2023 - 2028
Investment Framework Update

FIGHT FOOD WASTE
Cooperative Research Centre
REDUCE - TRANSFORM - ENGAGE

Australian Government
Department of Industry, Science and Resources

AusIndustry
Cooperative Research Centres Program

The Fight Food Waste Cooperative Research Centre gratefully acknowledges the Australian Government's Cooperative Research Centre Program financial contribution as well as that of all our participants.

This document should be cited as Fight Food Waste CRC (2023) *2023-2028 Investment Framework Update*. Fight Food Waste Cooperative Research Centre, Adelaide, Australia.

© Fight Food Waste Limited 2023

Level 1, Wine Innovation Central Building, Cnr Hartley Grove and Paratoo Road, URRBRAE SA 5064

enquiries@fightfoodwastecrc.com.au +61 8 8313 3564

All information, data and advice contained within the report is provided by the Fight Food Waste CRC in good faith and is believed to be accurate and reliable as at the time of publication. However, the appropriateness of the information, data and advice in the report is not guaranteed and is supplied by the Fight Food Waste CRC 'as is' with no representation or warranty.

Table of contents

1. Introduction

The $120 million 10-year Fight Food Waste Cooperative Research Centre commenced on July 1, 2018. Our vision is to create an Australia without food waste. We aim to achieve this by ENGAGING with industry and consumers to REDUCE food waste across the supply chain and to TRANSFORM unavoidable waste into innovative products. The purpose of the Fight Food Waste CRC is to reduce food waste, increase industry profitability and enhance food rescue to deliver economic, social and environmental benefits for Australia.

The strategic objectives of the Fight Food Waste CRC are to deliver:

- a transformation in the way Australian industry and consumers view food waste as well as contribute to food rescue;
- a suite of new tools and technologies for extracting the maximum value out of primary production, food manufacturing, supply chains and product sales, whether through supply chain innovation or waste transformation;
- reduction in food waste entering landfill and associated greenhouse gas emissions; and
- future industry professionals skilled in capturing opportunities identified by industry.

As outlined in the 2018-28 Strategic Plan, and summarised in our Strategy on a Page (next page), the Fight Food Waste CRC aims to deliver on its strategic objectives through two key mechanisms: (1) Deliver the Grant Agreement, and (2) Deliver Future Initiatives.

Investment Framework Update Intent

The purpose of this Investment Framework Update is to provide a clear framework in regard to the types of projects that the Fight Food Waste CRC will co-invest in to ensure that the organisation delivers maximum impact in relation to our key performance indicators. This is required to ensure that the Fight Food Waste CRC not only meets its Department of Industry, Science and Resources (DISR) Grant Agreement obligations but exceeds them.

As depicted below, the original 2018-28 Investment Framework builds on the comprehensive 2018-28 Strategic Plan, which captures the contractual requirements of the DISER Grant Agreement between the Australian Government and Fight Food Waste Limited, the Limited by Guarantee company established to manage the Fight Food Waste CRC. The DISER Grant Agreement, executed in August 2018, was based on the Fight Food Waste CRC Full Business Case that was submitted in December 2017. This 2023-2028 Investment Framework Update provides an new list of Future Initiative project areas, as well as minor updates to the investment criteria.

Full Business Case › **DISER Grant Agreement** › **2018-28 Stategic Plan** › **2023-28 Investment Framework Update** › **2018-33 Impact Model** › **Annual Operational Plans**

2. Strategy on a Page

An Australia without food waste

The Fight Food Waste Cooperative Research Centre will increase industry profitability, address food insecurity and enhance Australia's reputation as a sustainable food producer

By uniting science and industry we will

REDUCE food waste throughout the supply chain

TRANSFORM unavoidable waste into innovative products

ENGAGE with industry and consumers to deliver behavioural change

2018 → **2028**

Baseline

1/3 of all food produced

$20 Bn p.a. in Australia

7.3 M T food waste p.a.

298kg per Australian per year

13.5 M T of CO2-e

4 M people food insecure

Deliver the Grant Agreement

We will first establish our initial 30-project research, development and extension program based on the best science and expertise with our existing participants. We will then develop and deliver new projects with existing and new participants that ensures we effectively deliver on all Grant Agreement performance milestones.

Deliver Future Initiatives

We will identify and target additional food loss and waste opportunities based on the National Food Waste Baseline and other key reports that will deliver significant food waste reduction and industry benefits to help achieve SDG 12.3. Additionally, we will scope and potentially develop a 10-year national behaviour change program that targets the entire food system, particularly consumers, with the Australian and state and territory governments and industry that reduces and prevents food waste from entering landfill.

Grant Agreement targets

30 M T of reduced food waste

$2 B Increase in industry profitability

20 M Kg of rescued food distributed

5200 circular economy jobs

40 Future Leaders graduated

250 industry people trained p.a.

Our Core Values

Collaboration Working together for better outcomes

Integrity Doing what is right

Performance Creating meaningful impact

Purpose Making a difference for good

FIGHT FOOD WASTE Cooperative Research Centre
REDUCE - TRANSFORM - ENGAGE

SUSTAINABLE DEVELOPMENT GOALS

Australian Government Department of Industry, Innovation and Science | Business Cooperative Research Centres Program

3. Current investment strategy

Current status

As of January 2021, funding for the Fight Food Waste CRC consists of $33.4 million in cash, $46 million in staff in-kind (184 FTE's) and $12.7 million in non-staff in-kind from participants, matched by $30 million in CRC Program cash funding from the DISER. Cash resources are therefore $63.4 million over 10 years, with indicative expenditure show below. Current estimates are subject to change over time based on a range of variables, such as actual contributions received from participants and the CRC Program, as well as final project and administration expense levels.

