery options for Training Package products that support the multiple industry strategies developed in the last five years, including those arising from the Productivity Commission and national, state and territory government strategies.
- The creation of opportunities to develop enterprises, partnerships or agreements with Indigenous organisations and businesses, and within areas covered by Native Land and Sea Titles and Claims.
- The establishment of sustainable operations in Indigenous and isolated communities where there may be significant impacts on the economic health and training opportunities for local communities.
- Addressing enrolment rates in qualifications, including those designed for Aboriginal and Torres Strait Islander people and ensuring up-to-date training for the culture-based economy.
- The development of larger and more stable workforces in regional, rural and remote Australia.

[141] Council of Australian Governments, 2019, *Council of Australian Governments: Vocational Education and Training (VET)*, viewed March 2020 <https://www.coag.gov.au/sites/default/files/communique/vision-for-vocational-education-and-training.pdf>
[142] Council of Australian Governments, 2019, *Communiqué for the COAG Skills Council Meeting*, viewed March 2020 <https://docs.employment.gov.au/system/files/doc/other/skills_council_-_20_september_-_communique_20_sept_final.pdf>
[143] Australia Government, 2020, *Closing the Gap Report 2020*, viewed March 2020 <https://ctgreport.niaa.gov.au/sites/default/files/pdf/closing-the-gap-report-2020.pdf>

## Not Business as Usual

This project will need additional support and does not come within the standard operating environment for IRCs and SSOs because:

- All available evidence collected over the last decade demonstrates that the "business as usual" approach is not working effectively enough for Indigenous people, especially those in remote and very remote communities.
- The current standards for the development of Industry Skills Forecasts and training package product do not appropriately allow for the enabling of greater community control or embed shared decision-making, critical elements identified in the updated Closing the Gap framework.
- The current standard scope of work for IRCs and SSO (other than those related to cross-sector projects) are designed for the purposes related to the skills needs of specific individual industries.
    - While the IRCs recognise that a cross-sector project may be an option, the IRCs believe such a project would be too broad to be successfully undertaken in a timely and effective way, given the multiple issues and difficulties that apply to cross sector projects and in this space.
    - The IRCs are looking to create long-term outcomes by identifying and implementing actions that can be more quickly tested for delivery of industry skills needs within the AHLCLM and AWC sectors (in line with design thinking, agile, LEAN and similar approaches).
- Governments and government bodies, including the AISC and NCVER, have devoted very significant resources to addressing the issues relating to the Indigenous workforce, and there is a need to find ways to improve outcomes through increased industry involvement and partnership development.

## Proposed Project Deliverables

The IRCs have identified key project deliverables to be achieved during the first year of the project (recognising that any extension beyond the first year or any consequent work will need to be separately submitted for approval):

- Submission of a report with evidence addressing:
    - Qualification and skill set utilisation
    - Training outside of the national system
    - The need for current qualifications with low enrolments
    - Barriers to training, including to apprenticeships and traineeships, especially in remote and very remote communities.
- Guidance developed with Indigenous organisations to initiate effective consultation that specifically meets the needs of indigenous communities as identified by indigenous representatives for the future development of Training Package projects.
- Identification of potential solutions acceptable to Indigenous organisations to improve training and employment outcomes in remote Indigenous communities which can be achieved through training package standards, and which are within the responsibilities of the AWC and AHLCLM IRCs.
- Guidance for a future project for VET training to help AWC and AHLCLM organisations develop joint ventures and commercial opportunities with Indigenous communities and organisations.
- Recommendations from the Indigenous communities and organisations relating to the potential for developing commercial, customary AWC and AHLCLM activities, including issues relating to the sharing of customary traditions and the opportunities that may exist to support development (focused on the skills and training needed to create outcomes) in areas such as fishing, conservation and land management (including fire).

It is anticipated that the deliverables will include useful information for a range of IRCs.

## Description

The proposed project is to undertake research and consultation to maximise the chances of successful future Aquaculture and Wild Catch (AWC) and Amenity Horticulture, Landscaping, and Conservation and Land Management (AHLCLM) projects aimed at expanding productivity, employment and economic development opportunities, open new and emerging markets, improve training and job outcomes (particularly in remote areas

and Indigenous communities) and to upgrade industry skills in negotiations and partnerships with Indigenous business and community organisations in both the industry and training sectors.

## Rationale

Both IRCs acknowledge the importance of Aboriginal and Torres Strait Islander (Indigenous) involvement in the development of all aspects of their industries.

The Aquaculture and Wild Catch Industry Reference Committee submitted a similar project for consideration by the AISC in 2019, which was not approved for implementation. The IRC requested additional consultation through 2019 (see below) and continues to believe that this is an important project given national and local aspirations relating to aquaculture, wild catch and seafood, and the specific focus of government policies and Indigenous organisations on Aboriginal and Torres Strait islander involvement in these sectors. The need for additional work relating to the ways that work and training is undertaken for and in Indigenous communities has been identified during consultations on the Fishtech and Aquabotics, and Work with Crocodiles projects.

The Amenity Horticulture, Landscaping, and Conservation and Land Management Industry Reference Committee included the review of two unit sectors, AHCASW Aboriginal Sites Work and AHCILM Indigenous Land Management, as part of the unit sector approach to the review of the AHC Training package. In preparation for that project (and in the current review of the Conservation and Land Management qualifications), issues have arisen as to the use of qualifications, accessibility to training and the delivery of skills needs for Indigenous people and communities.

