Environmental Sustainability Expert Panel

Advice to the Australian Industry and Skills Committee

November 2019

Contents

1. Background to the Project

In 2017 the Australian Industry and Skills Committee (AISC) commissioned Skills Impact to facilitate a cross-sector project on Skills for Environmental Sustainability. The project was overseen by a Project Reference Group (PRG) comprising representatives nominated by Industry Reference Committees (IRCs). The project produced a Case for Change which proposed changes to training package units of competency to reflect current and emerging practices in environmental sustainability across multiple industries, and to reduce the duplication of units of competency that has arisen from a siloed approach to addressing these skills.

The cross-sector project challenge

The Case for Change did not articulate a process for achieving the proposed changes to training packages, which would affect many training packages and require the engagement and approval of dozens of IRCs. This challenge affects any 'whole of economy' cross-sector project.

2. Project Objectives

In 2019 the AISC convened the Environmental Sustainability Expert Panel to provide advice on how the Case for Change recommendations can be progressed and, more broadly, how industry and occupational skill needs for environmental sustainability can be addressed through the VET system.

Expert Panel members	**Cathy Phelps** C&J Phelps Consulting
	Mark Goodsell Australian Industry Group *Member of the Sustainability Industry Reference Committee*
	Ray Fogolyan Association of Building Sustainability Assessors *Member of the Property Services Industry Reference Committee*
	Nerida Kelton Australian Institute of Packaging
	Andrew Petersen The Business Council for Sustainable Development Australia *Member of the Sustainability Industry Reference Committee*

The Environmental Sustainability Expert Panel is responsible for reporting to the AISC on:

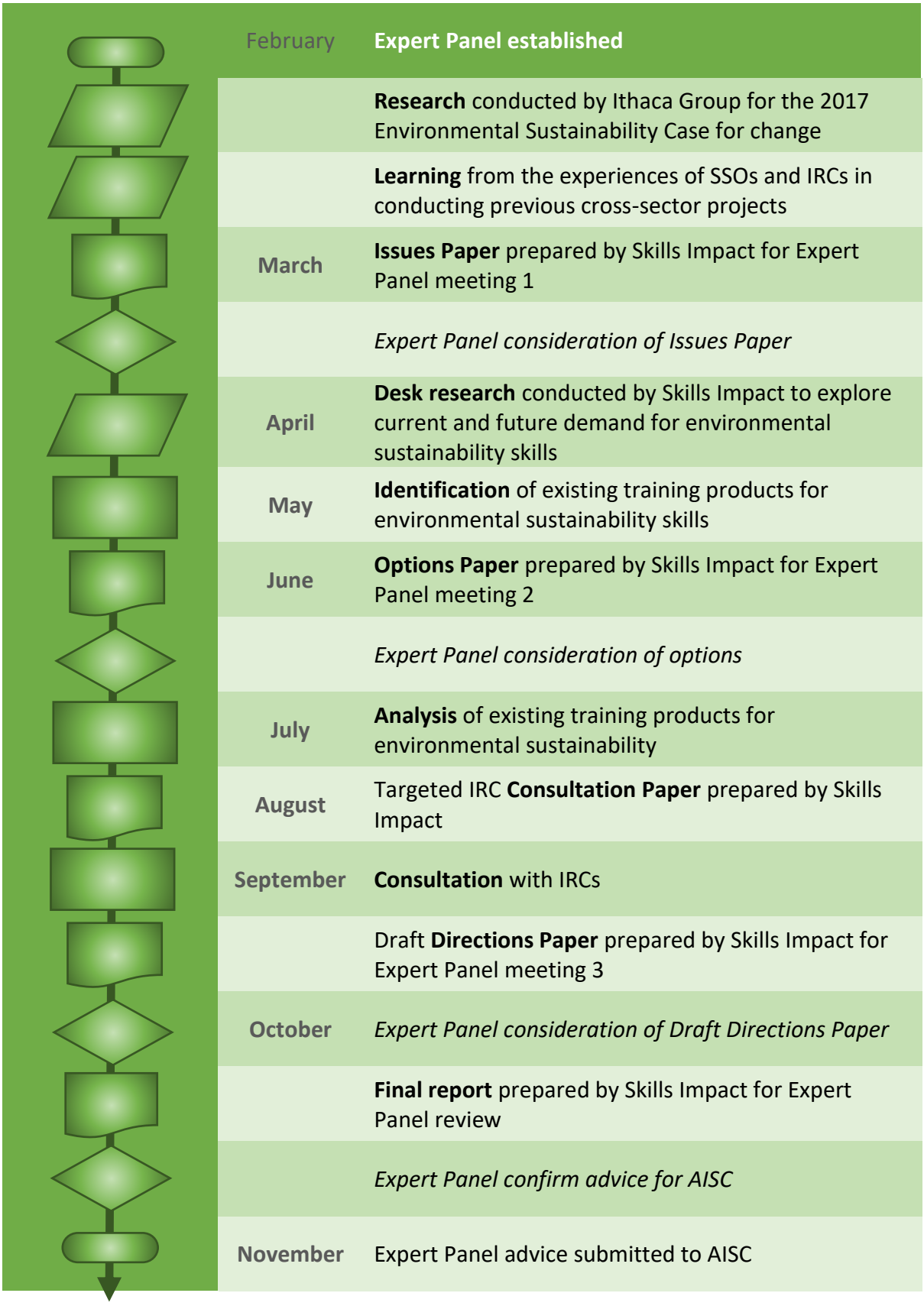
1. the extent of industry demand for environmental sustainability skills and appropriate whole-of-system approaches to the development of these skills in the Australian workforce
2. strategies for ensuring that stakeholders from existing and emerging industries have input into training product development and reform, including options for ongoing advisory arrangements to inform training system responses to environmental sustainability
3. rationalising training products through the development of a plan and processes to enable the progression of recommendations in the 2017 Environmental Sustainability Case for Change in accordance with industry need.

3. Project Methodology

The Expert Panel has drawn on desk research, training product analysis and consultation with IRCs to consider options for addressing environmental sustainability through the VET system. The training product analysis was undertaken using a prototype tool developed by the Department of Employment, Skills, Small and Family Business. Under the direction of the Expert Panel, Skills Impact worked with the Department to review the environmental sustainability content of current units of competency, using the tool to search the content of units of competency to identify units with identical, similar or related content.

Appendix A contains further information on the search and analysis process.

Project activity and progress is summarised in the flowchart below.



February	**Expert Panel established**
	Research conducted by Ithaca Group for the 2017 Environmental Sustainability Case for change
	Learning from the experiences of SSOs and IRCs in conducting previous cross-sector projects
March	**Issues Paper** prepared by Skills Impact for Expert Panel meeting 1
	Expert Panel consideration of Issues Paper
April	**Desk research** conducted by Skills Impact to explore current and future demand for environmental sustainability skills
May	**Identification** of existing training products for environmental sustainability skills
June	**Options Paper** prepared by Skills Impact for Expert Panel meeting 2
	Expert Panel consideration of options
July	**Analysis** of existing training products for environmental sustainability
August	Targeted IRC **Consultation Paper** prepared by Skills Impact
September	**Consultation** with IRCs
	Draft **Directions Paper** prepared by Skills Impact for Expert Panel meeting 3
October	*Expert Panel consideration of Draft Directions Paper*
	Final report prepared by Skills Impact for Expert Panel review
	Expert Panel confirm advice for AISC
November	Expert Panel advice submitted to AISC

4. Challenges

In preparing advice for the AISC on workforce skill needs for environmental sustainability, the Expert Panel has identified several key issues. Some of these issues are specific to environmental sustainability, others apply to all cross-sector activity in the VET system.

Challenges for addressing environmental sustainability through VET

Environmental sustainability is arguably the biggest challenge that the world is currently facing. Increasing market focus on environmental, social and governance (ESG) factors and their impacts on corporate governance and disclosure have been highlighted by the ASIC Commissioner. In a 2018 speech[1] the Commissioner warned that it is:

> *conceivable that directors who fail to consider climate change risks now could be found liable for breaching their duty of care and diligence in the future.*[2]

Recommendations developed by an international Taskforce on Climate-related Financial Disclosures (TCFD) have been adopted by a number of multinationals and listed Australian companies as a mechanism for reporting on the material financial impacts of climate-related risks and opportunities, including those related to the global transition to a lower-carbon economy. Creditors, investors, insurers and shareholders are increasingly demanding access to risk information and reporting that is consistent, comparable, reliable, and clear. Corporate governance and disclosure expectations, such as carbon auditing, will impact businesses in all industries.

Although the challenge presented by environmental sustainability is generally acknowledged at the local, national and global level, the Expert Panel notes that government responses are lagging behind. In the absence of strategic leadership, many organisations and industry sectors have pioneered their own solutions. Although environmental sustainability needs to become integral to all businesses and work activity, the drivers are different for different industries. The Expert Panel has identified three separate drivers for Australian businesses:

1. Investor pressure and consumer preferences
2. Environmental regulation
3. Development of a circular economy (and implications of the waste stream remaining onshore).

The diversity of drivers means that the workforce implications of environmental sustainability are not uniform across organisations, industry sectors or regions. Environmental sustainability requirements are exposing skills gaps and shortages in some industries, e.g. a lack of digital technology and data security skills in the agriculture industry is preventing the introduction of automatic collection of data for reporting on natural capital.

New workforce requirements

Employers and employees are experiencing a wide range of impact of environmental sustainability. In many industries, the workforce requirements build on existing skills and knowledge and will require upskilling for the existing workforce, as shown in the table below.

[1] Keynote address by John Price, Commissioner, Australian Securities and Investments Commission, Centre for Policy Development: Financing a Sustainable Economy, Sydney, 18 June 2018

[2] Noel Hutley QC and Sebastian Hartford-Davis, Climate Change and Directors' Duties, Memorandum of Opinion, 7 October 2016, cited by John Price, Commissioner, Australian Securities and Investments Commission, Centre for Policy Development: Financing a Sustainable Economy, Sydney, 18 June 2018

Impact of environmental sustainability on business activity	Required workforce skills and knowledge
• Compliance with industry standards, corporate financial responsibilities and requirements of global supply chains • Introduction of new technologies, processes, practices, materials • Opportunities to enter new markets or develop new products/services • Responses to consumer pressure/expectation • Climate risk mitigation • Minimising rising costs of energy and waste disposal • Creation of new economic models for natural capital that give monetary value to actions that benefit the environment	**Monitoring, reporting, accounting, auditing** of resource and energy use, waste generation, and greenhouse abatement measures **Testing, measuring, analysing** of inputs and outputs to monitor compliance, improvement and environmental risks **Technical skills and product knowledge** relating to renewable energy, battery storage, distributed networks, waste disposal, recycling, water treatment **Innovation, problem solving, market testing** to design and implement new products and services **Planning, communication, digital skills** to develop and/or adopt strategic responses

The role of VET

Many employers look to the higher education sector for environmental sustainability skills and knowledge. There has been a view from some levels of industry and government that environmental sustainability is a niche area that will be addressed by a handful of university-educated experts (scientists, engineers, designers). However, others see environmental sustainability as a fundamental principle that must underpin all human activity if our climate challenges are to be addressed. This view is supported by recent workforce experience where, rather than create discrete, new occupations, environmental sustainability is driving requirements for additional skills and knowledge in existing roles.

VET has a significant role to play as environmental sustainability begins to impact a wide range of occupations and work activities. Much of the change can be, and is being, addressed through incremental change to training products as new industry requirements are identified and incorporated into units of competency, qualifications and skill sets. Through the training package review process, IRCs can respond to new regulations, practices and technologies within their industries.

Existing training products

Training packages hold a wealth of units of competency that may be relevant across industry as new work functions emerge and job roles expand. The adaptation of existing units of competency for use in new industry contexts is an area of untapped potential for the VET system. For example, units of competency that describe knowledge and skills for monitoring, measuring, testing and auditing may be applicable across a range of industry contexts where requirements for environmental sustainability compliance and reporting are emerging.

Existing units of competency, qualifications and skills sets for environmental sustainability are already embedded within the national training system. However, an industry-siloed approach to the development and use of training packages means that there is some duplication of generic content and only limited application of skills and knowledge across industry boundaries.

Skill sets

Because the skills and knowledge for environmental sustainability are frequently seen as an extension to a current job role, skill sets provide an ideal solution for upskilling the existing workforce. However, government funding is not widely available for the delivery of skill sets due to a funding focus on the achievement of full qualifications. The delivery of skill sets can also have regulatory and viability barriers for registered training organisations (RTOs) due to the compliance costs of including disparate units of competency on the RTO's scope of registration and the thin markets associated with niche areas of demand.

System responsiveness

In the view of the Expert Panel, environmental sustainability is fundamental to all industries. However, environmental sustainability has been unevenly addressed in industry training packages with significant attention paid in some, and less in others where industry is disconnected from environmental management, e.g. Health, Retail. The uneven treatment of environmental sustainability highlights a challenge in the training package development process whereby product development responds to the priorities expressed by industry stakeholders. This system ensures that industry training reflects current industry practice but, depending on the level of future thinking of industry participants, it sometimes does not equip the VET system to respond to future pressure (from consumers and financial markets, if not from regulators) to address environmental sustainability issues.

There is a tension between having a VET system that supports current practice and a VET system that could be seen to drive change ahead of industry need. The Expert Panel has described the Australian VET system as 'looking in the rear vision mirror' due to its neccassry focus on funding the development of training products for skills with evidence of current occupational need. Across the globe, education and training systems are recognised as mechanisms for addressing the impact of global warming and preparing organisations and individuals for the sustainability demands of the future. However, the design and delivery of VET in Australia does not yet encourage whole-of-economy, future-focused outcomes.