Currently 94% of cash resources are allocated to delivering the Grant Agreement. The Grant Agreement involves 57 performance milestones that have been outlined in the 2018-28 Strategic Plan. Our initial 3-4 year research portfolio of 43 projects will address the majority of these milestones, however new projects will need to be identified to address the remaining milestones (see Appendix 3) that will utilise existing forward industry contributions and tied CRC leverage. It is important to note that the initial research portfolio was the basis of the Full Business Case and in turn the Grant Agreement and delivering on the Grant Agreement will always take precedence over funding future initiatives.

	Deliver the Grant Agreement	Current funding Future Initiatives	Total CRC
REDUCE	$11,540,476		$11,540,476
TRANSFORM	$21,630,197		$21,630,197
ENGAGE	$9,090,933		$9,090,933
Operational Costs	$15,533,600		$15,533,600
Fee for Service		$750,098	$750,098
Untied Funds*	$3,717,780	$1,140,918	$4,858,698
Total	**$61,512,986**	**$1,891,016**	**$63,404,002**

*Estimate subject to change over time based on a range of variables such as actual contribution and expense levels and whether grant funds need to be utilised in order to meet expected research organisation returns. Amount allocated to 'delivering the grant agreement' relates to leverage promised to original sponsors who have withdrawn (net of those who have joined). Balance allocated to 'future initiatives'.

Deliver the Grant Agreement

Match existing industry participant contributions to projects.
Development of projects that fully utlise the existing participant commitments (+ CRC matching where applicable) and deliver on the Grant Agreement and original business case.

Deliver Future Initiatives

Use untied funds to attract new industry participant funding.
Investment strategy to be developed following Strategic Plan, Impact Model and Gap Analysis. Aim to grow the Fight Food Waste CRC's industry cash contributions by 5% per annum to deliver future initiative.

Keeping our Costs Low

Due to keeping our operational costs low the Fight Food Waste CRC has up to $5 million in untied funds to deliver REDUCE, TRANSFORM and ENGAGE future initiatives that will accelerate food waste reduction in Australia and maximise our chance of achieving Sustainable Development Goal 12.3, By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

To help achieve its impact targets the Fight Food Waste CRC aims to increase participant cash contributions from existing and new members by 5% per annum to firstly replace funding lost due to participant withdrawals during Year 1, and secondly to co-fund future initiatives. It will also help to ensure that the CRC's operating expenses average 20% or less as a percentage of income over our 10-year life.

Impact Targets

The Fight Food Waste CRC is also committed to monitoring its impact and meeting accumulative targets set out in its original business case across seven key impact areas

As of January 2023, it is estimated that industry profitability, rescued food and industry people trained impacts are ahead of schedule, whereas food waste reduced, circular economy jobs, future leaders graduated and greenhouse gas emission savings are slightly behind schedule (but should be achieved by 2048). The latter will therefore be the focus of future investment.

As depicted on the Strategy on a Page, and shown above, all Fight Food Waste CRC projects, irrespective of whether they are part of the initial research portfolio or a future initiative, must also address one or more of seven key impacts that will be monitored to determine the overall long-term impact of the organisation. An impact model has been created that involves each impact that every Fight Food Waste CRC project will feed in to. Baseline data and predicted impacts have been collected for each Fight Food Waste CRC project as they have gone through the project approval process. Actual impacts of each project will be monitored annually throughout the duration of the project and for 5 years after the project is completed.

Predicted Fight Food Waste CRC Impacts based on existing project portfolio

ESTIMATE BY 2033

	Target	Estimate	
Food waste reduced (T)	30M	7.0M	21%
Industry Profitability	$2bn	$1.36bn	68%
Rescued food (T)	20K	695M	3475%
Circular Economy jobs	5200	3327	64%
Future leaders	40	23	58%
Industry people trained	2500	10,860	434%
Greenhouse gas emission savings (T CO_2eq)	44M	10.2M	19%

4. Principles of Future Investment

The following Principles of Investment will be used to determine what future initiatives attract co-investment from the Fight Food Waste CRC to ensure transparency.

As described in the Strategic Plan, **Deliver Future Initiative**s refers to:

> *We will identify and target additional food loss and waste opportunities based on the National Food Waste Baseline and other key reports that will deliver significant food waste reduction and industry benefits to help achieve SDG 12.3. Additionally, we will scope and potentially develop a 10-year national behaviour change program that targets the entire food system, particularly consumers, with the Australian and state and territory governments and industry that reduces and prevents food waste from entering landfill.*

With Future Initiatives the Fight Food Waste CRC is looking to fund high quality and high impact industry-led research, development, education, extension and commercialisation projects that align with our investment criteria.