The AISC has issued new guidelines for Annual Updates to Skills Forecasts, which seek information, and specifically data and evidence, relating to:

- Qualification and skill set utilisation
- Training outside of the national system
- The need for current qualifications with low enrolments
- Barriers to training, including to apprenticeships and traineeships, especially in remote and very remote communities.

While there is a significant research base through the NCVER, government authorities, Indigenous organisations and research centres relating to Indigenous employment and education outcomes, these sources do not adequately identify solutions that can be implemented through the national Training Package system by industry, and are usually generic in nature rather than focused on industry segments, such as AWC and AHLCLM.

The importance of Indigenous involvement is not only reflected in industry experience and practices. In AWC, both the *2017 National Aquaculture Strategy*[144] and the *2017 Productivity Commission Inquiry Report into Marine Fisheries and Aquaculture*[145] highlight the mutually beneficial outcomes that can be achieved through improvements in relationships between industry operators and Indigenous communities. In November 2018, the Australian Government enacted legislation changing the Indigenous Land Corporation to the Indigenous Land and Sea Corporation, with a responsibility to help Indigenous groups with fishing licences, aquaculture and water allocations.

Critical parts of the Training Package covered by AHLCLM IRC are qualifications and skill sets related to the Indigenous Rangers, Indigenous Protection Areas, Aboriginal sites work, and Indigenous land management activities, including fire. In 2018, the Federal Government announced an extension of funding for the Indigenous Rangers program to support 123 ranger groups until 2021, with an estimated workforce of almost 3,000 Indigenous Australians (approximately 750 Full Time Equivalent). In *Sustainable Land Sector Development in Northern Australia*[146] it was noted that approximately half of Australia's conservation estate was made up of Indigenous Protected Areas. The combined funding for programs related to Indigenous rangers and Indigenous

[144] Department of Agriculture and Water Resources, 2017, *National Aquaculture Strategy*, Canberra, August.

[145] Productivity Commission, 2016, *Marine Fisheries and Aquaculture, Final Report*

[146] J. Russell-Smith, G. James, H. Pedersen & K. Sangha, 2018, *Sustainable Land Sector Development in Northern Australia Indigenous rights, aspirations, and cultural responsibilities*, edited by Sustainable Land Sector Development in Northern Australia Sustainable Land Sector Development in Northern Australia.

Protected Areas is more than $830 million extending to 2023. States and territories have supported complementary and additional programs. During the debate to recognise the work of Indigenous Rangers in Federal Parliament on 9 September 2019, it was noted that:

> "Rangers, due to their work, have high levels of wellbeing. Rangers use cultural knowledge and keep it strong. Rangers strengthen their communities. Rangers pass on knowledge to the next generation. Rangers learn and speak Aboriginal languages. Rangers' work is linked to individual rangers feeling healthier. Rangers are better off, their communities are better off, and the income is often shared. It is of national importance that we appreciate the role of these rangers in environmental protection across this nation. Whether it's in the large IPAs in the Central Desert or those on the coast, it's extremely important that the broader Australian community understands the value of First Nations ranger groups to this country. What they're doing is of benefit to all of us, and looks after and improves the national estate, and we should be very proud of them."
>
> [Member for Lingiari, NT]

## 2019 Consultation

During 2019, Skills Impact on behalf of the IRCs continued consultation work. The methods used included personal meetings, discussions with Indigenous organisations, attendance at conferences for both presentations and informal discussions, and feedback received through Indigenous involvement in current projects, including the review of Conservation and Land Management qualifications, and the Fishtech and Aquabotics and Work with Crocodiles projects. Reviews of available research are also undertaken to complement the consultations.

While preliminary observations can be made based on the consultations, it is clear to the IRCs that additional work, through this research project, is required to properly identify and implement evidence-based approaches. Some of the preliminary observations from completed consultations are:

- Education, training and skills are critical for young Indigenous people, especially those parts of the system that retain young people in formal education at least until Year 12 – school-based traineeships and apprenticeships structured appropriately for Indigenous learners are a critical part of retaining these learners in the formal education system.
    - There is a critical economic and social need for training and employment that keeps young Indigenous people motivated, engaged and occupied in worthwhile learning and jobs, especially those that can contribute to community wellbeing.
- There is a view and acceptance that employers are in the best position drive identification of skills needs and training requirements, as they are the only ones who can guarantee jobs, however industry are rarely achieving this within the context of work in and for Indigenous communities.
- Native Title currently covers about 55% of the Australian land and sea mass, and is likely to cover more than 90% within the next three years, providing the opportunity for communities and nations to do business and undertake commercial development and activities.
- As Indigenous communities finalise title processes and are able to focus more on economic development, they are also encountering the need to change the way work is being done (including by non-Indigenous service providers) and the skills being used on their land and sea, especially in relation to conservation, land management and fishing in parks and protected areas.
- The job roles and functions being proposed for Indigenous Rangers (who obtain qualifications through the AHC and SFI Training Packages) continues to expand, with proposals to try to include additional land management, fisheries, aquaculture, fire and community health responsibilities.
    - A related issue is that Indigenous Rangers appear to be asked to engage in additional training, however almost all of this training is at trade level (Certificate II and III) or skilling at similar levels through Skill Sets without pathways higher level qualifications, despite clearly expanding responsibilities and expertise.
- Issues related to access to water, both offshore and onshore, are of increasing concern for industry and communities, and may require both policy approaches and training related to innovative access

and delivery that comply with and respect the approaches of rights holders.

