Skills for Sustainability

Manufacturing Skills Australia

Assessment Guide:

MSS014002A Evaluate sustainability impact of a work or process area

This project is supported by the Australian Government
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Assessment Guide

MSS014002A Evaluate sustainability impact of a work or process area

Contents

About the assessment guide

Aim of the guide

The Sustainability Skills assessment guide will assist Registered Training Organisations (RTOs) to design and contextualise their assessment activities and evidence requirements for the unit of competency **MSS014002A Evaluate sustainability impact of a work or process area.**

In particular the guide demonstrates how:

- **Assessment methods can be chosen to suit the learner**, for example, if a learner has existing skills and experience in the unit of competency a portfolio of evidence is more useful than direct observation.
- **Assessment methods can be chosen to suit the industry context**, for example, where a work place has established sustainability policies and procedures direct observation and work place documentation / records could be used.
- Specific types of evidence can be identified that relate to the unit requirements and the industry context, for example, if the company has weekly production meetings minutes of these might provide evidence of making recommendations.

These decisions are used to design the assessment activities. For example a work place project might be developed around the aspects of the unit that can be applied and/or demonstrated in the workplace. Portfolio requirements might be designed around evidence that can be found, or generated, from typical day to day activities. An interview or test might be designed around aspects of the unit where knowledge needs to be tested because it is not clearly demonstrated in the practical activities or to test an individual's knowledge in a team environment.

The guide also provides examples that show how:

- **a contextualised workplace project can be developed** that demonstrates relevant aspects of the unit
- **questions can be identified** to assist in the authentication of evidence and show understanding of the application of the concepts of sustainability.

The assessment guide uses a fictional scenario as the basis for demonstrating one approach to developing an assessment tool for this unit of competency.

Note that the guide should be read in conjunction with the unit of competency (see training.gov.au).

What the guide does not provide

The guide focuses on selecting assessment methods and evidence and does not provide a complete or validated assessment instrument. It is for guidance only; there are others ways that the unit could be assessed and many ways that an assessment can be contextualised. None of the processes or ideas in this guide is mandatory.

It does not cover everything that an RTO must address to deliver an assessment and meet compliance. For example the RTO will need to address:

- development of assessment instruments and documentation
- validation of assessment tools, processes and outcomes
- consulting with industry and developing a training and assessment strategy
- how the assessment will be 'delivered', for example, scheduling the activities, monitoring and providing support to the learner, and engaging input from enterprise managers
- full mapping of evidence to units of competency.

Each RTO will need to decide whether to follow any of the processes demonstrated here. If so, the RTO will need to amend the evidence and other details to reflect the characteristics of their learner/s and the context of their assessment. This should be based on their consultations with industry and clients, and the other information within their training and assessment strategy.

Focus of the guide

MSS11 Sustainability Training Package Assessment Guidelines

The Assessment Guidelines in MSS11 state that "*assessment should be conducted in the workplace or in a in a work-like environment. Many of the units also require the measurement of environmental and other indicators over a period of time and for this reason project based assessment is also preferred*."

This unit of competency states that "*Assessors must be satisfied that the candidate can competently and consistently apply the skills covered in this unit of competency in new and different situations and contexts.*"

In addition the Sustainable Operations qualifications are designed for workers experienced in their industry who require an 'overlay' of skills to improve the sustainability of the business.

Therefore the assessment guides focus on assessment methods for experienced workers and workplace assessment.

Contextualising

The guide focuses on contextualising assessment to the participants / learners and the workplace context. It demonstrates how the context of the assessment can be analysed and used to select assessment methods and evidence to meet the requirements of the unit of competency.

Typically the context comprises information about:

- industry or enterprise systems, practices and documentation
- characteristics of the learner/s
- mode of delivery of any training.

The guide outlines one approach to planning and designing assessment activities and evidence that are contextualised.

There are many ways that an assessment can be designed to meet the context and the unit requirements. The approach outlined in this guide is just one way. If an RTO follows this approach they should amend the activities, evidence and other details to reflect the characteristics of their learner/s and the context of their assessment.