Core investment criteria:

- Has a demonstrable outcome to reduce food waste
- Will lead to a significant impact on an industry problem
- Ease of adoption by the industry
- Research is innovative and cutting-edge with a good demonstration of feasibility
- Deliver against one or more of our 7 impact areas
- Scope aligns with CRC Program definition of R&D
- Project duration >1 year
- Project budget >$50,000 /year
- Scope involves 1 research partner and 1 industry, state or local government funding partner
- Scope aligns with Fight food Waste CRC food waste definition and destinations outlined in the 'decision tree' (see section below)
- Address one or more of our 11 areas of activity (see Appendix 4)
- Adheres to our funding/leverage principles as outlined in this document
- Deliverables and timelines are achievable
- Return on investment justifies project budget
- Experimental design and likely research outputs
- Project team is comprehensive and has required expertise

Preferred investment criteria:

- Scope contributes to Australia achieving SDG 12.3
- Includes stop/go milestones
- Scope involves whole sectors and/or value chains to maximise the impact of projects
- Scope targets under-addressed Grant Agreement milestones (see Appendix 3)
- Scope addresses a high impact future initiative project extensive collaboration and include multiple, multi-disciplinary research providers and industry partners
- Potential IP and commercialisation opportunities likely to arise from the project
- Working across the three Fight Food Waste CRC Programs – REDUCE, TRANSFORM, ENGAGE
- Multi-years in duration
- Targeted, leading-edge PhD and Masters research
- The potential to collaborate with other Rural Research & Development Corporations, CRCs, and the Commonwealth Scientific and Industrial Research Organisation

It is acknowledged that existing participant contributions to new projects or new participant contributions to existing projects may not meet all criteria.

More detail on the development of projects is available in the Fight Food Waste CRC Project Guidelines

Food Waste Definition

As not all food waste projects will contribute to reducing the national food waste baseline or Australia's commitment to UN SDG 12.3 target of halving food waste by 2030, not all food waste projects can be funded. Four questions will be asked as to whether a proposal is in scope:

1. What is the food waste material?

Does it fit with the food waste definition adopted by the Fight Food Waste CRC? (Based on the definition by the National Food Waste Strategy and The Food Loss and Waste Accounting and Reporting Standard):

Solid or liquid food intended for human consumption, generated across the entire food supply chain, that does not reach the consumer or reaches the consumer but is thrown away.

This includes:

Edible food, the parts of food that can be consumed but are disposed of; and

Inedible parts, the components associated with a food that are not intended to be consumed by humans. Examples of inedible parts associated with food could include bones, pits, stones. *

*See decision tree below regarding project eligibility

2. Is the food waste included in the National Food Waste Baseline or can the baseline be determined?

The revised national food waste baseline included in the National Food Waste Strategy Feasibility Study was delivered by FIAL in the 2021. Ideally all projects funded by the CRC should directly contribute to reducing the 7.6 million tonnes of food waste identified in the 2021 report. However, if the food waste is not included in the baseline report, the baseline data must be determined either before or as part of the project.

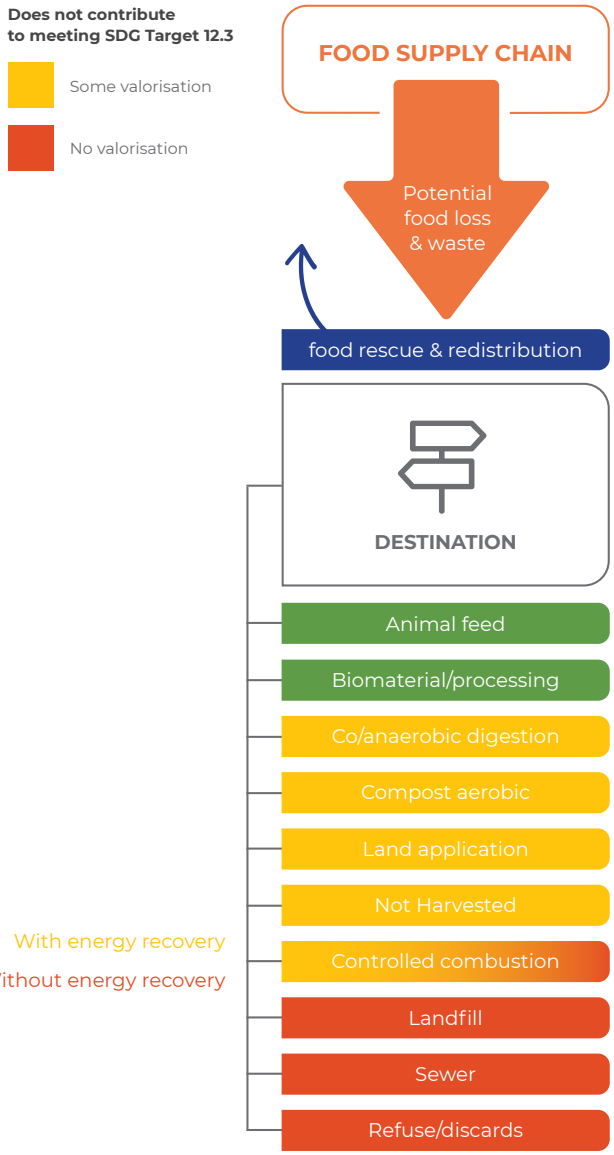
3. Will the project outcome contribute to meeting SDG Target 12.3?