- Work in Indigenous communities is increasingly based on fee for service and gig economy approaches that may be more suited to local culture-based economies, and there is a need for different approaches to training access, support and delivery.
- There are an increasing number of schemes designed to support Indigenous people to live, be educated and obtain employment in cities and major regional centres, while remote communities and smaller regional centres are finding economic and skills development increasingly difficult, which may be resulting in reliance on local training which is not accredited, recognised outside the community, or quality-controlled.
- Working with and in partnership with Indigenous communities requires direct relationships, and this requires going to the communities first, to show respect and to establish trust – there is significant work to build relationships because of the history of broken promises and failure to deliver outcomes.

**Closing the Gap 2020**

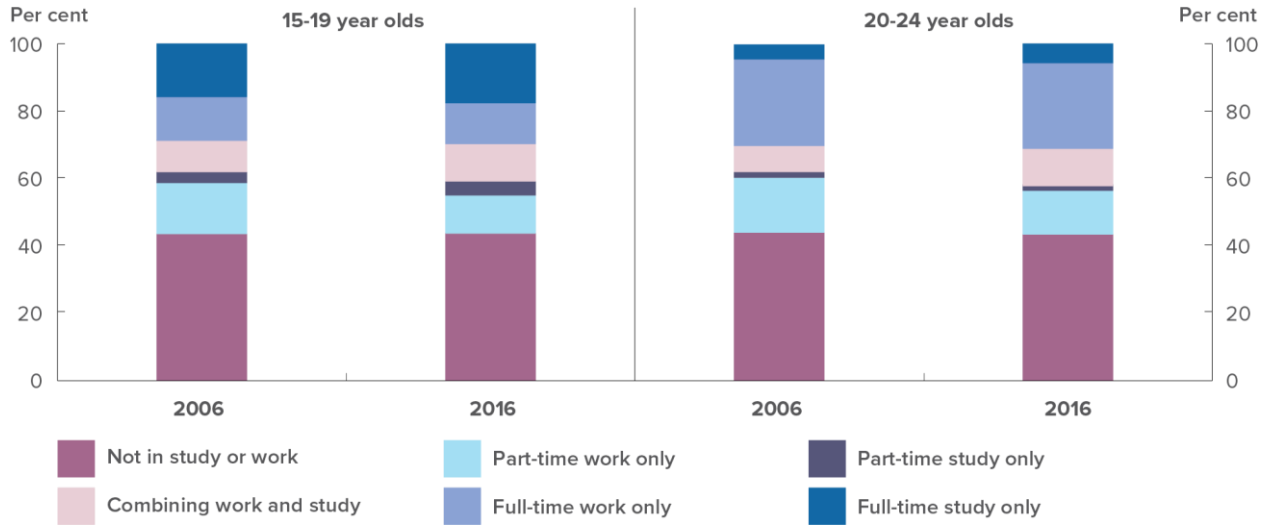
In 2020, the Prime Minister confirmed to the parliament that "The Closing the Gap framework is moving toward a strengths-based agenda—one that partners with Aboriginal and Torres Strait Islander people, enables more community control and embeds shared decision-making."[147] The framework is currently being further developed with the assistance of the Coalition of Peaks, the body consisting of representatives of Australian Indigenous organisations.

Findings of concern to the IRCs include:

- The national Indigenous employment rate has not improved against the target to halve the gap in employment outcomes between Indigenous and non-Indigenous Australians within a decade (which was scheduled to be achieved by 2018).
    - The target is listed as 'not on track' nationally in the 2020 Closing the Gap report, as in previous reports.
    - The largest gap was in Very Remote areas where the Indigenous employment rate was around 49 percentage points less than the non-Indigenous employment rate. The smallest gap was in Major Cities (around 15 percentage points).
    - The IRCs note that the employment rate for Indigenous Australians has remained relatively stable over the past decade in spite of changes to approaches, including Training Package development.
- Between 2012–13 and 2018–19, the gap for attainment of Year 12 or Certificate II or above between Indigenous and non-Indigenous Australians aged 20-24 widened in all areas, except for Major Cities.
- At best, there are limited improvements in Indigenous participation rates in education and employment over a decade, in spite of changes to policy settings, and slightly falling rates in full time employment over that period (potentially due, in part, to changing work patterns).

## Figure 7: Indigenous participation rates in education and employment Source

[147] Australia Government, 2020, *Closing the Gap Report 2020*, viewed March 2020 <https://ctgreport.niaa.gov.au/sites/default/files/pdf/closing-the-gap-report-2020.pdf>




*Source: Australian Government, 2018, Closing the Gap Report 2018, Chapter Four: Employment <https://www.pmc.gov.au/sites/default/files/reports/closing-the-gap-2018/employment.html>*

The Coalition of Peaks[148] have identified main points of reform as requirements for the framework:

- Developing formal partnerships between communities and the government at all levels
- Growing Aboriginal and Torres Strait Islander community-controlled services
- Improving mainstream service delivery.

The IRCs hold the view that industry has a critical role to play in all of these areas, given that there are currently and will continue to be partnerships between communities and government related to employment, skills and economic development.