Contextualising for different sectors is critical. The sustainability issues that are significant to one industry sector or process might not be found in another. For example the casting and forging sectors use large amounts of energy and produce emissions such as dust and greenhouse gases (GHGs). However, one of the key sustainability issues in furniture manufacture may be sourcing plantation timber.

Additional information is available on the Skills for Sustainability website at http://www.sustainabilityskills.net.au including information about this unit of competency and information about sustainability issues in different sectors.

The website also has information about contextualization, understanding sustainability issues within different sectors, designing an assessment, developing workplace projects and using simulated workplace environments.

What's in the assessment guide

This guide provides:

- a scenario outlining the RTO, learner and enterprise context
- key points drawn out from the scenario
- checklists to help link the context to the assessment methods and evidence:
    - checklists relating to the context for the assessment
    - checklists relating to assessment methods, and methods of collecting and submitting evidence
- an evidence planning table, linking the scenario context with evidence and the unit of competency
- a work based project based on the scenario and unit of competency and contextualised using the identified evidence
- questions based on the scenario and unit of competency and contextualised using the identified evidence.

Assessment planning and design

Planning every aspect of an assessment is a broad process that requires many steps and sources of information. Arguably it can start with industry consultation and developing the training and assessment strategy; and conclude with the assessment decision and feedback to the learner.

This guide focuses on a small section of the process. It targets the steps of analysing the unit of competency and the context of the assessment in order to select appropriate assessment activities and evidence collection. These steps are represented in the flow chart at Figure 1.

Typically the context comprises the industry or enterprise systems, practices and documentation and characteristics of the learner/s and mode of delivery of any training. As an RTO you will collect much of this information from your industry consultation and discussion with clients, and capture it in your training and assessment strategy.

In this guide the context is described in a scenario which includes a fictional RTO, learner profile and an industry sector or enterprise context. It uses this information to identify suitable assessment methods and available evidence that are aligned to the unit of competency. These are used to design the assessment activities linked to the unit requirements.