Adapted from Champions 12.3 (2017) in Guidance on interpreting SDG Target 12.3 and our 2018-2028 Strategic Plan (pg. 27), in addition to prevention and reduction of food waste, only three food waste destinations contribute towards the global goal of halving food waste by 2030:

1. Prevention and redistribution to people
2. Animal feed
3. Biomaterial/processing[1,2]

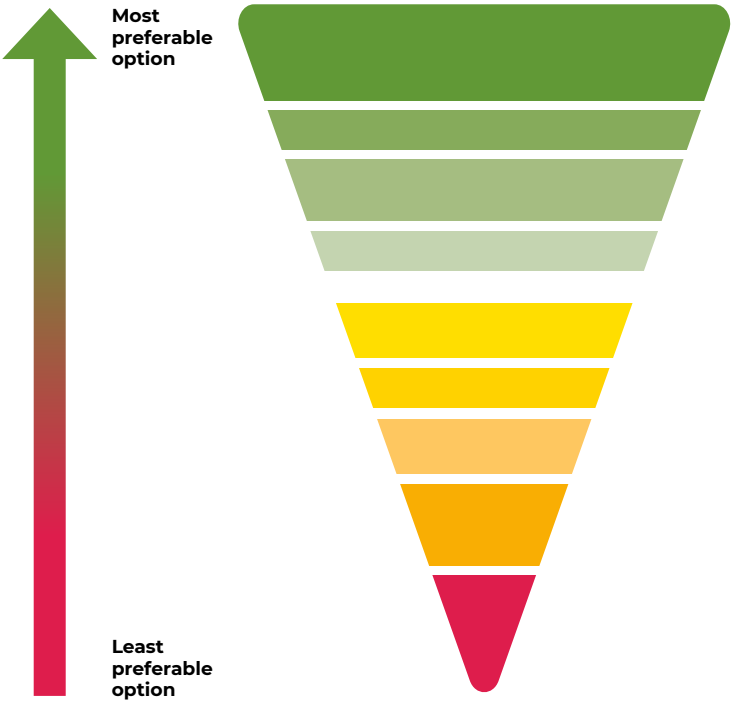
[1] Biomaterial/ processing is defined as converting material into industrial products. Examples include creating fibres for packaging material; creating bioplastics (e.g., polylactic acid); making "traditional" materials such as leather or feathers (e.g., for pillows); and rendering fat, oil, or grease into a raw material to make products such as soaps, or cosmetics. "Biochemical processing" does not refer to anaerobic digestion or production of bioethanol through fermentation.

[2] SFWA excludes non-food biomaterial processing from their scope as per the National Food Waste Strategy, FFW CRC can adopt a broader scope based on the international guidance



4. Is it the highest value use for the waste stream?

The food recovery hierarchy has been used to guide the initial development of the original business case for the Fight Food Waste CRC as well as the initial research portfolio. The hierarchy will continue to be used to address the question "Is the solution proposed the highest value use for the waste stream?". This approach acknowledges that avoiding food waste in the first place through prevention, must always come first.



Prevention

Waste of raw materials, ingredients and product arising is reduced - measured in overall reduction in waste.

Repurposed and upcycled into new food.

Donated to people.

Sent to animal feed.

Recycling

Bio-based materials / bio-chemical processing

Waste sent to anaerobic digestion; and co-digestion; or

Waste composted.

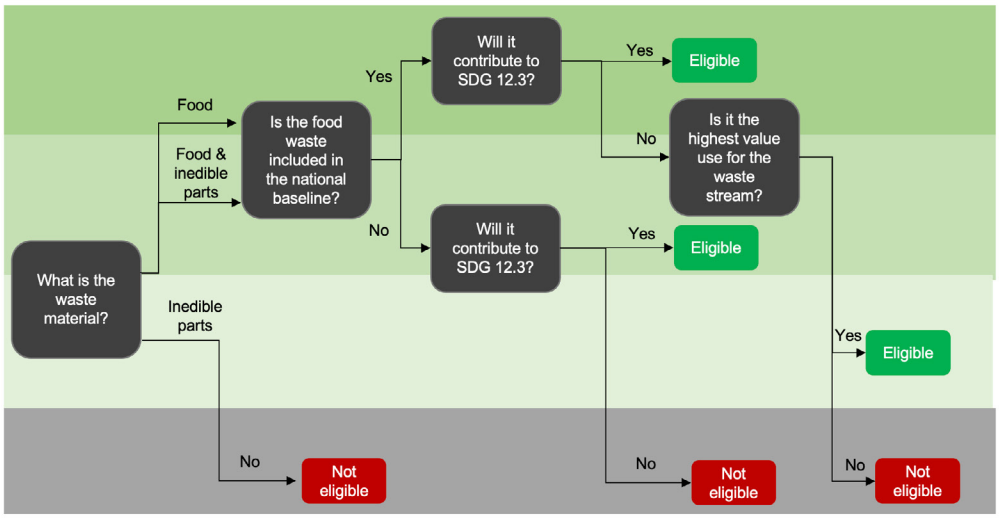
Recovery

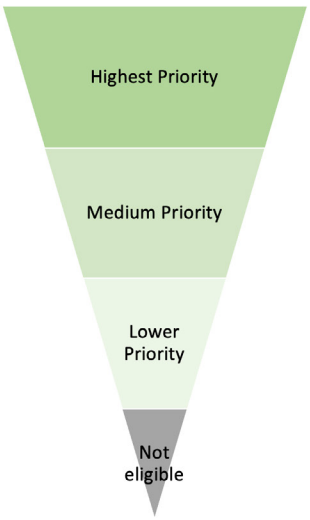
Incineration of waste with energy recovery.

Disposal

Waste incinerated without energy recovery. Waste sent to landfill. Waste ingredient/product going to sewer. Waste disposed of on-farm.