## Barriers to Outcome Delivery

The IRCs recognises that there are very significant differences in approaches between industrial and Indigenous cultures, which have an impact in the VET sphere. For example, Altman and Fogarty[149] noted:

> "Education needs to be tailored to serve the livelihood aspirations of Indigenous people participating in a hybrid and intercultural economy… Rather than providing mainstream education for futures in the market (sometime called the 'real') economy, consideration also needs to be given to educational innovation to meet diverse vocations needs in the hybrid economy."

Delivering outcomes identified in the COAG Skills Council, Close the Gap and other national policy settings will require tailored training solutions that meet the needs of both the "real" economy and the "hybrid" economy. The information requirements outlined in the Annual Update for Skills Forecasts template by the AISC indicate the desire of the AISC to have greater understanding of the challenges.

There appear to be many issues from identification of skills needs through to training delivery, and it is clear that solutions need to be delivered, including those that can be achieved within the National Training Package Standards to meet overarching outcomes being guided by the AISC. While localised and tailored training delivery may produce better results to learners, there is a need to avoid entrenching disadvantage by failing to recognise achievement through a national qualification and by limiting graduate portability and mobility.

[148] Coalition of Peaks, 2019, *Aboriginal and Torres Strait Islander Community Engagement on Closing the Gap: Changing the way governments work*, viewed March 2020 <https://www.naccho.org.au/programmes/coalition-of-peaks/have-your-say/>

[149] J. Altman & B. Fogarty, 2010, Indigenous Australians as 'No Gaps' Subjects: Education and Development in Remote Australia, in I.Snyder and J. Nieuwenhuysen (eds.), *Closing the Gap in Education? Improving Outcomes in Southern World Societies*, Monash University Publishing, 109-128.

The IRCs would like to support the foundations for increasing Indigenous involvement in AWC and AHLCLM, and are considering projects that may support opportunities in areas such as:

- The development of enterprises, partnerships or agreements for activities within areas covered by Native Land/Sea Titles and Claims.
- The establishment of operations and remote operations centres in Indigenous and isolated communities where establishment may have significant impacts on the economic health and training opportunities for local communities.
- Commercial operations using customary methods to service markets through Australia and the Asia Pacific area.

Developing the opportunities to create the beneficial outcomes faces a number of barriers, including:

- Ensuring Indigenous involvement and "ownership" of projects for the greatest prospects of success.
- Addressing the results in remote Australian locations indicating high levels of non-completion of VET training through to qualification and the lack of connection between successful completion of training and employment outcomes[150].
- Addressing issues related to the delivery of training in remote areas, relating to both Indigenous VET and to meeting the needs of industry, especially those issues related to RTO availability and delivery.
- The difficulties for industries and Indigenous communities to obtain the information and skills needed to work together to create commercial and other opportunities.
- Addressing the lack of incentive for Indigenous students to participate in training in very remote areas where there is no labour market.

Previous consultative arrangements have been described as ineffective, including in the report into aquaculture by the Productivity Commission. Quoting the Northern Land Council[151], the report notes:

> "A number of participants considered that existing engagement is inadequate, and many Indigenous Australians are unable to participate in the design and implementation of fisheries regulations. While Indigenous Australians may be consulted on management decisions, 'frameworks for community engagement toward consent and decision-making processes remain strikingly absent'".

This means that there is already a cultural barrier that needs to be overcome to successfully consult with Indigenous communities on future Training Package projects. Further examples of barriers for Indigenous involvement includes commercial, regulatory and licensing arrangements, which are not aligned to traditional practices and requirements.

The Productivity Commission Report states[152]:

> "More fundamentally, experience in Australia has demonstrated that policy initiatives aimed at creating development and employment opportunities for Indigenous communities often fail because they do not incorporate the broader prerequisites for success. These include **closely involving the community in designing and implementing initiatives, as well as investing in education, training and broader capacity-building**." (emphasis added).

The same concepts are central themes running through guidelines and research relating to engaging with

[150] M. Ackehurst, R.-A. Polvere & G. Windley, 2017, *Indigenous participation in VET: understanding the research*, NCVER, Adelaide.
[151] Productivity Commission, 2016, p.179, *Marine Fisheries and Aquaculture, Final Report*.
[152] Productivity Commission, 2016, p.184, *Marine Fisheries and Aquaculture, Final Report*.

Indigenous communities, including principles for *Closing the Gap: Engaging with Indigenous Australia*[153], the Australian Government's guidelines for *Communicating with Aboriginal and Torres Strait Islander Audiences*[154], the National Health and Medical Research Council's guidelines for researchers and stakeholders for *Ethical conduct in research with Aboriginal and Torres Strait Islander Peoples and communities*[155], the Australian Institute of Aboriginal and Torres Strait Islander Studies' (AIATSIS) *Guidelines for Ethical Research*[156], Ninti One's *Aboriginal Knowledge and Intellectual Property Protocol*[157], the Australian Government's *Protection of Indigenous Knowledge in the Intellectual Property System Consultation Report*[158] and many other examples.