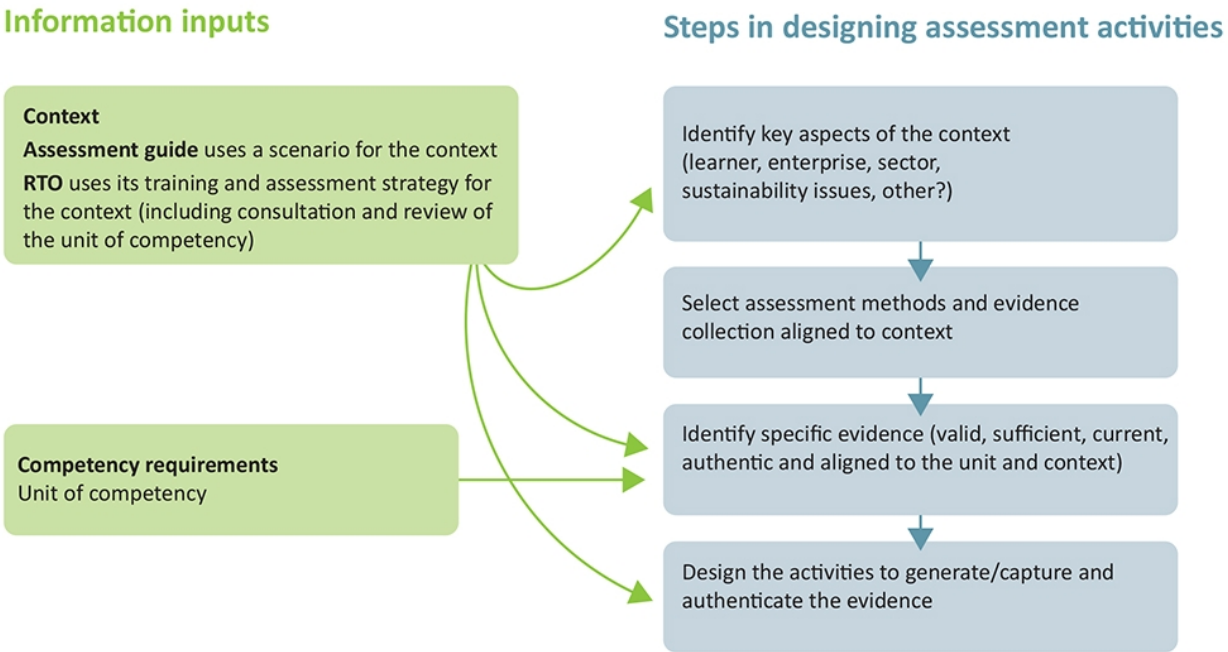

Figure 1 Designing assessment activities

Context: The scenario

The RTO

CRS Training Services runs a course in evaluating sustainability impacts in manufacturing. CRS uses the Moodle learning management system and learners have access to online resources and diagnostic questioning.

Kevin, the trainer and assessor, has a class of 15 learners from a range of manufacturing industry sectors. He is committed to providing individual customised assessment for his adult learners. He discusses what evidence of competency to collect with each learner and likes to visit the workplace to observe the learners.

The learners are enrolled in MSS40111 Certificate IV in Sustainable Operations and will start with the unit of competency MSS014002 Evaluate sustainability impact of a work or process area.

The learner

Tanya has been a supervisor at Pyramid Australia for ten years and reports directly to the general manager. She has detailed knowledge of the processes and work area in the factory, which uses all the latest technology. Tanya has been sent to the course to learn how to evaluate the sustainability impact of her production lines. As a supervisor she:

- is responsible for up to three different production lines, depending on the orders
- manages a multi-cultural team of industrial machinists, trim and examine specialists and cutters
- has initiated 5S in her work area, started to set up some visual systems for procedures and tracking production and uses Tap Root for root cause analysis (RCA)
- wants to know whether there are any improvements that her team can make that will deliver cost savings and/or productivity improvements
- is expected to apply the skills she gains in the course in her workplace and report her recommendations to the general manager.

The enterprise context

Pyramid Australia manufactures up to 6000 garments (predominantly shirts and denim jeans) per week for well-known brands.

Pyramid Australia does not have a sustainability strategy, and has not developed a formal strategic sustainability plan. However, senior management is thinking about how to approach sustainability, what goals to set and whether it would be a cost or benefit to the business, especially as the clothing industry is increasingly using the ISO 14001 Environmental management systems, Ethical Clothing Australia guidelines and the Procurement Code of Practice.

As senior management is not yet fully committed to sustainability there is no budget for major projects or capital expenditure, but if things go well management may take further steps towards implementing sustainable operations. There is no formal process or template for making suggestions, but there are weekly production meetings and organisational procedures and protocols in place that could be adapted for use, such as benefit/cost analysis.

Key points from the scenario

- the industry sector is clothing manufacture
- Tanya is attending a course and will be implementing the unit of competency in the workplace, so a workplace project is feasible as a key assessment method
- Tanya has detailed technical knowledge of the processes of the work area
- Tanya has been asked by the general manager to identify the sustainability issues on her production lines and recommend a range of solutions and strategies to address the issues
- written documents and formal reports are not required for recommendations
- Tanya has access to workplace documents and will be able to identify and liaise with the stakeholders
- the business is starting to use lean techniques, such as causal analysis, visual workplace systems and 5S
- Pyramid Australia does not have a sustainability plan or goals in place so the workplace project will need to identify existing business goals/drivers/key performance indicators (KPIs) that are relevant to sustainability.

What does the scenario tell us about the context for the assessment?

☑ Classroom based
☑ Existing worker in this field
❑ Not currently employed in this field
☑ Off-the-job learning
☑ On-the-job implementation
❑ Recognition of prior learning (RPL)
❑ Simulated workplace environment
☑ Single unit of competency
❑ Skill cluster
❑ Whole qualification
☑ Workplace based

Which assessment methods are suitable?