Challenges for creating cross-industry solutions in the VET system

The development of VET training products responds to identified industry priorities through the work of approximately 70 IRCs. The focus of each IRC is neccassarily upon its own industry, which has made it logistically difficult to explore cross-industry solutions. Extensive consultation and engagement are required to gain widespread acceptance of skill standards that could apply across the whole economy.

The extent to which generic skills and knowledge can be transferred from one industry context to another is a central concern for cross-industry solutions. Most stakeholders agree that generic skills and knowledge must be contextualised during delivery and assessment to ensure that individuals are able to apply them in the relevant industry context. The need for contextualisation creates multiple issues within the VET system:

- RTOs may not be able to effectively contextualise the delivery and assessment of a generic unit of competency if the learner group includes individuals from multiple different industry

contexts. Additionally, the Expert Panel has observed that the VET system relies on trainers with minimal qualifications and expertise in training and assessment. Consequently, the VET workforce has limited capacity to effectively contextualise programs for the demands of a variety of industry environments.

- Advice on contextualising generic units of competency could be provided in training package companion volumes, but this material is not regulated by ASQA so RTOs would not be required to follow industry contextualisation advice for generic units.
- Individuals who achieve a generic unit in a specific industry context may not be capable of transferring their knowledge and skills to a new context, but funding is not available for them to repeat a unit already acquired.
- When a unit is achieved, any contextualisation associated with delivery is not recorded making it difficult for future employers to determine whether the work can be performed consistently with their industry expectations and context.
- Industry stakeholders are unwilling to forgo the quality assurance mechanisms afforded by specifying industry requirements within a unit of competency so that those requirements are regulated. As a result, almost-identical units have been created in multiple training packages with their packaging into industry-specific qualifications predominantly providing the context for industry-focused delivery and assessment.

Funding arrangements for the development and maintenance of training products are a further challenge to the adoption of generic units of competency. Skills Service Organisations (SSOs) and IRCs receive funding for training package development and maintenance based on the number of units of competency to be developed. Funding is not currently provided for the removal of duplicate units or the adoption of generic units even though these actions also require extensive industry consultation. While the rationalisation of units of competency is an objective of the COAG Industry and Skills Council, the current funding model does not support the work neccassary to carry out research and consultaiton on units that could be targeted for deletion.

5. Directions

By commissioning cross-industry projects the AISC is taking a future-oriented approach to identifying and addressing emerging workforce skill requirements. The Expert Panel regards this work as an opportunity for the Australian VET system to adopt a longer-term horizon for the consideration of workforce skills. Through the project, the Expert Panel has identified four interrelated areas where the AISC can demonstrate leadership on environmental sustainability and guide the VET system to deliver workforce skill outcomes that will be critical for Australian industry and society.

In the view of the Expert Panel, an appropriate cross-industry body will be required to take responsibility for progressing this work. Given structural changes currently underway in the VET system, the Expert Panel believes it is inappropriate to recommend the formation of a new IRC or cross-sector project reference group. Instead, during this transition phase for the VET system, the Expert Panel proposes that, it is best placed to continue working with IRCs to progress actions recommended in this report.

1. Industry Skills Forecasts

In the view of the Expert Panel, environmental sustainability has workforce implications for all industries. In some industries the implications are clearly apparent, such as for industries subject to

environmental regulation at a national (e.g. Water industry) or international level (e.g. Maritime industry). As would be expected, Industry Skills Forecasts (ISFs) for these industries already include a focus on environmental sustainability. However, there are many other industries where the Expert Panel believes that greater emphasis need to be placed on environmental issues and practices to meet current and future expections in this field.

Appendix B summarises environmental sustainability content in 2019 ISFs.

In responding to the Expert Panel's consultation paper, several IRCs identified the significance of environmental sustainability to their industry including its connection to ongoing commercial viability, market reputation, and social license to operate. Whilst the development of VET products is led by industry and reflects the skill needs identified by industry stakeholders, the Expert Panel proposes that environmental sustainability is of such economy-wide significance that efforts are needed to ensure it is prioritised and addressed in every industry.

Many 2019 ISFs report environmental sustainability as a challenge for their industry, however few provide advice on the implications for workforce skill requirements. Even where skill needs are identified, inconsistent approaches to reporting in ISFs make it difficult to identify similarities or overlap in skill needs between industries. As a result, the ability to distinguish potential cross-industry solutions from ISFs is quite limited.

Proposal

The Expert Panel proposes that the ISFs prepared by IRCs should use consistent approaches to reporting on environmental skill needs to enable the AISC to plan appropriate cross-sectoral responses. IRCs should be required to consider the industry impacts and workforce skill implications of three broad drivers:

1. investor pressure and consumer preferences
2. environmental regulation
3. development of circular economy (and implications of the waste stream remaining onshore).

To improve the consistency and comparability of information provided in ISFs, the Expert Panel proposes that a clear reporting framework should be developed to help IRCs to consider and report on workforce skill needs in relation to:

- waste management, recycling and resource recovery
- carbon/energy
- water and natural resource management, including biodiversity
- climate risk
- environmental stewardship.

Additionally, the Expert Panel proposes that the reporting framework should prompt IRCs to go beyond reporting on the status quo. Through the ISFs, IRCs can take a proactive approach to the transition of their industry to environmental sustainability by considering areas for improvement and exploring how the training system could enable and support those improvements.

To put this proposal into practice, IRCs will require:

- clear reporting guidelines
- access to environmental sustainability research, data and expertise
- adequate time for industry consultation.

2. Multi-sector units of competency

Although the project's consultation processes used the term 'generic units' to refer to units of competency with potential for use in multiple industries, the Expert Panel believes that this term is not helpful for conveying the industry relevance and transferability of the skills and knowledge contained within such units. Consultation with industry suggests that although skill shortages in many industries are prompting employers to look outside their own industry for skilled workers, 'generic' skills are not recognised by employers as valuable and relevant transferable skills for their industry.

The Expert Panel has chosen to instead use the term 'multi-sector' to refer to skill standards that can be used across industries and believes that this term better conveys the notion that the skills and knowledge can be applied in a variety of industry contexts.

Through unit analysis and consultation with IRCs, the Expert Panel has explored the purpose and current usage of existing units of competency that address environmental sustainability.

Appendix A describes the search and analysis process.

Based on this work, units relating to environmental sustainability have been divided into five categories, as follows:

- Industry specific but may have potential for broader use
  These units reflect the work practices and requirements of a specific industry. However, in some cases it may be possible for them to be applied in related industries (e.g. Maritime units may be applicable in the Seafood industry).
- Current cross-industry use
  These units are currently being used across multiple industries and may be suitable for even broader application.
- Potential cross-industry use
  These units have potential to be used in many industries beyond their existing uptake if there was greater awareness of their availability.
- Potential for replacement with a multi-sector unit
  These units have content that is similar across multiple industries and may be suitable for replacement with a multi-sector unit.
- Further investigation required
  The extent of industry-specific content in these units is unclear and requires industry consultation.

Appendix A includes an assessment of existing units of competency using these categories.

Assessment against the five categories has identified:

- 8 units that are already being used across multiple industries
- 59 units with potential for cross-industry use
- 29 units with potential for replacement with a multi-sector unit
- 49 units that are specific to an industry but may have potential for use in related industries
- 23 units that require further investigation to understand the extent of their industry-specific content.

The project's unit analysis and consultation with IRCs has highlighted several complex factors that contribute to whether units are regarded by their users and creators as industry-specific. Foremost

among these is that when most units are developed their writers assume they will be read in the context of their industry by users with industry knowledge. Through the training package development process, industry experts lead the development of skills standards and industry stakeholders provide feedback on draft materials. Training packages are therefore written for an industry audience using terminology that is understood within the context of their industry. Many terms that are used across a range of training packages have meanings and implications that vary widely between industries, e.g. terms such as: risk, hazard, waste.

It is possible for a reader from outside the industry to look at a unit of competency and not see the specific industry expectations that are implied. This situation does not represent a fault in the writing or development process, it is simply the result of an understanding that the units developed by industry will be packaged into industry qualifications with other industry units and delivered in an industry context. Determining whether an existing unit can be replaced with a multi-sector unit is therefore a complex decision that requires significant consideration and consultation by IRCs.

Another factor that contributes to the creation of industry-specific units relates to risk mitigation. There is concern in some industries about the potential need to defend the industry's training approaches in coronial inquiries. This can lead to a high degree of specificity in units.

Industry confidence in the capacity of the VET system to deliver the required skills and knowledge is another closely related factor. Greater specificity in units is used by some industries as a mechanism to safeguard against training provision that is not attuned to industry expectations.

These issues cannot be addressed solely through training package development processes. Their resolution will depend on fundamental changes to the VET system, including:

- recognition by employers and learners of the value and transferability of knowledge and skills between industry contexts
- workplace support for workers to transfer knowledge and skills from another industry context
- greater capacity of the VET workforce (trainers and assessors) to contextualise training and assessment for different industry contexts
- quality assurance processes to ensure that contextualisation reflects industry expectations and maintains compliance with unit requirements
- funding mechanisms that support the transfer of knowledge and skills to new industry contexts.

Proposal

The Expert Panel proposes that further cross-sector project work should be undertaken to raise awareness of units with potential for use across multiple industries, adapt further units for use across multiple industries, and collaborate with IRCs to replace existing units with multi-sector units where appropriate.

The lack of an 'ownership and maintenance policy' for cross sector skill standards has been identified by the Expert Panel, and by the Project Reference Groups (PRGs) for other cross-sector projects, as a potential barrier to the uptake of multi-sector units, qualifications and skills sets. The Expert Panel notes that this issue has been actively pursued by the PRG for the Cross Sector Supply Chain Skills Project, but has not yet been resolved in training product policy.

In addition to ownership issues, current funding arrangements for SSOs and IRCs tend to encourage the creation of industry-specific units of competency rather than the use of multi-sector units, or the

removal of duplicate units. Future funding support will need to acknowledge the workload inherent in:

- reviewing the extent of industry-specific content in existing units of competency to determine suitability for replacement with multi-sector units
- collaborating with other IRCs to ensure that multi-sector units are suitable for use across multiple industries
- developing and reviewing units of competency that are used in industry contexts beyond the scope of the home IRC.

3. Environmental sustainability qualifications

Environmental sustainability qualifications are currently available in the BSB Business Services Training Package and the MSS Sustainability Training Package.

Attachment D lists current sustainability qualifications.

The Expert Panel believes that these qualifications have scope to be applied in a range of industry contexts and their packaging rules allow the use of electives from other training packages where they are relevant to work outcomes. However, to date the uptake of the qualifications has been limited.

The 2019 ISF by the Sustainability IRC reported that industry consultations suggested that qualification uptake has been undermined by a lack of funding for delivery, with learners finding it difficult to access appropriate training. It was also suggested that some qualifications may not adequately align with current job roles in the sector. Work underway on the sustainable operations qualifications – encompassing corporate social responsibility, carbon auditing and energy management – is likely to improve the relevance and level of interest in these qualifications.

The Expert Panel received mixed responses from IRCs on whether there was scope to contextualise these qualifications for the needs of their industries. Responses from IRCs included views to the effect that:

- there would be value in raising awareness of the existing qualifications and contextualising them for the industry (Animal Care and Management; Business Services; Financial Services; Racing and Breeding; Transport and Logistics)
- the required environmental sustainability skills and knowledge are already included in industry-specific units and qualifications (Agriculture, Horticulture, Conservation and Land Management; Forest and Wood Products)
- the industry sources workers with environmental sustainability qualifications from the higher education sector (Water; Pulp and Paper Manufacturing).

Some IRC respondents identified areas of knowledge and skill that would enhance the currently available qualifications. These include:

- sustainable procurement
- marketing sustainability
- business requirements to integrate sustainability
- reporting to government
- efficiency measures and metrics for improving business performance.

Proposal

The Expert Panel proposes that developers of the existing qualifications should be supported to raise awareness of their availability by further exploring their potential for contextualisation with a range of IRCs. However, as with units of competency, current IRC and SSO funding arrangements do not encourage IRCs to adopt skill standards from outside their area of responsibility. IRCs responsible for qualifications with cross-industry applicability may require additional support to expand their industry consultation and engagement processes to achieve greater awareness of the available qualifications.

4. Multi-sector skill sets

The Expert Panel recognises that skill sets are valued by employers as a mechanism for responsive upskilling solutions in new and emerging industry areas. In the consultation with IRCs, the Expert Panel proposed that multi-sector skill sets would be valuable to support specific roles and tasks in environmental sustainability. Examples provided by the Expert Panel were: collecting samples, determining sample size, monitoring, auditing, data analysis and reporting.

Several IRCs agreed that there is a need for skill sets focused on environmental sustainability and supported the examples provided by the Expert Panel. However, one IRC noted that in their industry the tasks identified by the Expert Panel were undertaken by laboratory employees with training covered by the MSL Laboratory Operations Training Package.

Some IRCs reported that there would be no demand for generic skill sets in their industry because skill sets need to be task and role specific. However, some IRCs provided examples of required skills that may be effectively addressed through the development of multi-sector skill sets. Those suggested were:

- student pathways to higher education in specialised disciplines within environmental sustainability
- understanding and applying sustainability fundamentals for office-based workers
- site water management
- management of air quality and dust
- storage of chemicals, solid waste
- understanding the impact of chemicals on the environment, managing chemical residues and run-off
- grazing management for fragile ecosystems
- National Greenhouse and Energy (NGER) reporting
- fuel usage metrics and monitoring, fuel offset options
- use of alternative vehicle options and how to incorporate into fleet management.

One IRC respondent suggested that international standards relating to environmental management may provide useful guidance on content for environmental sustainability skill sets. (ISO 14000 Family – Environmental Management).

Sustainable sourcing and procurement has been identified by the Expert Panel as a current gap in training product offerings. Industry Skills Forecasts indicate that this issue has also been identified in several industry sectors in relation to ethical sourcing and compliance with modern slavery legislation. Units under development in the cross-sector project for Supply Chain Skills are expected to provide some coverage of these issues.