These themes can be seen in NCVER research[159] that has identified factors critical to positive and improved outcomes for Indigenous Australians from vocational education and training. The relevant factors are:

- Community ownership
- Trusting relationships and partnerships with communities
- Respect for cultural knowledge and capacity
- The utilisation of local capabilities and aspirations
- Culturally aligned policies and practices

Janet Hunt's paper for the *Closing the Gap Clearinghouse*[160] raises a particular issue of concern to the IRCs, when it identifies a factor that impedes success:

> "Hurried, one-off 'consultations' that are organised without **Indigenous input into their design, where the parameters for discussing the analysis of the problem and possible solutions are centrally determined and fail to take proper account of Indigenous aspirations, ideas of wellbeing, and social contexts**" (emphasis added).

From the perspectives of those working inside the National VET Training Package system, it may be seen to have significant flexibility. However, when trying to engage with outsiders to the system, there is a need to be open about the guiding frameworks, which include:

- COAG Skills Council Term of Reference, Vision and Strategies
- Ministers' priorities
- Training Package Standards
- IRC Operating Framework
- The extensive use of templates which must be completed to set standards

Particularly from the perspective of Indigenous communities, work done from these starting points may be seen as taking place in a system designed without Indigenous consultation and precluding consultation suitable for Indigenous communities. Any consultations may justifiably be seen as constrained by centrally determined parameters that limit involvement, ownership and solutions.

This may also lead to viewing any solutions as being designed with a one-size-fits-all approach. Cuervo, Barakat and Turnbull[161] identify many recent examples where the appearance of a one-size-fits-all approach failed. Even the use of terminology can cause issues: for example, the Queensland Government recommended the use of

[153] J. Hunt, 2013, *Closing the Gap: Engaging with Indigenous Australia - exploring the conditions for effective relationships with Aboriginal and Torres Strait Islander communities*.

[154] Australian Government, 2016, *Communicating with Aboriginal and Torres Strait Islander Audiences*

[155] National Health and Medical Research Council, 2018, *Ethical conduct in research with Aboriginal and Torres Strait Islander Peoples and communities: Guidelines for researchers and stakeholders*

[156] Australian Institute of Aboriginal and Torres Strait Islander Studies, 2012, *Guidelines for Ethical Research in Australian Indigenous Studies.*

[157] Ninti One, 2010, *Aboriginal Knowledge and Intellectual Property Protocol: Community Guide*.

[158] Australian Government, 2019, *Protection of Indigenous Knowledge in the Intellectual Property System Consultation Report*

[159] M. Ackehurst, R.-A. Polvere & G. Windley, 2017, *Indigenous participation in VET: understanding the research*, NCVER, Adelaide.

[160] J. Hunt, 2013, p.3, *Closing the Gap: Engaging with Indigenous Australia - exploring the conditions for effective relationships with Aboriginal and Torres Strait Islander communities*.

[161] Cuervo, Barakat and Turnbull, 2015, *Youth, belonging and transitions: Identifying opportunities and barriers for Indigenous young people in remote communities.*

the term “negotiation” rather than “consultation” to ensure Indigenous communities are reassured that contributions are important and valued, and will lead to practical results.

**From training to employment**

NCVER research in 2017[162] indicates that improved participation rates of Indigenous learners in VET, even as there are improvements at higher levels (Certificate III and above), are not necessarily translating into employment outcomes, and this disparity is more acute in remote areas.

There are many issues that impact on the school-to-work transition of young Aboriginal and Islander people. Indigenous communities have cultural contexts, social norms and strong kin-based networks that are very different to non-Indigenous experience, and the failure to recognise this has led to frustrations[163]. These issues have some recognised effects: when Indigenous youths move away from their communities into urban areas, they find it more difficult to get work because they lose their kin-based networks and have limited skills and capacities to create new networks (the work of the Clontarf Foundation demonstrates how addressing this issue leads to improved employment outcomes); in remote communities, job outcomes are often achieved without qualifications due to the lack of labour market, and completion of qualifications is diminished; on-site training outside of the community (short or medium term) can deny access to traditional homelands and be difficult to undertake without interruption for traditional purposes.

Employers working with communities have experienced these issues, and while they have tried to adjust training to suit local conditions and requirements, they are often unable to access RTO delivery, particularly for assessment and credentialing purposes.

The IRCs, through consultations and experiences, believe there are indications that there are employers keen to employ trained and competent graduates, and who would prefer to work in partnership with Indigenous communities to ensure recognition of achievement through national qualifications. However, this does not seem to be happening in practice, and there is a need to ascertain clearer evidence as to the reasons behind this apparent discrepancy.

## Changes in job roles, workplace or industry

Aquaculture and Wild Catch, and Conservation and Land Management are traditional activities of Indigenous communities. This is very different to most of the trades and industries in which VET training is offered, which were established in Australia post settlement.

AHLCLM and AWC industries are noteworthy and growing source of employment for Indigenous people, who already make up around three per cent of the labour force (higher than the general participation rate in the workforce).

AHLCLM and AWC operations often take place in remote areas and it is in the interests of the industry to ensure that issues with remote training, RTO delivery and thin markets are addressed. In addition to sharing these concerns with Indigenous communities, it is important for industry to ensure there are stable labour markets in remote communities to be able to service industry needs.

**AWC**

AWC has a complex and difficult operating environment.