The below decision tree can be used to help determine whether a food waste feedstock or destination will contribute to Australia's target of halving food waste by 2030 (depicted as highest priority) or will move food up the food waste hierarchy (medium and lower priority), and therefore whether the project is in scope determined by the Fight Food Waste CRC's prioritisation level for the project.





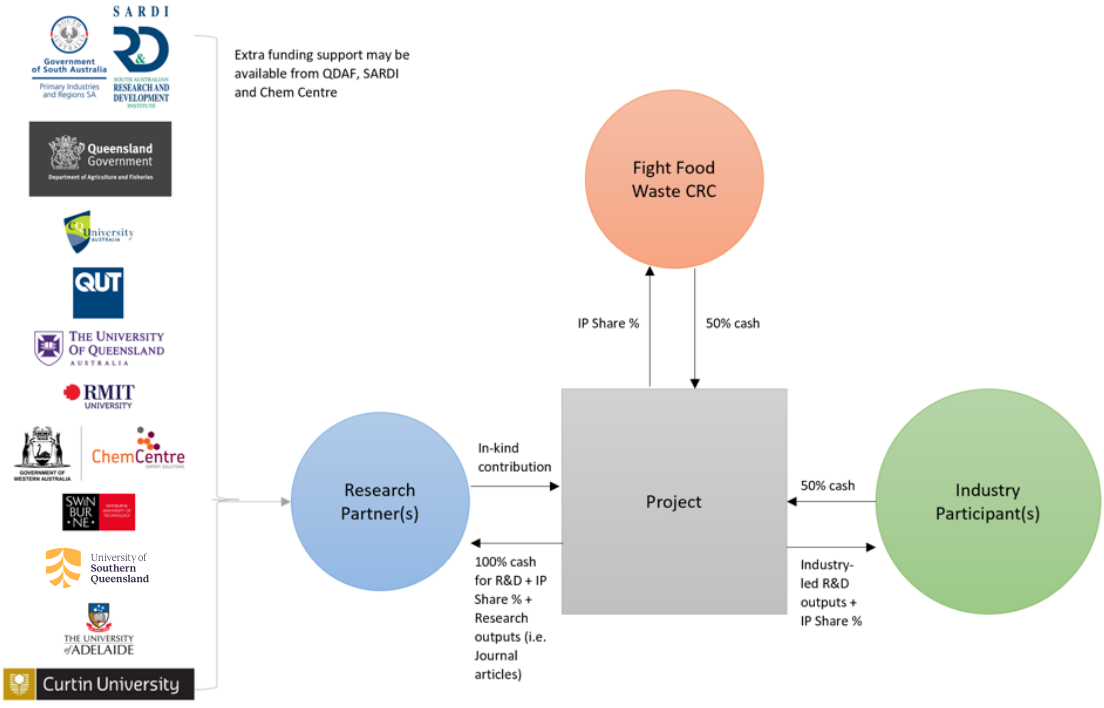
Fight Food Waste CRC Participant Funding Arrangements

All project funding involves providing matching leverage for industry participant contributions (including state and territory government participants) to undertake research, development, education, extension and commercialisation activities with one or more of the FFW CRC's eight university (University of Adelaide, Central Queensland University, Curtin University, Queensland University of Technology, RMIT University, Swinburne University, The University of Queensland, and University of Southern Queensland) or three state government research providers (South Australian Research & Development Institute, Queensland Department of Agriculture and Fisheries, and ChemCentre, Western Australia).

The internal funding arrangement within the Fight Food Waste CRC are that industry/non-research provider state government cash (not in-kind) contributions will be leveraged dollar for dollar with CRC Program funding and contracted to the industry-participant chosen research provider/s to undertake research projects. University contributions are to be used to fund operational costs. As such, operational costs are not funded by industry contributions and no central overheads are applied to research projects.

The one exception to this principle is for the state government research providers, Primary Industries and Regions South Australia (acting through the South Australian Research and Development Institute), the Queensland Department of Agriculture and Fisheries and ChemCentre, Western Australia, to co-invest part of their significant annual cash contributions in research projects that will provide industry economic development outcomes for their respective states.

A summary of Fight Food Waste CRC funding arrangements by participant type are detailed in the Appendix 5.



Project Structure Indicative only – please contact a Fight Food Waste CRC Representative for further detail

5. High Impact Future Initiative projects

Listed on pages 47 (REDUCE), 58 (TRANSFORM) and 63 (ENGAGE) of the 2018-28 Strategic Plan are non-exhaustive lists of potential future initiative projects for each of the Fight Food Waste CRC's three research programs. In addition, below represents a further refined list of projects that are anticipated to have the greatest return on investment regarding the organisation's seven areas of impact measurement. Business development activities related to these projects will commence in earnest in 2023.