Direct observation, for example:
☑ Practical demonstration in the workplace
☑ Real work/real time activities in the workplace
❑ Work activities in a simulated workplace environment

Structured activities, for example:
❑ Activity sheets
☑ Presentation to colleagues
❑ Scenario-based project
❑ Simulation exercises, such as hypotheticals and role plays
☑ Work-based case study
☑ Work-based project (and documentation)

Questioning, for example:
❑ Oral or written examinations (may be applicable at higher AQF levels)
❑ Questionnaires
❑ Self-assessment
☑ Verbal questioning/discussion/interview
❑ Written questions

Portfolios of evidence, for example:
❑ Authenticated prior achievements
☑ Collection of work samples compiled by the learner
❑ Evidence of training courses attended
❑ Historical evidence
❑ Information about life experience
❑ Journal or log book
☑ Photographs or video
❑ Product with supporting documentation
❑ Verified workplace history/CV
☑ Workplace documentation/records

Third-party feedback, for example:
❑ Interview with employer, supervisor or peer
❑ Letter of support from a workplace
❑ Testimonials and reports from employers and supervisors
❑ Third-party report from supervisor or technical expert

How will evidence be collected or submitted?

☑ Documents (electronically/in person/mail)
☑ Data capture (video/audio/notes/smart pen by assessor/third-party/candidate)
❑ Data submission (web upload/mail (USB drive/SD card/disc) and so on)
❑ Online real time (Skype and web conference)
☑ Online self paced (online tests and interactive simulation)

Evidence: What will be available and suitable?

The evidence planning table shows one way of linking the context of the scenario with the unit of competency. It examines the unit of competency, the context and the selected assessment method in order to identify appropriate assessment evidence.

Based on the scenario, the learner and the context identified above, the following evidence could be expected to be available as part of the assessment. Keep in mind that some evidence might apply to several aspects of the unit or even several units.

In the scenario used in this guide the learners all work in a different enterprise and sector. So the RTO would need to adapt the evidence and to reflect each enterprise context and learner.

Evidence planning table

This table provides an example of identifying evidence that is available in the workplace. The evidence listed here has been selected so that it covers the required skills, required knowledge and critical aspects of assessment for this unit, however, this has not been shown in the table.

The table is not intended as a format for mapping to meet compliance requirements and each RTO needs to determine the type of mapping that may be required by its registering body.

Element	Performance Criteria	Evidence
1 Evaluate the work or process area	1.1 Identify the boundaries of the process or work area to be evaluated 1.2 Identify all process steps within this area 1.3 Identify the change which occurs at each step 1.4 Define sustainability interactions at each step	☑ **Work-based project (and documentation)** • Work plan for a work-based project to evaluate the sustainability of a work or process area • Process map for the defined work or process area identifying the change and sustainability interactions for each step ☑ **Workplace documentation/records** • Notes of a discussion with the team leaders and general manager to identify who to talk to and what the boundaries of the project are ☑ **Collection of work samples compiled by the learner** • Collection of documentation outlining the process and changes that occur at each step, such as standard operating procedures, work instructions and methods ☑ **Verbal questioning/discussion/ interview** • Questioning by the assessor about the work-based project

Element	Performance Criteria	Evidence
2 Determine sustainability issues for the work or process area	2.1 Identify sustainability goals of enterprise as they relate to the process or work 2.2 Identify environmental sensitivities at each step in the process or work area 2.3 Identify other sustainability issues at each step in the selected portion of the value chain 2.4 Short list high priority sustainability issues	☑ **Work-based project (and documentation)** • List of sustainability goals for the enterprise, such as business goals that relate to sustainability, relevant legislation, regulations, and codes and standards • Documentation of the sustainability issues and environmental sensitivities for each step in work area or process • A table of short listed high priority sustainability issues • Notes of consultations identifying environmental sensitivities with people, such as management, family and friends, the community, employees and environmental groups ☑ **Photographs or video** • iPhone footage and photographs to illustrate sustainability issues in the work area, such as visible emissions, drains to local creeks and waste disposal ☑ **Collection of work samples compiled by the learner** • A collection of documents and data used to identify what the environmental sensitivities, such as media coverage, trade journal articles, notes of community liaison meetings and community complaints register ☑ **Verbal questioning in a discussion or as an interview** • Questioning by the assessor about the work-based project
3 Analyse sustainability issues for the work or process area	3.1 Determine root cause of each short listed sustainability issue 3.2 Determine possible solutions to root causes 3.3 Estimate resources required for solutions and alternative mitigation strategies 3.4 Rank possible solutions strategies by desirability 3.5 Recommend preferred solutions in accordance with organisational procedures and protocols	☑ **Work-based project (and documentation)** • Report for management of prioritised solutions with an explanation of the basis for the recommendations and the resources required • Analysis of each short listed sustainability issue using Tap Root analysis and possible mitigation strategies • Estimation of resources required, such as a table with rough costing or budget of time, dollars, labour and materials ☑ **Presentation to colleagues** • PowerPoint presentation of a simple benefit/cost analysis and recommended solutions presented to the general manager and production line team members ☑ **Verbal questioning in a discussion or as an interview** • Verbal questioning of the learner by the assessor about the portfolio of evidence