The Expert Panel has also identified the concept of natural capital as an emerging area of demand for workforce skills and knowledge that may be addressed through the development of a multi-sector skill set.

Proposal

The Expert Panel proposes that a suite of multi-sector skill sets should be developed to support workforce upskilling in targeted areas of environmental sustainability. Further consultation with IRCs is needed to determine the topic areas that will be of most value to multiple industries, and to consolidate information on developments with multi-sector potential that are already underway.

Decisions on where multi-sector skill sets are housed (e.g. within a specific training package or a cross-industry bank) will impact awareness and uptake by potential users. The location of the skill set also has implications for how easily RTOs can add it to their scope of registration.

The Expert Panel also notes that the usefulness of skill sets as a workforce development solution is hampered by current funding policies that emphasise the achievement of full qualifications.

6. Recommendations

In line with the terms of reference established for the Expert Panel, this report contains advice for the AISC in relation to whole-of-system responses to industry demand for environmental sustainability skills, rationalising training products in accordance with industry need, and ongoing advisory arrangements to inform training system responses to environmental sustainability. The Expert Panel's recommendations encompass:

- Actions that can be progressed by the AISC through current system architecture
- Advice on system architecture and policy issues that may feed into AISC and Department considerations within the current co-design process.

Actions that can be progressed through current system architecture

Within the current VET system architecture, the Expert Panel recommends that the AISC:

1. Require IRCs to report on the workforce skilling implications of environmental sustainability in their Industry Skills Forecasts.
2. Require IRCs to explore the availability of cross-industry units to meet their industry requirements for environmental sustainability skills when developing and reviewing units of competency, skill sets and qualifications
3. Establish funding or support mechanisms to enable IRCs to review and adopt multi-sector units for environmental sustainability and raise industry awareness of cross sector units of competency, skill sets and qualifications
4. Expand the Environmental Sustainability Expert Panel with representation from a wider range of industries and commission it to progress cross-sector work on environmental sustainability.

The Expert Panel recommends that the AISC should commission an expanded Environmental Sustainability Expert Panel, or other appropriate body, to:

5. Develop a reporting framework for environmental sustainability that can be introduced into Industry Skills Forecast requirements for IRCs
6. Work with responsible IRCs to understand and raise awareness of the potential applicability of existing environmental sustaibaility units for use across industries (for units listed in Appendix E)
7. Work with responsible IRCs to scope the development or adpatation of multi-sector environmental sustainability units that can be used to replace existing industry units (for units listed in Appendix F)
8. Engage with responsible IRCs to further investigate whether industry-specific requirements for environmental sustainability prevent the replacement of identified units with multi-sector units (for units listed in Appendix G)
9. Engage with the Sustainability IRC and the Business Services IRC, and others, to identify how existing environmental sustainability units and qualifications can be used more widely across industries

10. Lead work to scope the development of multi-sector skill sets for environmental sustainability.

Advice on system architecture and policy issues

In the context of the current co-design process, the Expert Panel advises that the AISC and the Department:

11. Design VET system architecture that actively supports collaboration across industries and the development of cross-sector units of competency, skill sets and qualifications
12. Establish training product development processes that will respond to emerging and future workforce requirements beyond current industry boundaries
13. Establish ownership and maintenance policies and mechanisms that will support the introduction and uptake of cross sector units of competency, skill sets and qualifications, e.g. through creation of a cross sector unit bank or repository
14. Establish consistent identifying features that will enable users to find units of competency, skill sets and qualifications that are applicable across multiplie industries, e.g. through changes to the unit template or coding
15. Remove funding and administrative barriers that hinder the uptake of cross sector units of competency, skill sets and qualifications, e.g. by simplifying the process for adding multi-sector units and skill sets to an RTO's scope of registration, and by funding the delivery of individual units and skill sets
16. Build the capacity of the VET workforce to contextualise cross sector units of competency, skill sets and qualifications through professional development and provision of guidance for RTOs and auditors.

7. Appendices

Appendix A: Unit search and analysis process

Appendix B: Summary of Industry Skills Forecast content

Appendix C: IRC consultation process

Appendix D: Current sustainability qualifications

Appendix E: Units with potential for cross industry use

Appendix F: Units with potential for replacement with a multi-sector unit

Appendix G: Units requiring further investigation

Appendix A: Unit search and analysis process

The project used a prototype tool developed by the Department of Employment, Skills, Small and Family Business to search the content of existing units of competency to identify units with environmental sustainability content that is potentially generic in nature. The search and cluster tool was developed by the Department during 2018 to help training system stakeholders by:

- identifying potentially redundant units, including functional duplicates and out-of-date material
- identifying opportunities for unit consolidation and sharing
- providing assurance that a suitable unit does not exist when a new one is proposed.

Skills Impact worked closely with the Department to use the search and cluster tool as an aid for identifying units of competency of interest to the project. This collaboration had multiple benefits for each party because it enabled:

- deep interrogation of 17000+ units of competency that cannot efficiently be conducted manually
- novel presentation of findings (through cluster diagrams) that engage and elicit feedback from stakeholders
- identification of connections and similarities between units that may not otherwise be recognised across industry boundaries
- testing and refinement of the tool through the provision of user feedback and insights
- greater understanding of how the tool can be used to inform future work and how its functionality can be maximised.

The search and analysis process involved the following steps:

- Key words were established to use as search terms for identifying units of competency with content relating to environmental sustainability. Perhaps counterintuitively, the term 'environment' does not help to refine unit searches due to the wide range of ways the term is used in units of competency (e.g. skills must be demonstrated in a work ***environment***). Searches were conducted in three areas of focus identified by the Expert Panel. Key words used for each of the searches were:
    - ALL: water; ANY: conserve, save, reduce, measure, monitor, efficiency, audit, minimise, sustainability
    - ALL: energy; ANY: conserve, save, reduce, measure, monitor, efficiency, audit, minimise, sustainability, carbon
    - ALL: waste; ANY: conserve, save, reduce, measure, monitor, efficiency, audit, minimise, sustainability, recycle
- In the first round, each of the searches returned more than 1500 units of competency. Further search cycles were conducted setting each of the ANY terms to ALL.
- Irrelevant units were manually removed, resulting in a list of 257 units from the three areas of interest:
    - Water – 99 units
    - Energy – 97 units
    - Waste – 138 units
- The tool's clustering algorithm was used to identify the extent of similarity between the units in each group.
- Purpose and usage information was compiled for each unit, including qualification packaging details and 2017 unit enrolments.
    - 86 of the identified units were packaged as a core unit in one or more qualification

    - 84 of the identified units had no enrolments in 2017
    - 74 of the identified units had more than 100 enrolments in 2017
    - 22 of the identified units had more than 1000 enrolments in 2017.
- Clustering and usage information was used to further refine the list of units for targeted consultation with IRCs. Through examination of qualification packaging, additional units were also identified for inclusion in IRC consultation.
- IRC consultation papers were prepared to seek advice on 167 units from 36 training packages.

Based on the search and analysis process, and consultation with IRCs, units relating to environmental sustainability have been divided into five categories as follows:

Category	Explanation
Industry-specific but may have potential for broader use	These units reflect the work practices and requirements of a specific industry. However, in some cases it may be possible for them to be applied in related industries (e.g. Maritime units may be applicable in the Seafood industry).
Current cross-industry use	These units are currently being used across multiple industries and may be suitable for even broader application.
Potential for cross-industry use	These units have potential to be used in many industries beyond their existing uptake if there was greater awareness of their availability.
Potential for replacement with a multi-sector unit	These units have content that is similar across multiple industries and may be suitable for replacement with a multi-sector unit.
Further investigation required	The extent of industry-specific content in these units is unclear.

Assessment of existing units based on unit analysis and IRC feedback where available

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
ACMSUS401	Implement and monitor environmentally sustainable work practices	8	0	0	FWPCOT3254 Implement environmentally sustainable work practices in the work area/work site TLIU3011 Implement and monitor environmentally sustainable work practices BSBSUS401 Implement and monitor environmentally sustainable work practices SFIEMS401 Implement and monitor environmentally sustainable work practices AHCWRK405 Implement and monitor environmentally sustainable work practices CPPCMN4002 Implement and monitor environmentally sustainable work practices	Willing to consider using generic units; IRC would need to provide contextualisation advice.	Potential for replacement with a multi-sector unit
AHCWAT301	Monitor and operate water treatment processes	3	0	0	RIIWMG402D Monitor and coordinate waste and process water treatment	IRC would consider replacing AHC units with generic ones. Advice on contextualisation would be useful. Existing level 3 AHC unit appears to be written for office job and does not adequately encompass working outdoors and supervising 2-3 other people. Unit needs serious review.	Further investigation required
AHCWRK202	Observe environmental work practices	2	1	738	UETTDREL13A Comply with sustainability, environmental and incidental response policies and procedures		Potential for replacement with a multi-sector unit

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
					UEGNSG140 Apply environmental policies and procedures in the utilities industry	Specific ag industry concerns include: soil, plants, fauna, water, waste, habitat, native species and purchasing products used for work.	
AHCWRK309	Apply environmentally sustainable work practices	26	7	3352	TLIU2012 Participate in environmentally sustainable work practices PPMSUS210 Apply sustainable work practices/policies		Potential for replacement with a multi-sector unit
AHCWRK405	Implement and monitor environmentally sustainable work practices	1	0	45	CPPCMN4002 Implement and monitor environmentally sustainable work practices SFIEMS401 Implement and monitor environmentally sustainable work practices BSBSUS401 Implement and monitor environmentally sustainable work practices TLIU3011 Implement and monitor environmentally sustainable work practices CPCSUS4001A Implement and monitor environmentally sustainable work practices ACMSUS401 Implement and monitor environmentally sustainable work practices		Potential for replacement with a multi-sector unit
AMPA2161	Operate waste recovery systems	1	0	5	SFIAQU301 Undertake effluent and waste treatment and disposal PMBWASTE302 Coordinate waste disposal	No response	Further investigation required

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
					TLID3051 Segregate waste according to waste types		
AMPMGT508	Manage environmental impacts of meat processing operations	2	0	14	AUMFMM002 Reduce waste in automotive manufacturing work processes RIIWBP601D Establish and maintain waste and by-product management system PMASUP520 Review procedures to minimise environmental impact of process		Further investigation required
AMPX208	Apply environmentally sustainable work practices	3	0	363	MARJ006 Follow environmental work practices AHCWRK202 Observe environmental work practices UETTDREL13A Comply with sustainability, environmental and incidental response policies and procedures UEGNSG140 Apply environmental policies and procedures in the utilities industry		Potential for replacement with a multi-sector unit
AMPX313	Contribute to energy efficiency	2	0	0	FWPCOT3263 Maintain and contribute to energy efficiency MSS015011 Conduct a sustainability energy audit		Potential for replacement with a multi-sector unit
AMPX410	Facilitate achievement of enterprise	2	0	0	CPPCMN4012A Contribute to sustainable solutions throughout a building's life cycle		Potential for replacement

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
	environmental policies and goals				MARJ007 Monitor environmental management on a vessel MEM50004 Maintain quality of environment by following marina codes		with a multi-sector unit
AUMFMM002	Reduce waste in automotive manufacturing work processes	1	1	0	MSTGN3007 Monitor and operate trade waste RIIWBP401D Apply and monitor site waste and by-product management plan	No response	Further investigation required
AURAEA001	Identify environmental and sustainability requirements in an automotive service or repair workplace	2	1	1067	No similar units	Generic units will fail to meet industry specific training requirements and will result in the need for additional industry specific units. Current units contain content that is specific to the automotive industry, e.g. vehicle wastes, coolants, oils, exhaust emissions, evaporative fuel emissions and tyres. These units are currently being delivered and assessed to a standard that meets industry needs. MTA can see no argument for replacing them with generic units.	Industry-specific but may have potential for broader use
AURAEA002	Follow environmental and sustainability best practice in an automotive workplace	49	42	25673	No similar units		Industry-specific but may have potential for broader use
AURAEA003	Monitor environmental and sustainability best practice in an automotive workplace	4	2	93	No similar units		Industry-specific but may have potential for broader use
AURAEA004	Manage environmental sustainability best practice in an automotive workplace	4	2	487	No similar units		Industry-specific but may have

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
							potential for broader use
BSBSMB308	Improve energy efficiency in micro or small business operations	1	0	0	No similar units	No response	Potential cross-industry use
BSBSMB410	Review and implement energy efficiency in business operations	3	0	12	No similar units		Potential cross-industry use
BSBSUS201	Participate in environmentally sustainable work practices	81	17	60568			Current cross-industry use
BSBSUS401	Implement and monitor environmentally sustainable work practices	74	13	24617			Current cross-industry use
BSBSUS402	Implement an environmental management plan	1	1	121			Potential cross-industry use
BSBSUS403	Measure, monitor and reduce carbon emissions	1	1	46	No similar units		Potential cross-industry use
BSBSUS404	Assess, implement, monitor and report on waste management	1	1	49	No similar units		Potential cross-industry use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
BSBSUS405	Assess, monitor and reduce water use	1	0	0	No similar units		Potential cross-industry use
BSBSUS406	Identify and apply sustainability rating tools	1	0	37	No similar units		Potential cross-industry use
BSBSUS501	Develop workplace policy and procedures for sustainability	90	8	20343			Current cross-industry use
CHCECE025	Embed sustainable practices in service operations	3	1	32597	No similar units	No response	Industry-specific but may have potential for broader use
CPCCBC4021A	Minimise waste on the building and construction site	13	0	1821	RIIWBP401D Apply and monitor site waste and by-products management plan RIIWBP501D Implement site waste and by-product management plan	No response	Industry-specific but may have potential for broader use
CPCCBC5012A	Manage the application and monitoring of energy conservation and management practices and processes	2	0	278	BSBSMB410 Review and implement energy efficiency in business operations MSS405086 Develop sustainable energy practices		Industry-specific but may have potential for broader use
CPCPPS5024A	Conduct a water audit and identify water-saving initiatives	4	1	55	MSS015028 Conduct a sustainable water use audit		Industry-specific but may have