As a starting point, AWC operations face the complexity of defining the rights to operate, not only in terms of the complex and restrictive regulatory environment identified by the Productivity Commission, but also in terms of territorial rights issues. Australia has legislative and judicial approaches to the identification and recognition of Native Land and Sea Claims under the Australian system, and also utilises Indigenous Land Use Agreements. Specific rights may vary depending on the natures of the claims and on whether claims cover land, intertidal zones, “sea country”, the contiguous zone and the exclusive economic zone. The Productivity Commission

[162] M. Ackehurst, R.-A. Polvere & G. Windley, 2017, *Indigenous participation in VET: understanding the research*, NCVER, Adelaide.
[163] Cuervo, Barakat and Turnbull, 2015, *Youth, belonging and transitions: Identifying opportunities and barriers for Indigenous young people in remote communities.*

recommends that Indigenous customary fishing should not be defined and limited by grants of Native Title or claims by specific Indigenous communities, but "should recognise all Indigenous Australians with a connection to sea country and a desire to engage in fishing activities in accordance with customary laws"[164].

Any sea rights may be further complicated by various agreements between Australia and Papua New Guinea, Timor Leste, Indonesia, the Solomon Islands and New Zealand.

As operating licenses expire, renewals may become more uncertain due to the changing territorial rights environment, as well as standard renewal issues relating to sustainability, environmental protection and market considerations.

There is a movement towards remote operation centres as a method of working. Distant operations can be centred in many locations, but the temptation will be to focus on urban areas with access to industry-ready labour, power supplies and technology channels. Urbanisation of AWC operations and labour markets could have devastating impacts on local economies, especially for Indigenous communities[165]. This project provides an opportunity to exchange information with Indigenous communities and to identify potential opportunities for both the communities and industry in the search for mutually beneficial outcomes.

The AWC IRC recognises through the experiences and consultations of members that the industry needs grounding and training to be able to identify potential issues. However, better results will almost certainly be obtained if risks are minimised by working cooperatively and at early stages with Indigenous communities and organisations. This is a driver for submitting the project at this time, to lay the groundwork for later success.

**AHLCLM**

The roles of the Indigenous Rangers, who predominantly hold qualifications in Conservation and Land Management, is continuing to expand as the success f the program continues to grow. Aboriginal and Torres strait islander communities continue to hail the success of the programs, which provide substantial employment opportunities on country in communities and are opening up new industry opportunities.

During the recent bushfire emergencies in Australia, there was increasing interest in the roles Indigenous people and methodologies play, and the potential for expansion of those activities, in conservation, land management and fuel reduction. It is likely that the forthcoming Bushfires Royal Commission will give further consideration to these possibilities in 2020, and there is an opportunity for this project to be in place to assist in quicker implementation of any recommendations that may arise.

In the Northern Territory, many Indigenous Rangers are being asked to undertake work relating to waters, especially relating to fishing operations and access. Various proposals have been put forward to extend responsibilities to animal care, and to community health activities related to hygiene in dealing with animals in areas where public health support is not available.

There is an increasing reliance on activities being undertaken in remote areas by local Indigenous communities, often on a fee for service basis. However, there is a lack of support in these areas for RTO delivery of training. More data and evidence are needed to fully understand these changes in the skills environment.

## Ministers Priorities Addressed

**Obsolete and duplicate qualifications removed from the system**

Most of the relevant qualifications in the AHC and AWC Training Packages have been developed by industry, but may be underused in Indigenous Communities. Some specifically Indigenous qualifications were developed and incorporated into the national system, to meet economic and social development needs of communities and to support implementation of national and local policy settings. It would be expected that Indigenous specific qualifications and training would have smaller participation numbers than many other qualifications, especially as most of these qualifications are designed for use in Regional, Rural and Remote Australia.

[164] Productivity Commission, 2016, p.171, *Marine Fisheries and Aquaculture, Final Report.*

[165] Productivity Commission, 2016, *Marine Fisheries and Aquaculture, Final Report.*

Enrolment numbers currently indicate that particular qualifications related to Indigenous programs, in particular Aboriginal Site Works and Indigenous Land Management, are being underutilised. While the qualifications have low enrolment numbers, the units of competency usually have good enrolment numbers, which may indicate issues relating to the outcomes of the qualifications or the packaging rules. However, this does not match expanding utilisation of Indigenous Rangers and the utilisation of Indigenous people in the development of major infrastructure projects. For example, a major infrastructure project in Queensland utilised state-based accredited training offered as a Certificate III in Indigenous Cultural Heritage Assessment (Indigenous Archaeological Foundations).

The IRCs are reluctant to recommend removal of Indigenous specific qualifications from the system without clear evidence that they are no longer serving industry need, government policy settings and community purposes, and being able to demonstrate clear alternative pathways and approaches.

**More information about industry's expectations of training delivery is available to training providers to improve service delivery and to consumers to enable more informed choices**

One of the important outcomes for the project is the development of guidance for industry to better develop partnerships with Indigenous communities relating to skills and training, and training for the development of commercial partnerships. To achieve this will require improved availability of information for industry, communities and learners.

**The training system better supports individuals to move more easily between related occupations**

There are indications that the availability of training is not keeping up with the movement of Indigenous people between related and unrelated roles in communities. This may lead to unsafe working environments and increased risks for communities that are already facing disadvantage. There will be collection of evidence and data related to the use of accredited and non-accredited training to support Indigenous workers moving between occupations.

**Improved efficiency of the training system through units that can be owned and used by multiple industry sectors**

The IRCs intend to work together to identify commonalities, and potentially training and approaches that may be suitable for other Training Packages, especially for industries operating in Regional, Rural and Remote Australia. The IRCs are very aware that work in Aboriginal and Torres Strait islander communities requires strong and trusting relationships, and that any approaches identified in this project will need careful re-examination before being applied in other contexts.