Assessment activity: Work based project

The work-based project defines a project that the learner can do in the workplace. This might be part of their normal activities or it could be an additional activity. In this example there is a clear relationship between the unit of competency and a workplace activity to 'evaluate the sustainability impact of a work or process area'.

So, for this unit, the outline of the project can come from the unit itself. The details of the project can be designed by bringing together the context with the evidence that is available in the workplace (or that can be generated by the project). The evidence that has been identified in the evidence planning table helps to define the project.

A work based project for Tanya at Pyramid Australia.

The project is to evaluate the sustainability impact of a production line at Pyramid Australia, including identifying the sustainability issues and proposing a range of solutions and strategies to improve sustainability.

Tanya will need to complete the following:

1. Liaise with her team leaders and managers to identify and ensure human and data resources are available to undertake the project.
2. Plan how she will evaluate the sustainability impact of one of the production lines, including:
    - providing a description of the overall business
    - providing a description of the production line to be evaluated
    - identifying who the key stakeholders are and how she will communicate with them
    - identifying the sustainability issues relevant to the production line showing how they relate to business goals, relevant legislation, regulations, codes and standards (e.g. ISO 14001 Environmental management systems, Ethical Clothing Australia and the Procurement Code of Practice)
    - identifying any enterprise sustainability goals.
3. Create a process map for all the process steps within the production line, identify the changes and define the sustainability interactions at each step.
4. Identify the environmental sensitivities and environmental, economic and social sustainability issues for each step and short list the high priority sustainability issues, providing a justification of why these have been short listed.
5. Decide on a method to identify the cause of each issue in the short list (it could be one in use in the workplace, such as Tap Root or 5Y).

6. Identify the most likely cause and at least one possible solution to each issue.
7. Estimate the costs and other resources required for the possible solutions.
8. Refer to the environmental sensitivities and the strategic sustainability goals to decide on any additional criteria to help to evaluate and rank the solutions.
9. Use a simple benefit/cost analysis to rank the solutions by desirability.
10. Present prioritised recommended solutions to the general manager with the rationale for the ranking and obtain feedback. The report may be verbal, notes or a PowerPoint presentation.
11. Upload a portfolio of evidence showing how the work or process area was evaluated for sustainability.

Assessment activity: Questions

In this guide, questioning is used to assess required knowledge and aspects of competency which are difficult to assess in other ways, for example, testing the application of the concepts to the project activities. The questions also help to authenticate the evidence.

Based on the scenario, Kevin, the assessor, will discuss these questions with Tanya at pre-determined points during the project, as part of his delivery and assessment responsibilities.

Questions for Tanya at Pyramid Australia

How did you define the work area or process to be evaluated at Pyramid Australia?

How did you draw the boundaries about the sustainability impacts and other related areas up and down the value chain?

What are the major environmental, social and economic sustainability issues in clothing manufacture?

What are the major drivers for sustainability in clothing manufacturing?

How did you decide what the environmental sensitivities are for the production line?

Who were the people at Pyramid Australia that you consulted with? Why was it important to consult with them?

Did you do this work as part of a team? If so outline what your role was.

What existing workplace processes, data and documentation were you able to use?

How did you decide on what the short listed high priority sustainability issues would be?

Why have you made the recommendations you have made?

Are there alternative mitigation strategies that could be used?

Explain the benefit/cost analysis. Are all benefits necessarily related to cost savings? What other sorts of benefits could there be?

Would the process you have gone through to evaluate the sustainability impact of the production line apply to other parts of the supply chain?

What will happen next?