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
							potential for broader use
CPCSUS4001A	Implement and monitor environmentally sustainable work practices	17	0	58	CPPCMN4002 Implement and monitor environmentally sustainable work practices AHCWRK405 Implement and monitor environmentally sustainable work practices BSBSUS401 Implement and monitor environmentally sustainable work practices TLIU3011 Implement and monitor environmentally sustainable work practices ACMSUS401 Implement and monitor environmentally sustainable work practices FWPCOT3254 Implement environmentally sustainable work practices in the work area/work site RIIENV302D Apply environmentally sustainable work practices		Potential for replacement with a multi-sector unit
CPCSUS5001A	Develop workplace policies and procedures for sustainability	5	0	1184	CPPCMN4001 Develop workplace policies and procedures for sustainability TLIU0001 Develop workplace policy and procedures for environmental sustainability		Potential for replacement with a multi-sector unit
CPPBDN5005A	Recommend sustainability solutions	1	0	0	No similar units	CPPBDN5005A is being redeveloped as CPPBDN5109 (an elective unit in the Diploma of Building Design) and may be	Industry-specific but may have

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
	for small-scale building design projects					suitable for future expansion to encompass wider and more diverse sustainability solutions.	potential for broader use
CPPCMN4001	Develop workplace policies and procedures for sustainability	1	1	55	CPCSUS5001A Develop workplace policies and procedures for sustainability TLIU0001 Develop workplace policy and procedures for environmental sustainability		Potential for replacement with a multi-sector unit
CPPCMN4002	Implement and monitor environmentally sustainable work practices	5	0	453	AHCWRK405 Implement and monitor environmentally sustainable work practices BSBSUS401 Implement and monitor environmentally sustainable work practices TLIU3011 Implement and monitor environmentally sustainable work practices CPCSUS4001A Implement and monitor environmentally sustainable work practices ACMSUS401 Implement and monitor environmentally sustainable work practices FWPCOT3254 Implement environmentally sustainable work practices in the work area/work site		Potential for replacement with a multi-sector unit
CPPCMN4013B	Operate a sustainable business	3	0	0	FWPCOT4208 Implement workplace sustainability practices		Industry-specific but may have

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
							potential for broader use
CPPWMT4007A	Implement waste management plans	2	0	34	No similar units		Industry-specific but may have potential for broader use
CPPWMT4030A	Determine waste management services	2	1	39	No similar units		Industry-specific but may have potential for broader use
CPPWMT4032A	Inform and educate clients on waste management issues	2	0	4	No similar units		Industry-specific but may have potential for broader use
CPPWMT5036A	Develop waste management plans	2	1	0	No similar units		Industry-specific but may have potential for broader use
CPPWMT5043A	Develop and implement an environmental management strategy	5	0	33	FWPCOT5207 Implement sustainability in the workplace PMASUP620 Manage environmental management system		Industry-specific but may have potential for broader use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
CUAPPR504	Establish and maintain environmentally sustainable creative practice	12	1	345	No similar units	No response	Industry-specific but may have potential for broader use
FBPFST4012	Apply water management principles to the food industry	2	0	57	SFIAQU304 Maintain water quality and environmental monitoring AHCSUS501 Develop and manage a plan for sustainable supply and use of water on a farm	No response	Industry-specific but may have potential for broader use
FBPTEC4010	Manage water treatment processes	2	0	0	SFIAQU403 Manage water quality and environmental monitoring in enclosed systems AHCWAT301 Monitor and operate water treatment processes		Industry-specific but may have potential for broader use
FBPTEC5002	Manage utilities and energy for production process	1	0	0	MSS017010 Determine process loss through mass or energy balancing MSS405086 Development sustainable energy practices BSBSMB401 Review and implement energy efficiency in business operations MSS015021 Measure and report carbon footprint of a product or product class		Potential for replacement with a multi-sector unit
FNSASICL503	Provide advice in the regulated emissions market	1	0	0	No similar units	Units are highly specialised but may have some generic content that could be applied elsewhere.	Industry-specific but may have potential for broader use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
FNSFMK512	Apply knowledge of emissions markets	1	0	0	No similar units		Industry-specific but may have potential for broader use
FWPCOR3201	Implement safety, health and environment policies and procedures	9	9	338	MSS024014 Implement environmental management plans and procedures	Forest Management and Harvesting (FMH) IRC would not be willing to consider generic (cross-sector) units. FMH IRC is currently reviewing 9 units specific to environmental care skills within forest and harvesting operations as part of a New Harvesting Technology project.	Further investigation required
FWPCOR4201	Monitor safety, health and environment policies and procedures	4	4	49	MSTGN4010 Implement and monitor WHS and environmental systems in the workplace RIIENV402D Implement and monitor environmental policies		Further investigation required
FWPCOR6201	Manage sustainability in the workplace	2	1	0	PMASUP620 Manage environmental management system		Further investigation required
FWPCOT3254	Implement environmentally sustainable work practices in the work area/work site	5	0	94	CPCSUS4001A Implement and monitor environmentally sustainable work practices ACMSUS401 Implement and monitor environmentally sustainable work practices		Further investigation required
FWPCOT3263	Maintain and contribute to energy efficiency	21	0	0	AMPX313 Contribute to energy efficiency		Further investigation required

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
FWPCOT4208	Implement workplace sustainability practices	2	0	0	CPCSUS5001A Develop workplace policies and procedures for sustainability CPPCMN4001 Develop workplace policies and procedures for sustainability		Further investigation required
FWPCOT5207	Implement sustainability in the workplace	3	0	0	CPPCMN4013B Operate a sustainable business		Further investigation required
ICPSUP222	Pack and dispatch solid waste	3	0	0	BSBSUS404 Assess, implement, monitor and report on waste management	No response	Potential for replacement with a multi-sector unit
ICPSUP261	Follow WHS practices and identify environmental hazards	1	0	0	AURAEA002 Follow environmental and sustainability best practice in an automotive workplace TLIU2012 Participate in environmentally sustainable work practices PPMSUS210 Apply sustainable work practices/policies		Potential for replacement with a multi-sector unit
ICPSUP323	Dispose of waste	3	0	157	NWPTRD004 Implement and manage trade waste policies and plans		Potential for replacement with a multi-sector unit
ICTSUS802	Conduct a business case study for integrating sustainability in ICT planning and design projects	1	0	2	No similar units	No response	Industry-specific but may have potential for broader use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
ICTSUS803	Research strategies using SAP solutions for sustainable economic and environmental outcomes	1	0	0	No similar units		Industry-specific but may have potential for broader use
ICTSUS804	Use ICT to improve sustainability outcomes	5	1	23	No similar units		Industry-specific but may have potential for broader use
ICTSUS807	Conduct and manage a life cycle assessment for sustainability	4	0	3	No similar units		Industry-specific but may have potential for broader use
LGAEHRW508A	Undertake education programs to achieve reduction, reuse and recycling of waste	1	0	8	No similar units	No response	Industry-specific but may have potential for broader use
LGAEHRW601B	Conduct waste management audits and assess needs	1	0	3	No similar units		Industry-specific but may have potential for broader use
LGALAND405A	Implement strategies to minimise environmental pollution	1	0	0	No similar units		Industry-specific but may have

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
							potential for broader use
LGAPLEM501A	Achieve and efficient and sustainable use of natural resources	2	0	16	No similar units		Industry-specific but may have potential for broader use
LGAPLEM504A	Develop strategies and approaches to minimise environmental pollution	1	0	0	No similar units		Industry-specific but may have potential for broader use
LGAPLEM506A	Improve community knowledge and skills in environmental management practices	3	0	0	No similar units		Industry-specific but may have potential for broader use
LGAPLEM606B	Develop ecologically sustainable land management systems	2	0	0	No similar units		Industry-specific but may have potential for broader use
MARJ003	Ensure compliance with environmental management legislation	5	5	94	No similar units	Identified units are regulatory requirements and must be contextualised for the industry; MAR units may be suitable for use in related sectors (seafood and aquaculture)	Industry-specific but may have potential for broader use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
MARJ005	Manage compliance with environmental management legislation	1	1	16	No similar units	There may be opportunities in future (as Sustainable Development Goals in the industry are progressed) to import environmental units from other TPs into MAR.	Industry-specific but may have potential for broader use
MARJ006	Follow environmental work practices	8	8	3047	No similar units		Industry-specific but may have potential for broader use
MARJ007	Monitor environmental management on a vessel	4	4	984	No similar units		Industry-specific but may have potential for broader use
MEM23143A	Apply energy management principles	1	0	47	CPCSUS4003A Maximise energy efficiency through applied trade skills	No response	Industry-specific but may have potential for broader use
MEM23148A	Develop energy management solutions	1	0	0	CPCSUS5003A Manage energy efficient building methods and strategies		Industry-specific but may have potential for broader use
MEM50004	Maintain quality of environment by following marina codes	12	1	1	AMPX208 Apply environmentally sustainable work practices		Further investigation required

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
					MARJ006 Follow environmental work practices MARJ007 Monitor environmental management on a vessel		
MSL975042	Design and supervise complex environmental field surveys	5	0	103	No similar units	No response	Potential cross-industry use
MSL976004	Prepare plans and quality assurance procedures for environmental field activities	1	0	0	No similar units		Potential cross-industry use
MSMENV172	Identify and minimise environmental hazards	19	1	175		No response	Current cross-industry use
MSMENV272	Participate in environmentally sustainable work practices	125	108	18281			Current cross-industry use
MSMENV472	Implement and monitor environmentally sustainable work practices	69	25	3099			Current cross-industry use
MSMENV672	Develop workplace policy and procedures for environmental sustainability	21	5	32			Current cross-industry use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
MSS014013	Contribute to sustainability related audits	3	0	0			Potential cross-industry use
MSS015011	Conduct a sustainability energy audit	9	0	49			Potential cross-industry use
MSS015020	Facilitate an energy audit	1	0	0			Potential cross-industry use
MSS015021	Measure and report carbon footprint of a product or product class	3	1	19			Potential cross-industry use
MSS015022	Develop strategies for more sustainable use of resources	8	1	188			Potential cross-industry use
MSS015024	Develop required sustainability reports	3	0	5			Potential cross-industry use
MSS015026	Develop strategic sustainability plans	1	1	2			Potential cross-industry use
MSS015027	Implement sustainability plans	1	1	0			Potential cross-industry use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
MSS015028	Conduct a sustainable water use audit	3	0	43			Potential cross-industry use
MSS015030	Conduct an emissions audit	3	0	1			Potential cross-industry use
MSS015031	Conduct a sustainability related transport audit	1	0	0			Potential cross-industry use
MSS015034	Inform and educate organisation and community representatives on sustainability issues	4	0	0			Potential cross-industry use
MSS020715	Provide environmental advice to clients	1	1	10			Potential cross-industry use
MSS024013	Work and communicate effectively as an environmental technician	2	1	20			Potential cross-industry use
MSS024014	Implement environmental management plans and procedures	3	2	191			Potential cross-industry use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
MSS024015	Apply an understanding of environmental principles to a site	7	2	149			Potential cross-industry use
MSS024016	Process and present environmental data	2	2	154			Potential cross-industry use
MSS024017	Collect spatial and discrete environmental data	3	0	54			Potential cross-industry use
MSS024018	Perform sampling and testing of water	3	0	109			Potential cross-industry use
MSS024022	Perform environmental biological techniques	2	0	33			Potential cross-industry use
MSS024024	Undertake simple environmental project activities	2	0	17			Potential cross-industry use
MSS025008	Monitor and evaluate noise	3	0	15			Potential cross-industry use
MSS025009	Perform sampling and testing of air	3	0	114			Potential cross-industry use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
MSS025010	Assist with odour source assessment	3	0	0			Potential cross-industry use
MSS025011	Assist with odour field assessment	3	0	0			Potential cross-industry use
MSS025012	Perform environmental microbiological tests	2	0	13			Potential cross-industry use
MSS025013	Assist with assessing and monitoring wetlands	3	0	20			Potential cross-industry use
MSS025014	Perform sampling and testing of contaminated sites	3	0	110			Potential cross-industry use
MSS025016	Perform sampling and testing of stationary emissions	3	0	0			Potential cross-industry use
MSS025017	Assist with assessing site environmental indicators	3	1	118			Potential cross-industry use
MSS025018	Assess the environmental risk and impact of a project activity or process	2	1	113			Potential cross-industry use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
MSS025019	Report environmental data	2	1	133			Potential cross-industry use
MSS025020	Provide environmental information to customers	2	1	135			Potential cross-industry use
MSS025021	Collect and evaluate groundwater data	3	0	117			Potential cross-industry use
MSS025022	Perform sampling and testing of soils	3	0	137			Potential cross-industry use
MSS025023	Plan and conduct environmental project work	3	0	42			Potential cross-industry use
MSS027013	Coordinate environmental management activities	2	1	74			Potential cross-industry use
MSS027014	Apply environmental legislation, codes and standards	4	1	73			Potential cross-industry use
MSS027016	Contribute to improving environmental performance	1	0	0			Potential cross-industry use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
MSS027017	Contribute to environmental decision making	1	0	2			Potential cross-industry use
MSS027018	Undertake complex environmental project work	1	0	5			Potential cross-industry use
MSS027020	Coordinate water quality management activities	1	0	0			Potential cross-industry use
MSS027021	Coordinate air quality management activities	1	0	0			Potential cross-industry use
MSS027022	Coordinate noise management activities	1	0	0			Potential cross-industry use
MSS027023	Coordinate site remediation or rehabilitation activities	1	0	0			Potential cross-industry use
MSS027024	Select, commission and maintain environmental monitoring instruments	1	0	0			Potential cross-industry use
MSS405086	Develop sustainable energy practices	13	0	43			Potential cross-industry use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
MSTGN3007	Monitor and operate trade waste	5	0	0	RIIWBP401D Apply and monitor site waste and by-products management plan AUMFMM002 Reduce waste in automotive manufacturing work processes	No response	Further investigation required
MSTGN4010	Implement and monitor WHS and environmental systems in the workplace	4	2	67	MSS024014 Implement environmental management plans and procedures RIIENV402D Implement and monitor environmental policies		Potential for replacement with a multi-sector unit
NWPGEN005	Coordinate and monitor the application of environmental plans and procedures	3	2	199	UEPOPS356 Apply environmental and sustainable energy procedures MSS024014 Implement environmental management plans and procedures	IRC would consider use of generic units but would need further enquiry to determine the extent of acceptance and use of current units. IRC would need to advise on contextualisation because industry is subject to very specific environmental licensing requirements with large penalties for environmental breaches. A certificate IV review is about to start – decision on generic units should be referred to the TAC for further consideration.	Further investigation required
NWPGEN006	Implement and manage environmental management policies	5	1	73			Current cross-industry use
PMASUP420	Minimise environmental impact of process	6	0	192	CPCSUS5001 Develop workplace policies and procedures for sustainability CPPCMN4001 Develop workplace policies and procedures for sustainability	No response	Potential cross-industry use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
PMASUP520	Review procedures to minimise environmental impact of process	5	0	137	FWPCOT4208 Implement workplace sustainability practices FWPCOT5207 Implement sustainability in the workplace		Potential cross-industry use
PMASUP620	Manage environmental management system	3	0	0	FWPCOR6201 Manage sustainability in the workplace		Potential cross-industry use
PMBWASTE101	Collect waste for recycling or safe disposal	3	0	0	TLID3051 Segregate waste according to waste types TLIU3015 Identify wastes and hazards in the waste management industry	No response	Further investigation required
PMBWASTE302	Coordinate waste disposal	10	0	0	CPPWMT3044A Identify wastes and hazards AMPA2161 Operate waste recovery systems SFIAQU301 Undertake effluent treatment and waste disposal CPPCLO2018 Sort, remove and recycle waste material		Further investigation required
PPMENV210	Identify and monitor environmental discharges/emissions	4	0	0	CPPWMT3042A Follow environmental policies and procedures when transporting waste	Generic options would need to be examined closely during TP review to ensure that very specific and important industry information is not lost. Advice on contextualisation would definitely be needed for generic units. Extensive contextualisation is used for the delivery of the MSMENV unit in PPM quals. Industry consultation would be necessary to consider the impact of the	Further investigation required
PPMENV320	Monitor and control environmental hazards	4	0	0	CPPWMT4022A Monitor waste disposal sites		Further investigation required
PPMSUS210	Apply sustainable work practices/policies	2	2	3	TLIU2012 Participate in environmentally sustainable work practices		Further investigation required