**Foster greater recognition of skill sets**

The research project will provide additional data, evidence and understanding of the training needs of Indigenous communities, especially in Regional, Rural and Remote areas. It will examine the use of accredited and non-accredited training, as well as at the use of Skill Sets as ways to extend the responsibilities of current workers, and the perceived lack of pathways to higher level qualifications.

## Research Project Plan

The IRCs will oversee the research. They recognise that consultations with Indigenous communities can be difficult and the use of "local voices" is encouraged to deliver and to receive information.

**The consultation and research process will include:**

- Qualification and skill set utilisation:
    - Collation and analysis of data using NCVER and other official resources.
    - Consultation with Indigenous RTOs and other RTOs delivering Indigenous qualifications to sense check official data and to identify reasons for use of qualifications and skill sets.
    - Consultation with employers working with Indigenous communities and supporting

employment programs on decisions related to employment and the use of qualifications for these decisions.

- Training outside of the national system:
    - Consultations with Indigenous organisations, Elders and community leaders as to other learning activities directly related to employment and skills (excluding cultural learning which can be applied in employment).
    - Consultation with Indigenous RTOs and other RTOs delivering Indigenous qualifications on training they are delivering outside the national system.
- The need for current qualifications with low enrolments:
    - Consultations with Indigenous organisations, Elders and community leaders on the economic and social importance of the relevant qualifications.
    - Consultations with State Training Authorities as to policies and approaches to supporting Indigenous VET, and specific actions taken to support and encourage Indigenous training in AHLCLM and AWC.
- Barriers to training, including to apprenticeships and traineeships, especially in remote and very remote communities:
    - Collation and analysis of data using NCVER and other official resources.
    - Consultations with Indigenous Organisations and employers on barriers.
- Joint guidance developed with Indigenous organisations to initiate effective consultation for the future development of Training Package Projects:
    - Collation and analysis of published research and official guidance.
    - Consultations with Indigenous Organisations.
    - Collection of successful case studies.
- Identification of potential solutions acceptable to Indigenous organisations to improve training and employment outcomes in remote Indigenous communities which can be achieved through training package standards, and which are within the responsibilities of the AWC and AHLCLM IRCs:
    - Submission of findings to IRCs and Indigenous organisations, and request for detailed feedback.
    - Validation process for potential solutions.
- Joint guidance to creating a future project for VET training to help AWC and AHLCLM organisations develop joint ventures and commercial opportunities with Indigenous communities and organisations:
    - Submission of findings to IRCs and Indigenous organisations, and request for detailed feedback.
    - Collection of successful case studies.
    - Validation process for potential guidance.
- Recommendations from the Indigenous communities and organisations relating to the potential for developing commercial, customary AWC and AHLCLM activities, including issues relating to the sharing of customary traditions and the opportunities that may exist to support development (focused on the skills and training needed to create outcomes) in areas such as fishing, conservation and land management (including fire):
    - Submission of findings to IRCs and Indigenous organisations, and request for detailed feedback.
    - Collection of successful case studies.
    - Validation process for potential guidance.
    - Submissions of specific Training Package product development projects.

Appropriately qualified researchers and Indigenous consultation specialists will be sub-contracted by Skills Impact to lead direct negotiations/consultations with Indigenous organisations and communities to help complete the identified Key Deliverables.

A variety of Indigenous businesses and experts will be approached to facilitate the project. They will be identified through Indigenous networks and stakeholders, including Indigenous Business Australia, and assessed for suitability based on Indigenous involvement in the ownership of the consultancy business/organisation (where

appropriate), involvement in previous projects involving Indigenous communities, and knowledge and understanding of the VET sector. It is expected that most people involved in the consultation will be from Aboriginal and Islander backgrounds and have an understanding of the importance of protecting traditional knowledge to maximise the potential for cultural and economic benefits for local communities.

The detailed plan for each Key Deliverable will need to be developed jointly with relevant Indigenous stakeholders, the sub-contractors and Skills Impact to ensure culturally appropriate approaches and ownership of the outcomes.

The IRCs note that the general approach to the VET Training Package development system is to encourage voluntary participation representing a part of the industry's 'in-kind contribution' to the operation of a robust VET system that underpins skilled and productive workforces. However, guidelines for research and consultation projects with Indigenous communities encourages payment to Indigenous participants, recognising that Indigenous knowledge and culture has value and should not be exploited.

IP Australia is continuing a similar long-term consultation project investigating formal options to protect the value of traditional Indigenous knowledge. In the *Protection of Indigenous Knowledge in the Intellectual Property System Consultation Paper*[166], IP Australia recognises that obtaining traditional knowledge (for example, customary fishing practices) has occurred without the value flowing back to the community sharing that knowledge, which undermines both local culture and economic opportunities.

The AIATSIS's *Guidelines for Ethical Research in Australian Indigenous Studies* (GERAIS) is identified in Janet Hunt's paper for the *Closing the Gap Clearinghouse* as the best standard for guiding Indigenous engagement projects. AIATSIS GERAIS Principle 11 states that Indigenous people involved with research should benefit from their involvement, and specifically states that applying this principle requires recognition "that certain cultural information is owned and may need to be paid for" [167]. The Institute further asks that researchers "Be prepared to pay those contributing to the research in recognition of the value of their contributions, particularly where significant time is given outside normal personal or community commitments". Janet Hunt presents a case study ('Local boards in the Northern Territory shires') in which one of the contributing factors to the failure of the scheme was that participants "were not paid to attend meetings as were shire staff, nor was lunch provided" [168]. A similar situation would apply where Skills Impact staff and contractors will be paid during this project.