PROGRAM/PROJECT	DESCRIPTION	HEADLINE IMPACT
REDUCE		
Supply chain FLW reduction benchmarking and intervention mapping.	Benchmarking of current 'state of the art' and projections of the impact of alternative interventions at various supply chain stages to drive FLW reduction. Sector wide projects can be considered in this context, thus projects that are connected to SFWA SAPs, namely applying R&D and measurement, are also of interest.	Targeting 3.8 million tonnes over 10 years based on FIAL projected 10Y impact, connected to FLW measurement (no projected tonnage); Hospitality and food service measurement technology (2.7M); Cold chain improvements (579.1K); Extending shelf life (535.5K);
Supply chain/ packaging innovation/ intervention feasibility testing and scaling for reducing FLW.	Piloting and testing of interventions/ innovations aimed at driving FLW reduction at various supply chain stages. A focus should be on scalable solutions for large FLW reductions.	Targeting 4.4 million tonnes over 10 years based on FIAL projected 10Y impact connected to impact FLW measurement (no projected tonnage); Hospitality and food service measurement technology (2.7M); Cold chain improvements (579.1K); Extending shelf life (535.5K); Menu planning (no projected tonnage); Lean manufacturing (578.5K)
Improving retail operational efficiency	Explorations of alternative retail discount policy, digital pricing/ stock management, ordering processes/ replenishment sizes, cold chain maintenance, and on-shelf availability targets, amongst other foci, are of interest here. This is in order to drive retail and household food waste down. A focus should be on areas that could deliver large FLW reductions.	Targeting 0.5 million tonnes over 10 years based on FIAL projected 10Y impact.
TRANSFORM		
Tools to assist in the prioritisation of value-add opportunities	Enable decision-makers to put food waste and surplus to its best and highest use through tools, new information and new product and/or business model alternatives that assist in the prioritisation of transformation opportunities (using factors such as tonnes of food waste prevented, industry profitability and contribution to SDG 12.3 (i.e. whole foods, food ingredients, extracts, fibres)).	2.5 million tonne p.a. Top 5 food trend of 2021. Will target dairy, animal product, fisheries, and horticulture processing waste Note also includes 529,909 tonne p.a. based on National Food Waste Feasibility Study Interventions.

Creating the necessary supply chains to enable upcycling of food waste	Data, insights and models to connect food surplus, to processors, to end markets (taking into consideration logistics, infrastructure, technology needs and policy barriers).	392,565 tonne p.a. based on National Food Waste Feasibility Study Interventions.
Overcoming the barriers to use of existing technology or creating new technology and processes to transform food waste	Enhancing the application and adoption of food surplus processing and stabilisation technologies to enable valorisation.	643,952 tonne p.a. based on National Food Waste Feasibility Study Interventions.
Creating the necessary regulation and policy environment to enable food waste transformation	Enabling market access and overcoming policy barriers for upcycled products and high value uses for food waste.	448,807 tonne p.a. based on National Food Waste Feasibility Study Interventions.
Efficient preparation of food surplus to enable transformation	Methods, processes and technology to prepare food surplus for transformation either at the source of production or in centralised locations (considering for example stabilisation, dewatering, transport, storage).	482,772 tonne p.a. based on National Food Waste Feasibility Study Interventions.
ENGAGE		
National Behaviour Change Program	Improving information available to decision-makers to enhance the effectiveness of consumer food waste reduction interventions	Targeting the 3.1 million tonnes p.a. based on revised National Food Waste Baseline
Changes in behaviour and shifts in culture for food businesses	Providing organisations with resources which will help guide them to create a culture that supports food waste reduction activities.	Targeting the 1.4 million tonnes of manufacturing food waste going to low value uses
Knowledge hub for collating, storing and disseminating food waste reduction information for organisations and individuals	Collating the best and most recent information on food waste reduction in Australia and making this easy to identify and accessible for organisations and individuals.	Targeting food waste at all stages of the value chain

6. New Participant and Project Approval Process

Whilst already enjoying the support of near 70 Core (cash contributing) and Supporting (in-kind contributions only) Participants, the Fight Food Waste CRC is looking for opportunities to work with new participants where so doing will contribute to achieving Fight Food Waste CRC impact targets and Australia's target of halving food waste by 2030 (Sustainable Development Goal 12.3).

For existing or potentially new participants wanting to develop projects related to the Grant Agreement or future initiatives project guidelines are also available from the Members section of the website.

As outlined in the Project Guidelines, all projects are evaluated against the following 13 criteria:

Impact and commercialisation

1. Has a demonstrable outcome to reduce food waste.
2. Has demonstrable benefit for industry/ participants.
3. Ease of adoption by the industry – Commercial risk assessment.
4. Includes detail on potential IP and commercialisation opportunities likely to arise from the project.

Feasibility and team

5. Are the deliverables and timelines achievable?
6. Return on Investment - justifies project budget
7. Is the team comprehensive, should other members of the FFW CRC be involved?
8. Does the proposal address staff and other in-kind budgets for the program?
9. Includes students and international collaboration?
10. Includes stop/go project milestones?

Science excellence and innovation

11. Assessment on the quality of proposed scientific experimental design and likely research outputs.
12. How innovative and cutting edge is the proposed work?
13. Does proposal address the priorities of the program, and the FFW CRC Grant Agreement KPI's?

Existing or potential industry participants should first talk to the relevant Program Leader or CEO (see https://fightfoodwastecrc.com.au/our-people/ for profiles and email addresses) about potential projects prior to commencing the application process. A Project-on-a-page template (see Appendix 1) has been created to help conceptualise potential projects and ensure that they are likely to meet the above Fight Food Waste CRC funding criteria before the formal application process commences. Should the initial proposal be supported then the project will follow the full Project Development & Management Process (Appendix 2).

Potential new participants interested in working with the Fight Food Waste CRC should also refer to the New Participant Admission Guidelines and Nomination Form for New Participants.

The Fight Food Waste CRC looks forward to working with current and new participants to achieve our Performance Milestones, impact targets and ultimately halving food waste by 2030.