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
					AHCWRK309 Apply environmentally sustainable work practices	unit being housed elsewhere (a bank would be preferred over a cross-industry TP to prevent the idea that PPM is a generic industry).	
PPMSUS510	Develop workplace policy and procedures for sustainability	1	1	0	TLIU0001 Develop workplace policy and procedures for environmental sustainability FWPCOT5207 Implement sustainability in the workplace CPCSUS5001A Develop workplace policies and procedures for sustainability CPPCMN4001 Develop workplace policies and procedures for sustainability		Potential for replacement with a multi-sector unit
RIIENV302D	Apply environmentally sustainable work practices	2	2	212	ACMSUS401 Implement and monitor environmentally sustainable work practices FWPCOT3254 Implement environmentally sustainable work practices in the work area/work site TLIU3011 Implement and monitor environmentally sustainable work practices BSBSUS401 Implement and monitor environmentally sustainable work practices SFIEMS401 Implement and monitor environmentally sustainable work practices AHCWRK405 Implement and monitor environmentally sustainable work practices	No response	Potential for replacement with a multi-sector unit

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
					CPPCMN4002 Implement and monitor environmentally sustainable work practices		
RIIENV402D	Implement and monitor environmental policies	2	2	170	MSTGN4010 Implement and monitor WHS and environment systems in the workplace MSS024014 Implement environmental management plans and procedures		Potential for replacement with a multi-sector unit
RIIWBP401D	Apply and monitor site waste and by-products management plan	1	0	0	CPPWMT5061A Plan resource recovery MSTGN3007 Monitor and operate trade waste		Industry-specific but may have potential for broader use
RIIWBP501D	Implement site waste and by-product management plan	1	0	0	CPCCBC4021A Minimise waste on the building and construction site		Industry-specific but may have potential for broader use
RIIWBP601D	Establish and maintain waste and by-product management system	3	0	0	PMASUP520 Review procedures to minimise environmental impact of process		Industry-specific but may have potential for broader use
RIIWMG402D	Monitor and coordinate waste and process water treatment	1	0	0	AHCWAT301 Monitor and operate water treatment processes AUMFMM002 Reduce waste in automotive manufacturing work processes		Industry-specific but may have potential for broader use

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
SFIAQU301	Undertake effluent treatment and waste disposal	1	0	68	AMPA2161 Operate waste recovery systems PMBWASTE302 Coordinate waste disposal	No issues with using generic units to replace SFIEMS201 and SFIEMS401 in relation to environmentally sustainable work practices. It would be useful to label cross-industry units with a generic code, e.g. ENVSUS201. SFIAQU301 is not similar to the AMP or PMB units identified because they do not adequately address the biological waste and biosecurity risks of the Seafood Industry.	Industry-specific but may have potential for broader use
SFIEMS201	Participate in environmentally sustainable work practices	6	0	143	RIIENV302D Apply environmentally sustainable work practices TLIU2012 Participate in environmentally sustainable work practices AHCWRK309 Apply environmentally sustainable work practices PPMSUS210 Apply sustainable work practices/policies		Potential for replacement with a multi-sector unit
SFIEMS401	Implement and monitor environmentally sustainable work practices	3	0	92	CPPCMN4002 Implement and monitor environmentally sustainable work practices AHCWRK405 Implement and monitor environmentally sustainable work practices BSBSUS401 Implement and monitor environmentally sustainable work practices TLIU3011 Implement and monitor environmentally sustainable work practices CPCSUS4001A Implement and monitor environmentally sustainable work practices ACMSUS401 Implement and monitor environmentally sustainable work practices		Potential for replacement with a multi-sector unit

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
SISXRES001	Conduct sustainable work practices in open spaces	5	2	9594	No similar units	No response	Industry-specific but may have potential for broader use
SISXRES402A	Support implementation of environmental management practices	3	2	469	No similar units		Industry-specific but may have potential for broader use
SITTPPD003	Coordinate and operate sustainable tourism activities	5	0	77	No similar units	No response	Industry-specific but may have potential for broader use
SITTPPD009	Develop environmentally sustainable tourism operations	3	0	65	No similar units		Industry-specific but may have potential for broader use
TAESUS501	Analyse and apply sustainability education principles and practice to learning programs	2	0	97	No similar units	No response	Industry-specific but may have potential for broader use
TAESUS502	Identify and apply current sustainability education principles and	2	0	20	No similar units		Industry-specific but may have

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
	practices to learning programs						potential for broader use
TLIU0001	Develop workplace policy and procedures for environmental sustainability	2	0	459	CPPCMN4001 Develop workplace policies and procedures for sustainability CPCSUS5001A Develop workplace policies and procedures for sustainability	Replacement of identified units with generic ones may be possible if they don't diminish information that is essential to skills in an occupation. Cross sector units may look at high level environmental sustainability systems and processes but omit the detail and knowledge required to report, submit and advance a company, companies are reliant on detailed industry and reporting terminology and how to identify changes that are industry-relevant and then apply to your business.	Potential for replacement with a multi-sector unit
TLIU1009	Monitor plant and equipment in an environmentally sustainable manner	14	4	301	FWPCOT4208 Implement workplace sustainability practices AURAEA003 Monitor environmental and sustainability best practice in an automotive workplace		Further investigation required
TLIU1013	Prepare for environmentally sustainable work practices	2	0	0	AHCWRK202 Observe environmental work practice		Potential for replacement with a multi-sector unit
TLIU2012	Participate in environmentally sustainable work practices	16	2	9539	RIIENV302D Apply environmentally sustainable work practices AHCWRK309 Apply environmentally sustainable work practices PPMSUS210 Apply sustainable work practices/policies		Potential for replacement with a multi-sector unit
TLIU3011	Implement and monitor environmentally sustainable work practices	5	0	1352	CPPCMN4002 Implement and monitor environmentally sustainable work practices AHCWRK405 Implement and monitor environmentally sustainable work practices		Potential for replacement with a multi-sector unit

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
					BSBSUS401 Implement and monitor environmentally sustainable work practices CPCSUS4001A Implement and monitor environmentally sustainable work practices ACMSUS401 Implement and monitor environmentally sustainable work practices		
TLIU4001	Implement and monitor environmental protection policies and procedures	21	1	338	FSPCOT5207 Implement sustainability in the workplace MSS024014 Implement environmental management plans and procedures		Further investigation required
TLIU5006	Conduct environmental audits	2	0	397	MSS014013 Contribute to sustainability related audits MSS015011 Conduct a sustainability energy audit MSS015028 Conduct a sustainability water use audit		Further investigation required
UEENEEK114A	Promote sustainable energy practices in the community	4	1	30	CPPHSA4019A Inform clients about thermal performance of residential buildings MSS015034 Inform and educate organisation and community representatives on sustainability issues	No response	Industry-specific but may have potential for broader use
UEENEEK142A	Apply environmentally and sustainable procedures in the energy sector	40	0	20317	RIIENV302D Apply environmentally sustainable work practices AHCWRK309 Apply environmentally sustainable work practices		Potential for replacement with a multi-sector unit

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
					PPMSUS210 Apply sustainable work practices/policies		
UEENEEK145A	Implement and monitor energy sector environmental and sustainable policies and procedures	40	0	1643	FWPCOT4208 Implement workplace sustainability practices AURAEA003 Monitor environmental and sustainability best practice in an automotive workplace		Further investigation required
UEGNSG140	Apply environmental policies and procedures in the utilities industry	5	1	503	UEENEEK142A Apply environmentally and sustainable procedures in the energy sector UEENEEK145A Implement and monitor energy sector environmental and sustainable policies and procedures RIIENV302D Apply environmentally sustainable work practices AHCWRK309 Apply environmentally sustainable work practices	Willing to consider using a generic unit to replace the identified unit. Need for provision of contextualisation advice would depend on unit content.	Potential for replacement with a multi-sector unit
UEPOPS356	Apply environmental and sustainable energy procedures	7	3	4	UEENEEK142A Apply environmentally and sustainable procedures in the energy sector UEENEEK145A Implement and monitor energy sector environmental and sustainable policies and procedures UETTDREL11A Apply sustainable energy and environmental procedures	Work of the Expert Panel is not expected to impact the usability of the TP	Potential for replacement with a multi-sector unit

Unit Code	Unit Title	No. of quals packaged into	No. of quals packaged into as core	2017 enrolments*	Similar units identified	IRC response	Assessment
					RIIENV302D Apply environmentally sustainable work practices AHCWRK309 Apply environmentally sustainable work practices		
UETTDREL11A	Apply sustainable energy and environmental procedures	11	10	2261	UEENEEK142A Apply environmentally and sustainable procedures in the energy sector UEENEEK145A Implement and monitor energy sector environmental and sustainable policies and procedures UEPOPS356 Apply environmental and sustainable energy procedures RIIENV302D Apply environmentally sustainable work practices AHCWRK309 Apply environmentally sustainable work practices	No response	Potential for replacement with a multi-sector unit

Appendix B: Summary of Industry Skills Forecast content

Twenty-eight IRCs identified environmental sustainability as an issue for their industry in the 2019 Industry Skills Forecast (ISF). In most cases environmental sustainability was identified as a challenge. Very few ISFs identified specific emerging skill needs resulting from the environmental sustainability challenge.

Workforce skill requirements that were identified in ISFs emphasise upskilling and retraining to enable workers to adapt to changing and new technologies, processes, systems and materials. These were outlined in areas of:

- **Sustainable resource use**: packaging, recycling, waste minimisation and safe disposal
- **Responsible energy consumption**: energy efficient buildings, minimising energy waste, sustainable manufacturing processes
- **Reducing greenhouse gas emissions**: wind and solar electricity generation, use of alternative fuels and natural refrigerants, lithium-ion battery recycling, hydrogen storage and handing
- **Water conservation**: wastewater recycling and treatment.

ISFs also identified impacts that **compliance with environmental regulations and standards** would have on future workforce skill requirements, including:

- field and laboratory experiments and testing
- interpreting and understanding results and data
- operating as a conduit between research and practical application by analysing and applying potential solutions
- educating and prepare communities for a change in attitudes and behaviours.