The IRCs recommend that an allocation be made in the project costing to make payments to Indigenous participants for research and consultation in recognition of the imparting of traditional knowledge, where appropriate.

Skills Impact will undertake desk research and some additional direct consultations with stakeholders. Skills Impact will also engage with NCVER to ensure full access is available to the latest research that may prove beneficial to the completion of the project.

## Stakeholders

The AWC and AHLCLM Industry stakeholders are those identified in the Annual Update to the Skills forecast in 2020.

**Indigenous and Indigenous Training Stakeholders**

- Aboriginal and Torres Strait Islander communities, in particular Elders and learners
- Northern Australia Indigenous Land and Sea Management Alliance
- Northern Land Council and associated organisations
- Central Land Council and associated organisations

[166] Australian Government, 2019, *Protection of Indigenous Knowledge in the Intellectual Property System Consultation Report*

[167] Australian Institute of Aboriginal and Torres Strait Islander Studies, 2012, p.15, *Guidelines for Ethical Research in Australian Indigenous Studies.*

[168] J. Hunt, 2013, p.19, *Closing the Gap: Engaging with Indigenous Australia - exploring the conditions for effective relationships with Aboriginal and Torres Strait Islander communities*.

- State and Territory Indigenous Chambers of Commerce and equivalents
- Kinaway, Noongar Chamber of Commerce and similar local organisations
- Torres Strait Regional Authority
- South West Aboriginal Land and Sea Council
- Goldfields Land and Sea Council
- Carpentaria Land Council Aboriginal Corporation
- North Queensland Land Council
- Lockhart River Aboriginal Shire Council
- Kimberly Land Council
- Yamatji Marlpa Aboriginal Corporation
- Quandamooka Yoolooburrabee Aboriginal Corporation
- Ngalla Maya Aboriginal Corporation
- Cape York Partnership
- Australian Institute of Aboriginal and Torres Strait Islander Studies
- National Centre for Indigenous Excellence
- Batchelor Institute of Indigenous Tertiary Education
- Australian Indigenous Education Foundation
- The Lowitja Institute
- Stronger Smarter institute
- Clontarf Foundation
- Minderoo Foundation
- AIME (AIME Mentoring)
- Girls Academy (Role Models and Leaders Australia)
- Indigenous RTOs and Indigenous Engagement Officers at RTOs
- State and territory based Aboriginal Education Associations and Consultative Groups
- University-based Indigenous education centres, groups and institutes
- Australian Council for Educational Research
- Indigenous Business Australia
- Australian Indigenous Governance Institute

## Scope of Project Overview

Overall timing: 12 months from delivery of signed Activity Order.

## Key Activity Timing

| Months | Activity |
|---|---|
| 1 | Project planning and briefing, arrangements with sub-contractors, identification of experts and consultation with IRCs |
| 2-3 | Commencement of consultative research activities |
| 4-6 | Development of initial findings and report submission relating to qualifications, training outside the system et al, with identification of further work to consolidate data and evidence |
| 6 - 8 | Further consultation and development of joint guidance and solution products |
| 9 | Writing of final products and development of any consequent Cases for Change or Research Projects |
| 10-11 | Validation of prepared reports, guidance and solutions with IRCs and Indigenous Organisations |
| 12 | Approval of key deliverables for endorsement by IRCs and submission to AISC |

The project timing will need to be flexible and guided by participants.

## Summary of Components

**Key Deliverables**

Key project deliverables to be achieved during the first year of the project (any extension beyond the first year or any consequent work will need to be separately submitted for approval):

- Submission of a report with evidence addressing:
  - Qualification and skill set utilisation
  - Training outside of the national system
  - The need for current qualifications with low enrolments
  - Barriers to training, including to apprenticeships and traineeships, especially in remote and very remote communities.
- Guidance developed with Indigenous organisations to initiate effective consultation for the future development of Training Package projects.
- Identification of potential solutions acceptable to Indigenous organisations to improve training and employment outcomes in remote Indigenous communities which can be achieved through training package standards, and which are within the responsibilities of the AWC and AHLCLM IRCs.
- Guidance for a future project for VET training to help AWC and AHLCLM organisations develop joint ventures and commercial opportunities with Indigenous communities and organisations.
- Recommendations from the Indigenous communities and organisations relating to the potential for developing commercial, customary AWC and AHLCLM activities, including issues relating to the sharing of customary traditions and the opportunities that may exist to support development (focused on the skills and training needed to create outcomes) in areas such as fishing, conservation and land management (including fire).

**Funding Requirements**
To be submitted separately and remain confidential. Details will be arranged between the Department for the AISC, and Skills Impact as the SSO for the AWC and AHLCLM IRCs.

**IRC Sign-Off**
Signed on behalf of the Amenity Horticulture, Landscaping, Conservation and Land Management IRC

*[Sign-off]*

.....

Chair: Esther Ngang

**IRC Sign-Off**
Signed on behalf of the Agriculture and Production Horticulture IRC

*[Sign-off]*

.....

Chair: Geoff Harvey