Appendix 1 - Project on a page template

FFW CRC Project-on-a-page

PROJECT TITLE: [TEMPLATE with Instruction]

Champion: _____

Version:

Date: _____

Food Waste Problem

Describe the scale and nature of the food waste problem.

Include quantities of waste being dealt with (volume &/or value)

There must be an identified waste issue evidenced as an industry issue

Our Solution

Describe the solution in plain English. How will the solution benefit society?

How will the solution benefit industry?

Research Questions to be Addressed

Describe the research questions to be answered through the project?

Unfair Advantages

- List the unique advantages that the team will bring to the project
- Consider IP, access to data, access to customers, infrastructure etc.

Predicted impacts

Which of the above seven key impact areas the solution will address?

Your project is not expected to address all seven areas, some may not be applicable
Describe the predicted impact for the areas selected

- Food waste reduced
- Industry profitability gained
- Rescued food distributed
- Greenhouse gas emissions reduced
- Circular economy jobs created
- Future leaders graduated
- Industry people trained

Current Solutions

- Describe any current solutions to the food waste problem and if appropriate, list their deficiencies

Project Goal

- Provide a brief overview of the overarching goal of the project.
- What will be achieved through the completion of this project?

Project Outcomes

- Describe up to four key outcomes that will exist at the end of the project.
- Outcomes are tangible, measurable, and quantifiable

Participants

- List the FFW CRC participant organisations who will take part in the project
- Provide key contact names for each organisation involved
- If additional industry or research participants are sought, describe the desirable characteristics of the organisation

Expected contributions and expenditure

- Provide an indication of the expected cash and in kind (FTE) contributions for each participating organisation

Organisation	Contributions Cash	Contributions in kind	Expenditure
TOTAL			

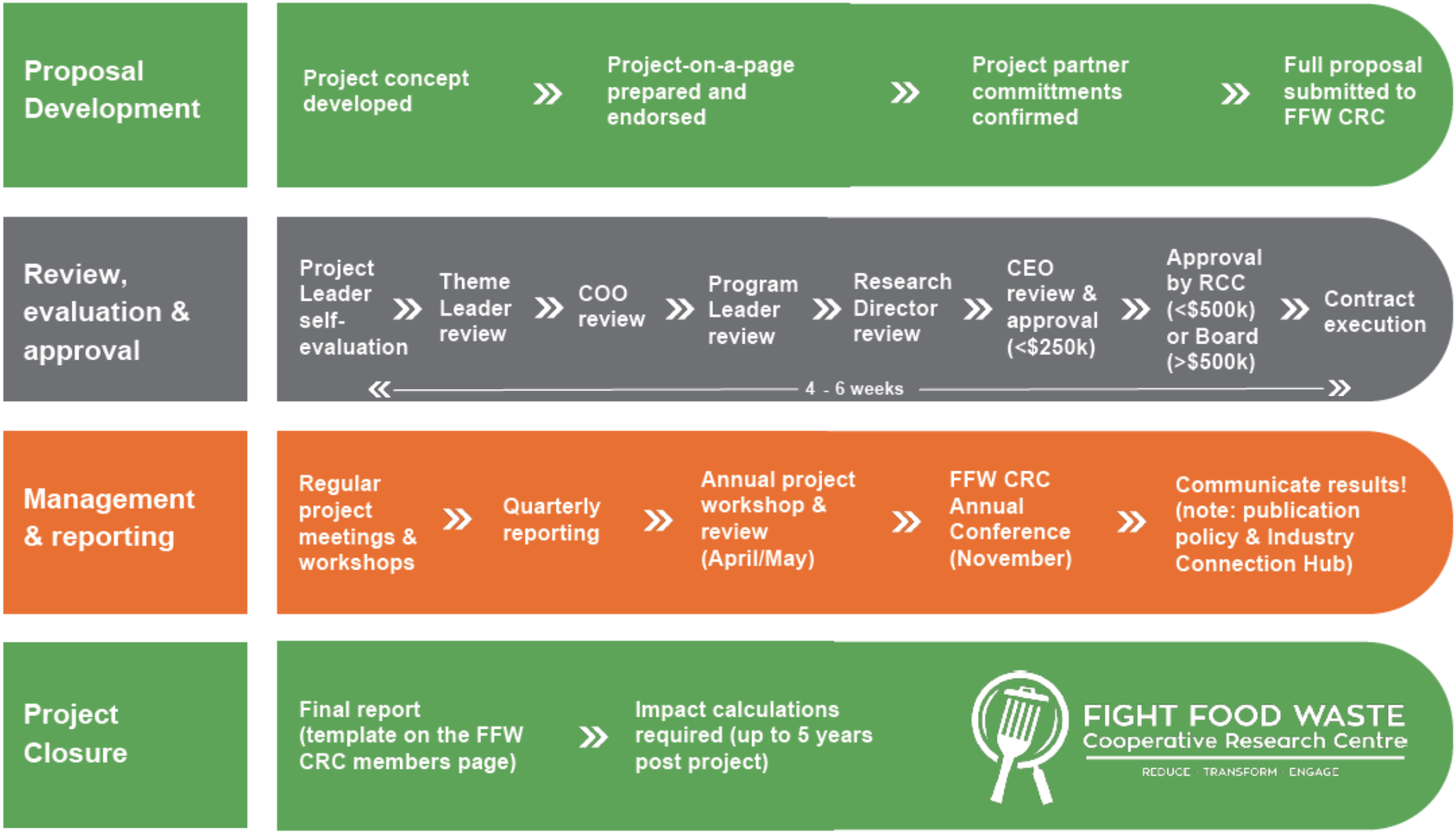
Anticipated timeline

- What is the expected duration of the project?
- When would the project ideally begin?
- Do any restrictions exist around timelines?