Environmental sustainability was recognised as a driver for change in the ISF for the following industries:

- Chemical, Hydrocarbons and Refining
- Construction, Plumbing and Services
- Metal and Engineering
- Plastics, Rubber and Cablemaking
- Property Services
- Resources and Infrastructure

Environmental sustainability was recognised as a challenge in the ISF for the following industries:

- Agriculture, Horticulture and Conservation and Land Management
- Aquaculture and Wild Catch
- Automotive
- Creative Arts and Culture
- Electricity Supply
- Food, Beverage and Pharmaceutical
- Forest and Wood Products
- Gas
- Laboratory Operations
- Manufacturing (including Glass)
- Maritime
- Meat Processing
- Printing and Graphic Arts

- Public Safety
- Pulp and Paper Manufacturing
- Racing and Breeding
- Textiles, Clothing and Footwear
- Transmission, Distribution and Rail
- Transport and Logistics
- Water

Environmental sustainability was recognised as an opportunity in the ISF for the following industries:

- Electrotechnology
- Gas
- Laboratory operations
- Rail
- Sustainability

Environmental sustainability was recognised as an area for emerging skill needs in the ISF for the following industries:

- Agriculture, Horticulture and Conservation and Land Management
- Creative Arts and Culture
- Food, Beverage and Pharmaceutical
- Forest and Wood Products
- Laboratory Operations
- Maritime
- Meat Processing
- Resources and Infrastructure
- Water

Relatively few ISFs identified specific workforce skill requirements resulting from environmental sustainability, despite recognition of it as a challenge. It is possible that this outcome can be attributed to the purpose of ISFs which, to a large extent, is to justify the activities included in an IRC's proposed schedule of works. The current style of ISFs tends to preclude the identification of workforce skill needs unless a corresponding training product solution has also been identified.

A range of factors influence how projects are prioritised for inclusion in the proposed schedule of works, including demonstrable need, achievability, industry consensus, affordability and stakeholder management (whose turn it is for attention). In this context it is conceivable that workforce skill requirements for environmental sustainability may not be closely examined in an ISF if a training product solution is not on the horizon.

Appendix C: IRC consultation process

The Expert Panel followed these steps to gather input from IRCs.

- Skills Impact provided forewarning to all SSOs on the nature and purpose of the forthcoming consultation process and sought a relevant contact person for each SSO (29 August 2019).
- Skills Impact prepared 50 consultation papers. These were contextualised for all current training packages excepting: CPC08, CPP07, FSK, LMT07, MEM05, MSA07, UEE11.
- Contextualised consultation papers were provided to SSOs for distribution to IRCs with advice that responses were sought by 30 September (2 September 2019).
- Skills Impact contacted all SSOs to remind them of the closing date for IRC responses (26 September 2019).
- Skills Impact contacted SSOs individually to seek further responses from IRCs to inform the Expert Panel's final report (16 October 2019).

Through the consultation process, the Expert Panel sought advice from IRCs in relation to four potential areas for action:

1. Reporting on the impact of environmental sustainability on industry workforce requirements in all Industry Skills Forecasts
2. Consideration of the adoption of generic units of competency to replace industry units identified through the project
3. Potential industry demand for qualifications in environmental sustainability
4. Potential industry demand for cross-sector skill sets for environmental sustainability

IRC responses were provided to Skills Impact via their SSOs. Some responses were collated by IRC Chairs or SSOs, but most responses represented the views of individual IRC members, rather than an agreed IRC position. The table on the next page compiles all feedback received from IRCs at the time of finalising this paper on 30 October 2019. At that time, 21 individual responses had been received providing comment in relation to 17 different training packages.

Responses in relation to a further nine training packages were received after the Expert Panel had finalised this paper. Details for these responses is appended to this paper. In total, feedback was received from the following 31 IRCs:

Aboriginal and Torrest Strait Islander Health Worker IRC
Agriculture and Production Horticulture IRC
Amenity Horticulture, Landscaping Conservation and Land Management IRC
Animal Care and Management IRC
Aquaculture and Wild Catch IRC
Automotive Light Vehicle IRC
Business Services IRC
Children's Education and Care IRC
Client Services IRC
Dental IRC
Direct Client Care IRC
Disability Support IRC
Enrolled Nursing IRC
Financial Services IRC
First Aid IRC
Forest Management and Harvesting IRC
Local Government IRC
Maritime IRC
Personal Services IRC
Public Safety IRC
Public Sector IRC
Pulp and Paper Manufacturing IRC
Racing and Breeding IRC
Sport and Recreation IRC
Technicians Support Services IRC
Textile Clothing and Footwear IRC
Timber and Wood Processing IRC
Timber Building Solutions IRC
Transport and Logistics IRC
Water IRC
Wholesale and Retail IRC

IRC responses to consultation papers

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
ACM- Animal Care and Management Training Package	Skills Impact	Direct from IRC member	Support for focus on sustainability in ISF, need for additional resourcing to source expert advice	Willing to consider using generic units; IRC would need to provide contextualisation advice	Value in raising awareness of existing quals; scope to contextualise existing quals for industry; no different skills needed for industry	Need to change thinking in veterinary industry to include holistic principles (agricultural examples provided)
AHC- Agriculture, Horticulture and Conservation and Land Management Training Package	Skills Impact	Direct from IRC member	Option 2 preferred CIT use generic units to cover environmental sustainability in horticulture			
		Direct from IRC member	ISF does already consider environmental sustainability, but more consultation time might be required for responses to generic approach to training products.	IRC would consider replacing AHC units with generic ones. Advice on contextualisation would be useful. Existing level 3 AHC unit appears to be written for office job and does not adequately encompass working outdoors and supervising 2-3 other people. Unit needs serious review. Specific ag industry concerns include: soil, plants, fauna, water, waste, habitat, native species and purchasing products used for work.	Current quals relate to householders and factories but not world of agriculture. Holders of Cert IV in Ag or Production Hort get jobs in environmental sustainability because they have clear awareness of the impacts of poor environmental practices (nearly all the units have aspects that relate to environmental sustainability).	No demand for generic, cross-sector skills in the industry.

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
		Direct from IRC member	Support for inclusion in ISF but would have cost/time implications, especially for SMEs. Specialist advice, access to data and consultation time would be required.	No units are currently in use that could be replaced with generic units. Contextualisation advice would need to be provided if generic units were used.	No potential demand for quals. Environmental sustainability skills should be encapsulated within the existing units of competency.	No demand for cross-sector skill sets. Skills need to be task and role specific.
AMP- Australian Meat Processing Training Package	Skills Impact	No response				
AUM- Automotive Manufacturing	PWC	No response				
AUR- Automotive Retail, Service and Repair Training Package	PWC	Direct from IRC member		Generic units will fail to meet industry specific training requirements and will result in the need for additional industry specific units. Current units contain content that is specific to the automotive industry, e.g. vehicle wastes, coolants, oils, exhaust emissions, evaporative fuel emissions and tyres. These units are currently being delivered and assessed to a standard that meets industry needs. MTA can see no argument for replacing them with generic units.		

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
AVI- Aviation Training Package	AIS	No response				
BSB- Business Services Training Package	PWC	Direct from IRC member	Medium impact [relevance] to Business Services as part of 3 pillars of sustainability, e.g. value/supply chain, marketing claims, GHG emissions scope 1,2,3, green accounting and financing (new ISO standards under development). Specialist advice, access to data and additional consultation time would be appreciated.	Existing units are outdated and do not reflect industry needs (and have been identified for revision). All organisations need to integrate sustainability practices to meet consumer/public expectations and increasing regulatory obligations. Support increased accessibility and visibility of cross-sector packages. As long as business-focused units can still be identified by potential students, where they are housed is immaterial. Seems they are in the right place now [in BSB] given the high enrolments.	More accepted global language is sustainability with specific disciplines and focus areas for: environment, social or economic themes. Need to modernise the language and content of units to reflect increased focus of organisations. Raising awareness of quals would be useful in this context. Contextualisation through complementary electives would maximise relevance and applicability. For BS this would include: sustainable procurement, marketing sustainability. Green economy is forecast to be the highest growth industry globally and will touch every profession and discipline. Existing units/quals don't adequately cover business requirements to integrate	Agree there is a need for environmentally focused skills, e.g. student pathways to higher education in specialised disciplines within environmental sustainability. Demand for office based workers to understand sustainability fundamentals and apply them in their roles.

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
					sustainability (which would be an excellent opportunity to enhance the available training).	
CHC- Community Services	Skills IQ	See addendum				
CPC- Construction, Plumbing and Services Training Package	Artibus	No response				
CPP- Property Services Training Package	Artibus	Direct from IRC member		An elective unit in the Diploma of Building Design (CPPBDN5109/ CPPBDN5005A) may be suitable for future expansion to encompass wider and more diverse sustainability solutions.		
CSC- Correctional Services Training Package	AIS	No response				
CUA- Creative Arts and Culture Training Package	PWC	No response				
DEF- Defence Training Package	AIS	No response				
FBP- Food, Beverage and Pharmaceutical	Skills Impact	No response				
FNS- Financial Services Training Package	PWC	Direct from IRC member	Specialist advice, access to date and consultation time would all be required to make sure	Units look highly specialised but may have some generic content that could be applied	Value in raising awareness of quals; in most cases contextualising would work well and avoid	Areas identified in paper are appropriate to the sector (PWC may have further suggestions)

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
			the review was well-informed	elsewhere (PWC could provide further advice)	duplication; industry would benefit from more generic widely applied solutions	
FWP- Forest and Wood Products Training Package	Skills Impact	Direct from IRC member	Possible to address but would need additional support	Forest Management and Harvesting (FMH) IRC would not be willing to consider generic (cross-sector) units. FMH IRC is currently reviewing 9 units specific to environmental care skills within forest and harvesting operations as part of a New Harvesting Technology project.	Quals may be relevant for career in environmental management, rather than being specific to industry. No demand in FMH, environmental sustainability should be included within existing units.	TPs should provide an option to build skills in environmental sustainability as relevant to the wood processing and building systems industries, but these should be elective options and targeted skill sets would make most sense as a solution. ISO4001 may provide useful guidance on what could be included in environmental skill sets. Environmental considerations that might overlap with other industries are: site water management, air quality, storage of chemicals, solid waste, dust. Implementation will have industry nuances and site specifics. FMH IRC – no demand for generic skill sets. Skill sets need to be task and role specific.

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
HLT- Health	Skills IQ	See addendum				
ICP- Printing and Graphic Arts	PWC	No response				
ICT- Information and Communications Technology	PWC	No response				
LGA04- Local Government Training Package	Skills IQ	See addendum				
MAR- Maritime Training Package	AIS	Collated by IRC Chair	MAR TP must reflect the Sustainable Development Goals (SDGs) of the International Maritime Organisation (ongoing long term work pursued through each TP review)	Identified units are regulatory requirements and must be contextualised for the industry; MAR units may be suitable for use in related sectors (seafood and aquaculture) There may be opportunities in future (as SDGs are progressed) to import environmental units from other TPs into MAR		
MEA- Aeroskills Training Package	IBSA	No response				
MEM- Manufacturing and Engineering	IBSA	No response				
MSF- Furnishing Training Package	IBSA	No response				
MSL- Laboratory Operations	IBSA	No response				

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
MSM- Manufacturing Training Package	IBSA	No response				
MSS- Sustainability	IBSA	No response				
MST- Textiles, Clothing and Footwear	IBSA	See addendum				
NWP- National Water Training Package	AIS	Direct from IRC member		Support consideration of generic units where they make sense and environment fits this category; IRC would need to advise on contextualisation because environment context of water industry is different from other industries (e.g. in relation to wastewater and reuse); the identified unit could be replaced with a cross-sector unit – this would bring more benefits than limitations		

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
		Direct from IRC member	Environmental sustainability is already covered in the ISF with discussion on climate change and drought management. If anything, additional is required then AIS would need to determine if additional resources are required	Would need further enquiry with industry to determine how well-accepted or widely used the existing units are. Industry is subject to very specific environmental licensing requirements with large penalties for environmental breaches. Cert IV review is about to commence – decision on generic units should be referred to the TAC for further consideration.	There is likely some demand but would need further research. Do not have a sense of job roles where this would be useful, and it has not been raised through existing research as a priority. We imagine that most employers look to universities to provide these skills.	Employers should probably be looking for more of these skills, but it has not come up in our research as a priority for future courses.
PMA- Chemical, Hydrocarbons and Refining	IBSA	No response				
PMB- Plastics, Rubber and Cablemaking	IBSA	No response				
POL- Police Training Package	AIS	Collated by IRC Chair	Inclusion in ISF is not opposed but it should be noted that environmental sustainability content in relation to the POL TP will be limited. Recommended that this section covers industry sectors (Public Safety)	Currently no demand for environmental sustainability skills in POL TP	Currently no demand for environmental sustainability skills in qualifications	Currently no demand for environmental sustainability skill sets

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
			rather than individuals TPs.			
PPM- Pulp & Paper Manufacturing Industry Training Package	Skills Impact	Collated by IRC Chair	The IRC would need additional support. Would need a person assigned to work on this project (approach employers to access information on required workforce skills) and provide recommendations for the IRC.	Generic options would need to be examined closely during TP review to ensure that very specific and important industry information is not lost. Advice on contextualisation would definitely be needed for generic units. Extensive contextualisation is used for the delivery of the MSMENV unit in PPM quals. Industry consultation would be necessary to consider the impact of the unit being housed elsewhere (a bank would be preferred over a cross-industry TP to prevent the idea that PPM is a generic industry).	There is value in raising awareness of qual availability, but in PPM industry the people with responsibility for environmental sustainability are BSc qualified. Only Grad Cert quals would therefore be relevant. Operational employees focus more on operational or functional units. Close examination of the quals and their packaging rules would be needed to consider scope for contextualising quals for industry needs. Often regulatory requirements (WorkSafe) are industry specific and may prevent use of generic units/quals.	Generic skills that would be valued in PPM industry: collecting samples, determining sample size, monitoring, auditing, data analysis and reporting – but these tasks are often undertaken by laboratory employees with training covered by the Lab Skills TP. Also, if the lab is NATA accredited, further requirements need to be met.
PSP- Public Sector Training Package	Skills IQ	See addendum				
PUA- Public Safety	AIS	Direct from IRC member	Cannot comment on behalf of Public Safety IRC, but further clarification will be required of the need and			

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
			value of this information and what it will be used for.			
RGR- Racing and Breeding Training Package	Skills Impact	Direct from IRC member	Little impact – the industry survives well environmentally without support	Identified unit [BSBSUS501] is working well for the industry; IRC provides advice on contextualisation but unsure whether it is applied during delivery; no real impact if the unit was housed in a cross-sector package or bank.	Potential industry demand for identified quals; value in raising awareness of availability; scope to contextualise for industry; no further environmental sustainability skills identified for industry	No identified demand for generic skill sets
		Direct from IRC member	[question interpreted as including sustainability in the TP] There would be an impact on a number of units; likely that the IRC would need additional support to confirm elements of environmental sustainability to the needs of individual sectors.	Identified BSB unit does not adequately meet industry needs (too high level and business focussed); a range of existing RGR units (examples provided) may pick up topics that have environmental sustainability relevance More useful approach for the industry would be to incorporate sustainability concepts and practices into industry units (kennel management including disinfection and hygiene, water wastage and impact on environment, grazing management,	The identified MSS qualifications in sustainable operations are about business management, not environmental sustainability (sustainable in terms of project management, business continuity, efficiency, etc)	Understanding the impact of chemicals on environment, managing chemical residues and run off, grazing management for fragile ecosystems

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
				fertilisation of pastures) [guidance for identifying elements could be provided]		
RII- Resources and Infrastructure Industry Training Package	PWC	No response				
SFI- Seafood Industry	Skills Impact	Direct from IRC members		No issues with using generic units xxx201 and xxx401 re environmentally sustainable work practices; would be useful to label these with a generic code, ENVSUS201; SFI unit is not similar to the AMP and PMB units identified although it might be possible to incorporate PMB into the SFI unit (but PMB doesn't relate to biological waste and biosecurity risks)		
SFL- Floristry Training Package	Skills IQ	See addendum				
SHB- Hairdressing and Beauty Services Training Package	Skills IQ	See addendum				
SIF- Funeral Services	Skills IQ	No response				
SIR- Retail Services Training Package	Skills IQ	See addendum				

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
SIS- Sport, Fitness and Recreation Training Package	Skills IQ	See addendum				
SIT- Tourism, Travel and Hospitality Training Package	Skills IQ	No response				
TAE- Training and Education Training Package	PWC	No response				
TLI- Transport and Logistics Training Package	AIS	Direct from IRC member	There would be a lot of differences in the way environmental impacts are measured and reported, so there would be a lot of differing input initially; potentially find some common ground items; need a TAC formed; Difficult to understand and break down the NGER's reporting for the transport industry so consultation with Government energy reporting dept needed; understanding how to measure our transport footprint given multiple vehicle makes, models, age of fleets with the mix of fuel; how adblue and similar affects emissions; fuel usage is a	Replacement of identified units with generic ones may be possible if they don't diminish information that is essential to skills in an occupation; cross sector units may look at high level environmental sustainability systems and processes but omit the detail and knowledge required to report, submit and advance a company, companies are reliant on detailed industry and reporting terminology and how to identify changes that are industry relevant and then apply to your business	Value in raising awareness of existing quals for specific roles (reporting to government, looking at efficiency measures and metrics for improving business performance); RTO needs to make the generic content industry relevant; no additional requirements for industry	Generic industry skills: NGERs reporting, fuel usage metrics and monitoring, fuel offset options, use of alternative vehicle technologies (not fuel) and how to incorporate into fleet and measure/monitor

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
			metric that drivers understand and measure against			
UEE- Electrotechnology Training Package	AIS	No response				
UEG- Gas Industry Training Package	AIS	Collated by IRC Chair	Not captured in ISF at the moment so would require additional research, data collection and compilation of findings. Overall, no objection to Skills Impact proceeding with project.	Willing to consider using a generic unit to replace the identified unit. Need for provision of contextualisation advice would depend on unit content.	Unknown. Further investigation required.	Unknown. Further investigation required.
UEP- Electricity Supply Industry - Generation Sector Training Package	AIS	Collated by IRC Chair	No objections to work of the Expert Panel	Work of the Expert Panel is not expected to impact the usability of the TP		
UET12- Transmission, Distribution and Rail Sector Training Package	AIS	No response				

Appendix D: Current sustainability qualifications

Qualification	Description	Packaging rules	Core units
BSB42315 **Certificate IV in Environmental Management and Sustainability**	This qualification reflects the role of individuals who are engaged in environmental management and sustainability in a range of workplace contexts. It covers the skills and knowledge required to monitor and address environmental issues in a variety of industry sectors.	Total number of units = 8 4 core units 4 elective units, of which: 2 elective units must be selected from the listed elective units 2 elective units may be selected from the listed elective units, or any currently endorsed Training Package or accredited course at Certificate IV level.	BSBSUS401 Implement and monitor environmentally sustainable work practices BSBSUS402 Implement an environmental management plan BSBSUS403 Measure, monitor and reduce carbon emissions BSBSUS404 Assess, implement, monitor and report on waste management
MSS40218 **Certificate IV in Environmental Monitoring and Technology**	This qualification specifies the competencies required to conduct environmental sampling, testing and monitoring in a variety of industry sectors. This qualification applies to environmental assistants, environmental technicians and similar personnel employed by enterprises and Commonwealth, state/territory/local governments. Many of these employees are engaged in the monitoring of environmental impacts at industrial sites. They operate monitoring equipment, collect samples and conduct tests both in the field and at site laboratories. Other employees may collect a range of field data relating to the suitability of land and water use and process and present this data using geographical information systems (GIS) software.	Total number of units = 16 8 core units 8 elective units, consisting of: a minimum of 5 units from Group A the balance of units, to a maximum of 3, may be selected from: Group A, B or C any endorsed Training Package or accredited course at Certificate IV level – these units must be relevant to the work outcome.	MSL943004 Participate in laboratory or field workplace safety MSL952001 Collect routine site samples MSL974022 Undertake environmental field-based monitoring MSMENV272 Participate in environmentally sustainable work practices MSS024013 Work and communicate effectively as an environmental technician MSS024014 Implement environmental management plans and procedures MSS024015 Apply an understanding of environmental principles to a site MSS024016 Process and present environmental data

Qualification	Description	Packaging rules	Core units
MSS40118 **Certificate IV in Sustainable Operations**	This qualification specifies the skills and knowledge required to identify, implement and report on sustainability related initiatives within a section of an enterprise, such as a defined work area, work team or stage of production. It may also apply to a small or medium enterprise. It applies to specialist roles, such as a sustainability officer or sustainability project assistant. The qualification also provides specialist sustainability competencies to technical, supervisory or operational employees who do not have whole of enterprise responsibilities. It includes assisting organisations to meet their obligations under sustainability related regulatory arrangements, government or similar incentives or other initiatives that apply to the employee's area of operation.	Total number of units = 10 3 core units 7 elective units, consisting of: a minimum of 3 units from Group A the balance of units, to a maximum of 4, may be selected from: Group A Group B up to 2 units from any endorsed Training Package or accredited course at Certificate IV level – these units must be relevant to the work outcome.	MSMENV472 Implement and monitor environmentally sustainable work practices MSS014008 Improve sustainability through readily implementable change MSS014009 Evaluate sustainability impact of a work or process area
MSS50218 **Diploma of Environmental Monitoring and Technology**	This qualification specifies the competencies required to apply a range of methods and technologies to conduct environmental sampling, testing and monitoring in most industry sectors, and to assist environmental scientists, engineers and planners with site assessment, minimising environmental impacts of processes and remediation/rehabilitation of sites. This qualification applies to environmental officers, environmental protection officers, environmental compliance officers, environmental technicians and similar personnel employed by enterprises and Commonwealth, state/territory and local governments. These personnel often work with environmental scientists, engineers, planners and community groups to manage and conserve natural systems and resources, minimise pollution, remediate/rehabilitate sites and trial	Total number of units = 20 11 core units 9 elective units, consisting of: a minimum of 5 units from Group A the balance of units, to a maximum of 4, may be selected from: Group A and B up to 3 units from Group C up to 4 units from any endorsed Training Package or accredited course at Diploma level – these units must be relevant to the work outcome.	MSL943004 Participate in laboratory or field workplace safety MSL952001 Collect routine site samples MSL974022 Undertake environmental field-based monitoring MSMENV472 Implement and monitor environmentally sustainable work practices MSS024014 Implement environmental management plans and procedures MSS024015 Apply an understanding of environmental principles to a site

Qualification	Description	Packaging rules	Core units
	practical strategies to protect and improve ecosystems. Their work often involves environmental monitoring and technology, internal auditing and continuous improvements to enhance compliance and minimise the environmental impacts of processes. Government employees may be more involved with external inspection and auditing of enterprises and negotiating appropriate responses to instances of non-compliance		MSS024016 Process and present environmental data MSS025017 Assist with assessing site environmental indicators (prerequisite MSS024015 Apply an understanding of environmental principles to a site) MSS025018 Assess the environmental risk and impact of a project activity or process (prerequisite MSS024015 Apply an understanding of environmental principles to a site) MSS025019 Report environmental data (prerequisite MSS024016 Process and present environmental data MSS025020 Provide environmental information to customers
MSS50118 Diploma of Sustainable Operations	This qualification specifies the competencies required to work in a technical, supervisory or operational role in sustainability in an organisation. This qualification provides the skills and knowledge needed to measure current sustainability performance and to establish processes for improved sustainability performance within organisations.	Total number of units = 20 5 core units 15 elective units, consisting of: a minimum of seven 7 units from Group A a minimum of 3 units from Group B the balance of units, to a maximum of 5, may be selected from: Group A or B Group C up to 4 units from any endorsed Training Package or accredited course at Diploma level – these units must be	MSS015021 Measure and report carbon footprint of a product or product class MSS015022 Develop strategies for more sustainable use of resources MSS015025 Develop a business case for sustainability improvements MSS015026 Develop strategic sustainability plans MSS015027 Implement sustainability plans

Qualification	Description	Packaging rules	Core units
		relevant to the work outcome.	
MSS80218 **Graduate Certificate in Environmental Management**	This qualification specifies the competencies required by technical specialists who demonstrate advanced theoretical and technical knowledge, autonomy and well developed judgement to undertake environmental monitoring and management activities at a site or for a significant environmental management program or project. This qualification applies to individuals who have some previous training or work experience at a senior or advanced level performing a wide range of environmental sampling, monitoring, field-testing, inspection, auditing or data processing tasks for enterprises. Job roles targeted by this qualification include environmental site coordinators, environmental managers and senior environmental officers employed by enterprises or authorities in a wide range of industry sectors.	Total number of units = 12 5 core units 7 elective units, consisting of: a minimum of 3 units from Group A the balance of units, to a maximum of 4, may be selected from: Group A Group B up to 2 units from any endorsed Training Package or accredited course at Diploma level – these units must be relevant to the work outcome.	MSL944002 Maintain laboratory or field workplace safety MSMENV472 Implement and monitor environmentally sustainable work practices MSS027013 Coordinate environmental management activities MSS027014 Apply environmental legislation, codes and standards MSS027015 Provide environmental advice to clients
MSS80118 **Graduate Certificate in Sustainable Operations**	This qualification provides professional development training and recognition to people exercising leadership or change management functions in an organisation on sustainability, including setting of sustainability strategy and leadership and planning for the deployment of the sustainability strategy. The qualification applies to individuals demonstrating advanced theoretical and technical knowledge, autonomy and well developed judgement to improve sustainability within an organisation. Aspects of this responsibility may include regulatory responses; setting and monitoring of sustainability related performance indicators; and liaison with stakeholders (including employees,	Total number of units = 5 2 core units 3 elective units, consisting of: a minimum of 2 units from Group A the balance of 1 elective unit, may be selected from: Group A Group B any endorsed Training Package or accredited course at Graduate Certificate and Graduate Diploma level – these units must be relevant to the work outcome.	MSS017009 Analyse and determine organisational risk areas in sustainability MSS017012 Lead sustainable strategy deployment

Qualification	Description	Packaging rules	Core units
	value chain members and the local and general community). Target groups include supervisors, managers and technical experts responsible for implementing sustainability improvement strategies and practices in their organisation and/or all or part of the value chain.		

Appendix E: Units with potential for cross industry use

Unit Code	Unit Title
BSBSMB308	Improve energy efficiency in micro or small business operations
BSBSMB410	Review and implement energy efficiency in business operations
BSBSUS402	Implement an environmental management plan
BSBSUS403	Measure, monitor and reduce carbon emissions
BSBSUS404	Assess, implement, monitor and report on waste management
BSBSUS405	Assess, monitor and reduce water use
BSBSUS406	Identify and apply sustainability rating tools
MSL975042	Design and supervise complex environmental field surveys
MSL976004	Prepare plans and quality assurance procedures for environmental field activities
MSS014013	Contribute to sustainability related audits
MSS015011	Conduct a sustainability energy audit
MSS015020	Facilitate an energy audit
MSS015021	Measure and report carbon footprint of a product or product class
MSS015022	Develop strategies for more sustainable use of resources
MSS015024	Develop required sustainability reports
MSS015026	Develop strategic sustainability plans
MSS015027	Implement sustainability plans
MSS015028	Conduct a sustainable water use audit
MSS015030	Conduct an emissions audit
MSS015031	Conduct a sustainability related transport audit
MSS015034	Inform and educate organisation and community representatives on sustainability issues
MSS020715	Provide environmental advice to clients
MSS024013	Work and communicate effectively as an environmental technician
MSS024014	Implement environmental management plans and procedures
MSS024015	Apply an understanding of environmental principles to a site
MSS024016	Process and present environmental data
MSS024017	Collect spatial and discrete environmental data
MSS024018	Perform sampling and testing of water
MSS024022	Perform environmental biological techniques
MSS024024	Undertake simple environmental project activities
MSS025008	Monitor and evaluate noise
MSS025009	Perform sampling and testing of air
MSS025010	Assist with odour source assessment
MSS025011	Assist with odour field assessment
MSS025012	Perform environmental microbiological tests
MSS025013	Assist with assessing and monitoring wetlands
MSS025014	Perform sampling and testing of contaminated sites
MSS025016	Perform sampling and testing of stationary emissions
MSS025017	Assist with assessing site environmental indicators
MSS025018	Assess the environmental risk and impact of a project activity or process
MSS025019	Report environmental data
MSS025020	Provide environmental information to customers
MSS025021	Collect and evaluate groundwater data
MSS025022	Perform sampling and testing of soils
MSS025023	Plan and conduct environmental project work
MSS027013	Coordinate environmental management activities
MSS027014	Apply environmental legislation, codes and standards
MSS027016	Contribute to improving environmental performance
MSS027017	Contribute to environmental decision making
MSS027018	Undertake complex environmental project work
MSS027020	Coordinate water quality management activities

Unit Code	Unit Title
MSS027021	Coordinate air quality management activities
MSS027022	Coordinate noise management activities
MSS027023	Coordinate site remediation or rehabilitation activities
MSS027024	Select, commission and maintain environmental monitoring instruments
MSS405086	Develop sustainable energy practices
PMASUP420	Minimise environmental impact of process
PMASUP520	Review procedures to minimise environmental impact of process
PMASUP620	Manage environmental management system

Appendix F: Units with potential for replacement with a multi-sector unit

Unit Code	Unit Title
ACMSUS401	Implement and monitor environmentally sustainable work practices
AHCWRK202	Observe environmental work practices
AHCWRK309	Apply environmentally sustainable work practices
AHCWRK405	Implement and monitor environmentally sustainable work practices
AMPX208	Apply environmentally sustainable work practices
AMPX313	Contribute to energy efficiency
AMPX410	Facilitate achievement of enterprise environmental policies and goals
CPCSUS4001A	Implement and monitor environmentally sustainable work practices
CPCSUS5001A	Develop workplace policies and procedures for sustainability
CPPCMN4001	Develop workplace policies and procedures for sustainability
CPPCMN4002	Implement and monitor environmentally sustainable work practices
FBPTEC5002	Manage utilities and energy for production process
ICPSUP222	Pack and dispatch solid waste
ICPSUP261	Follow WHS practices and identify environmental hazards
ICPSUP323	Dispose of waste
MSTGN4010	Implement and monitor WHS and environmental systems in the workplace
PPMSUS510	Develop workplace policy and procedures for sustainability
RIIENV302D	Apply environmentally sustainable work practices
RIIENV402D	Implement and monitor environmental policies
SFIEMS201	Participate in environmentally sustainable work practices
SFIEMS401	Implement and monitor environmentally sustainable work practices
TLIU0001	Develop workplace policy and procedures for environmental sustainability
TLIU1013	Prepare for environmentally sustainable work practices
TLIU2012	Participate in environmentally sustainable work practices
TLIU3011	Implement and monitor environmentally sustainable work practices
UEENEEK142A	Apply environmentally and sustainable procedures in the energy sector
UEGNSG140	Apply environmental policies and procedures in the utilities industry
UEPOPS356	Apply environmental and sustainable energy procedures
UETTDREL11A	Apply sustainable energy and environmental procedures

Appendix G: Units requiring further investigation

Unit Code	Unit Title
AHCWAT301	Monitor and operate water treatment processes
AMPA2161	Operate waste recovery systems
AUMFMM002	Reduce waste in automotive manufacturing work processes
FWPCOR3201	Implement safety, health and environment policies and procedures
FWPCOR4201	Monitor safety, health and environment policies and procedures
FWPCOR6201	Manage sustainability in the workplace
FWPCOT3254	Implement environmentally sustainable work practices in the work area/work site
FWPCOT3263	Maintain and contribute to energy efficiency
FWPCOT4208	Implement workplace sustainability practices
FWPCOT5207	Implement sustainability in the workplace
MEM50004	Maintain quality of environment by following marina codes
MSTGN3007	Monitor and operate trade waste
NWPGEN005	Coordinate and monitor the application of environmental plans and procedures
PMBWASTE101	Collect waste for recycling or safe disposal
PMBWASTE302	Coordinate waste disposal
PPMENV210	Identify and monitor environmental discharges/emissions
PPMENV320	Monitor and control environmental hazards
PPMSUS210	Apply sustainable work practices/policies
TLIU1009	Monitor plant and equipment in an environmentally sustainable manner
TLIU4001	Implement and monitor environmental protection policies and procedures
TLIU5006	Conduct environmental audits
UEENEEK145A	Implement and monitor energy sector environmental and sustainable policies and procedures

Addendum

IRC responses to consultation papers – received after finalisation of this paper by the Environmental Sustainaibilty Expert Panel

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
CHC- Community Services Training Package	Skills IQ	Collated by SSO	Would need specialist advice and support on how to embed principles of environmental sustainability (Disability Support IRC)	Unit CHCECE025 is specific to the needs of the early childhood education sector. Not sure that it would be relevant to many other qualifications. Generic competencies can too easily become too vague and generalist. The current unit is detailed and targeted and works well for workplace delivery. (Children's Education and Care IRC) Unit CHCCEL001 includes environmental sustainability considerations for celebrancy sector. (Client Services IRC) Environmental sustainability should be integrated into all learnings where possible. Industry organisations are looking to improve practices to increase awareness and	Unsure if these qualifications would be suitable/relevant. The demand/uptake would be limited (Disability Services IRC)	Basic/civic level of refuse, reduce, reuse, recycle (Disability Services IRC)

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
				decrease environmental impact (Disability Services IRC)		
HLT- Health Training Package	Skills IQ	Collated by SSO	Good start for raising awareness. Ensuring all IRCs consider environmental sustainability would expedite the process for inclusion within qualifications. Would need support from the AISC re advice around existing skills sets and relevance to employment (Technicians Support Services IRC) Support the option – the IRC would need support from AISC re advice on existing skill sets and their relevance (Enrolled Nursing IRC) Industry needs this option. There must be a balance between use of disposable equipment and materials with	Support the use of generic units and skill sets as an efficient way to deliver environmental sustainability. Consideration should be given to current content in qualifications to ensure addition does not make for more onerous content level. (Technicians Support Services IRC) Support the development and inclusion of generic units (Enrolled Nursing IRC) Important to embed broader sustainability knowledge and generic skills in all units so that it is part of everyday practice – waste management, measuring impact, re/upcycling (Direct Client Care IRC)	Too onerous for people to undertake a whole qualification in environmental sustainability (Technicians Support Services IRC) Only need options for units to be included in current qualifications. Sustainability language could be built into new written units, i.e. inclusion of principles (Enrolled Nursing IRC) Diploma of Sustainable Operations may be relevant due to WHS/environment monitoring focus with a view to reduce usage, but it is not the whole picture. Consider including initiatives to actively improve current practices i.e. air quality,	If the skill sets are already in existence, then they should be used across qualifications rather than creating more specific skill sets (Technicians Support Services IRC) Make use of skill sets across qualifications that already exist (Enrolled Nursing IRC) Support skill set or micro credential because RTOs won't pick up sustainability units instead of other units, they need to be in addition. (Direct Client Care IRC)

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
			reusable items that require sterilisation. With most training done in the workplace, environmental sustainability skills must be built into each unit/module (Dental IRC) All IRCs should be considering environmental sustainability but will need expert advice to do so (Direct Client Care IRC) - Health and well-being and environmental sustainability concerns are systemic, complex and cross sector. Engagement, action and strategies required both include and exceed the health sector. With climate change already occurring, there is no status quo and no worker or industry will be unaffected. Cross sector training and awareness is part of building a more climate resilient community, economy and	Skills and knowledge must be considered within the context of the healthcare setting and any overarching legislation, e.g. implications for hygiene and dietary requirements To prepare health professionals for global and local environmental change, environmental sustainability and climate adaptation and mitigation must be meaningfully integrated into health curricula.	not only reducing carbon emissions but also increasing plants/ventilation (First Aid IRC) No need for sustainability qualifications unless you are employed in a dedicated environmental role. In most cases business managers, with a business qualification will have responsibility for managing/monitoring the organisation's environmental impact (Direct Client Care IRC)	

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
			environment. Core units would include commonalities of health, emergency management, mitigation (Aboriginal and Torres Strait Islander Health Worker IRC)			
LGA04- Local Government Training Package	Skills IQ	Collated by SSO	This is a necessary first step in engaging all IRCs on environmental sustainability and providing access to information at an introductory level. Discussion about the importance and depth of cross-cutting issues needs to be considered. Environmental sustainability is important to key activities in local government and units already reflect this.	There are LGA units that contextualise environmental sustainability skills but they are not relevant to all workers. A generic unit could be useful to cover other roles. Support developing a generic unit that can be applicable to each qualification level: certificate III – participate, certificate IV – implement, diploma – manage The existing LGA units could possibly be adopted by some other sectors, but not all	This option is compartmentalising the issue, not mainstreaming, it undermines what is trying to be achieved by addressing environmental sustainability across sectors. Would have benefits for RTOs but not for industry and individuals who then need another complete qualification.	Not sure how useful this would be for the IRC unless it was the IRC's responsibility to integrate this through the training package and each competency unit. It could be useful as guidance if you wanted full mainstreaming of environmental sustainability.
MST- Textiles, Clothing and Footwear	IBSA	Collated by IRC Chair	The IRC considers environmental sustainability factors as part of the process when undertaking development of the ISF	The TCF TP imports generic units where possible, e.g. MSMENV272, and will continue to consider the	No demand identified	No demand identified

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
			and TP projects. Additional resources may be required if more formal requirements specifically focusing on environmental sustainability skills are introduced.	use of appropriate cross sector units. The identified MST units could be used as the basis for the development of cross-sectoral units providing a separate TCF section is included in the Assessment Conditions to outline the TCF requirements for assessors when the unit is delivered in a TCF qualification, skill set or context. The IRC does not provide advice on contextualisation of units as this is the responsibility of the RTO and is common practice in the delivery of training for the textiles industry.		
PSP- Public Sector Training Package	Skills IQ	Collated by SSO	Support option 1 because IRCs are best placed to determine skill needs in their areas. Options 2-4 would be difficult to implement and maintain and may unnecessarily restrict business. The complexity of issues would prohibit	No concerns re streamlining of units because they are contextualised to industry when they are delivered. Use of generic units will reduce unit duplication and support	Existing qualifications have scope to be applied across a range of industry contexts and should be promoted as a ready-made solution rather than developing new units	Skill sets are a useful tool for developing specific skills

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
			any predictive capabilities over the long term. Consistency in approach to reporting makes sense and ensures all SSOs and AISC understand what is required.	transferability of knowledge and skill. Contextualisation does take place during delivery based on the scope the employer/agency has relative to environmental sustainability operations and practice. BSB units are already made available across a range of industries so moving them to a cross sector package would make little difference (but why have another TP when there are already so many?) If the identified units weren't listed in the PSP TP as electives it would be harder for the RTO to integrate them into the qualifications and they may be overlooked.		
SFL- Floristry Training Package	Skills IQ	Collated by SSO		Option 2 is the most relevant and implementable in the Floristry TP. It's what is currently being done and appears to give the required flexibility in		

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
				delivery. The generic BSB units are electives but perhaps in future they could be worked into the core. Sustainability is becoming a bigger issue within the floristry industry and should be reflected in training.		
SHB- Hairdressing and Beauty Services Training Package	Skills IQ	Collated by SSO		The units currently included from BSB work very well for the beauty, floristry, funeral and retail packages. Not in favour of generic cross sector units – we already have a good range of units to choose from but perhaps they should be moved into the core in some instances rather than electives if that is what the industry requires.		
SIR- Retail Services Training Package	Skills IQ	Collated by SSO	Option 1 reads as the optimal starting point. The impact on workload of such a process may be great and additional funds may be needed in Skills IQ to facilitate such a process. Advice and consultation would be critical to ensure that	While sustainability is a topical and important issue for business, it should not override the key skills that are offered for the sector. Option 2 is a viable one for us. The common vocabulary and transferability of skills		

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
			relevant data was being considered and proposed skill sets addressed current and potential emerging trends and best practice.	and knowledge would be of benefit to all sectors.		
SIS- Sport, Fitness and Recreation Training Package	Skills IQ	Collated by SSO	Impact of having a common framework that defines environmental sustainability. There are many questions arising regarding defining environmental sustainability, who would be consulted, how that would inform the development and importation of units, and how 'success' could be measured. IRC would require support: specialist advice for workforce analysis, access to data, consultation time, framework guidance. Without a framework there is potential for variation and misalignment between IRCs/ISFs which would result in environmental sustainability being poorly implemented and	New outdoor qualifications and units were released in September 2019. Some units of competency are very specific to industry needs but there are some very good units that are applicable across industries. There is potential to align similar units and create a level of sameness while maintaining industry relevance (examples provided). Units from the outdoor recreation qualifications are typically delivered separately and simultaneously reinforced with delivery of activity in specific units of competency. Components of the units could apply across industries but the	The current qualifications with the allowance to import units from any training package allow for sufficient importing of industry specific environmental sustainability units. Whether industry specific skills are needed comes down to the job role and whether the currently available qualifications are relevant or whether the required skills relate to one or more units of competency.	There are lots of units that relate to the tasks undertaken by people working in the environmental sustainability space. There appear to be no units of competency that are generic and could be imported into training packages. People who have environmental sustainability as a component of their role may need generic skills/units: Maintain environmental sustainability in the workplace, Lead environmental sustainability in the workplace, Manage environmental sustainability in the workplace. There is already an abundance of performance criteria in a

Training Package	SSO	Response received:	Industry Skills Forecast	Units	Qualifications	Skill sets
			seen as green-washing by the entire VET sector including industry contributors and government supporters.	complete units have limited applicability. Possible to reconsider how units of competency are developed and potentially keep common performance criteria together in one or more elements and place industry specific performance criteria in different elements (examples provided).		wide array of units that incorporate environmental sustainability which could be used to develop what would be highly relevant cross sector units.