End-users

- Who are the end-users of the project outcomes?
- Which organisations could adopt the solution?

Appendix 2 - Project Development & Management Process template



Project development & management process
November 2021

Appendix 3 - Under-addressed Grant Agreement milestones

As of November 2022, the following Grant Agreement milestones are currently under addressed by the initial research portfolio and will require the development of additional Fight Food Waste CRC projects in years 5 to 10 of the CRC to address them. The Fight Food Waste CRC Program Leaders look forward to working with existing and new participants to address these milestones.

REDUCE

RP1.5	Pilots, data systems, model and benchmarking metrics reviewed and evaluated. Outcomes embedded into at least 20 additional organisations. Benchmarks released.
RP1.6	Data models and metrics modified and enhanced based upon feedback and pilot reviews; Sector benchmark metrics released. Data modelling expanded into new sectors/ supply chains.
RP1.13	Continuation of assembling and sharing industry case studies; Guidelines embedded into NPD processes; Consumer perceptions database built upon.
RP1.14	Updated consolidated packaging design guidelines and frameworks delivered; Industry case studies & consumer database expanded.
RP1.19	Performance testing undertaken; Cost benefit/ logistical/feasibility assessment of scale-up and implementation completed; Stakeholders and end-users/consumers consulted.
RP1.20	Review of the product-packaging pilots, assessments, performance testing, and stakeholder engagement. Finalise and deliver the product-packaging solutions for the identified products.

ENGAGE

ENGAGE milestones will be well addressed by existing projects, many of which will likely run the full term of the Fight Food Waste CRC. Notwithstanding, the program will require at least 30 high-quality industry-focussed PhD projects and 12 Masters by Research projects. All industry participants have the opportunity to factor in Masters and PhD projects into their projects and we would encourage them to do so. In many instances this will attract additional core CRC funding to a project. Fight Food Waste CRC scholarships are $100,000 over 4 years for PhD's and $50,000 over 2 years for Masters by Research. PhD scholarships require a base scholarship from the host university through the Research Training Program or through project funding equivalent to the CRC scholarship.

TRANSFORM

RP2.6	Future product roadmap developed.
RP2.10	Establishment of demonstration facilities in selected regions of relevance to the project partners.
RP2.11	Iterative proof of concept testing for new solutions completed. Intellectual property for new product solutions registered.
RP2.12	Future technology roadmap delivered.
RP2.16	Updated data set on waste composition and volumes and product markets relevant to partner organisations compiled; Sector focussed state-of-the-art technology review completed; Process models for state-of-the-art technology delivered.
RP2.17	Models of optimal feed/technology combinations delivered for selected regions relevant to partner organisations; Protocols delivered for consistent techno-economic analysis.
RP2.18	Updated data set on waste and product markets relevant to partner organisations delivered; Sector focussed state-of-the-art technology review updated. Models of optimal feed/product/technology combinations delivered for large-scale integrated market opportunities.
RP2.19	Methodology toolkit for optimising the combination of feedstocks and technologies delivered.
RP2.22	Socioeconomic assessment to identify impacts of alternative policy frameworks completed. Alternative policies prepared, circulated and promoted to relevant government departments and agencies.
RP2.25	Further socioeconomic assessment undertaken to identify impacts of alternative policy frameworks. Further reports to form the basis of advice to relevant government departments on alternative policies prepared.
RP2.26	Final review prepared outlining perceived future risks and barriers for producers in existing policy settings.

Appendix 4 -
Fight Food Waste CRC Strategic Activity Areas:

All projects must address one or more of our 11 areas of activity detailed below:

Program 1 REDUCE: Reducing Supply Chain Losses

1) Activity 1.1 Map resource flows, waste and root cause analysis
2) Activity 1.2 Review functions and consumer perceptions of packaging and processing
3) Activity 1.3 Investigate product specific supply chains and identify opportunities
4) Activity 1.4 Investigate methods to increase food donation and measure its social impact

Program 2 TRANSFORM: Transforming Waste Resources

5) Activity 2.1 Identify and prioritise valuable products from waste streams
6) Activity 2.2 Identify technology gaps and process limitations in waste transformation
7) Activity 2.3 Deliver tool kit for optimising technology and feedstock combination choice
8) Activity 2.4 Conduct socio-economic assessment of alternative policy settings

Program 3 ENGAGE: Education and Behavioural Change

9) Activity 3.1 Educate future industry professionals
10) Activity 3.2 Disseminate industry and skills training
11) Activity 3.3 Develop household and business behaviour change instruments

Appendix 5 - Fight Food Waste CRC Funding Arrangements

Participant Category	Cash Contribution	Investment of Cash Contribution	Matching by CRC?	Returns to Participant
Industry/End User (incl association, government non-research providers & NFP's)	Ranging from $20K - $3M per participant	> 100% into projects of choosing, ideally alongside other industry/end user participant contributors. > Funding will typically flow to research participants but on occasion it may be appropriate for industry/end user participants to receive project funding to undertake research	> Yes, CRC matches industry/end user cash contributions apart from those from federal government agencies	> Leveraged research (min 2x cash + in kind) > Access to broad research network > 1st right to submit IP utilisation plan + non-commercial use > IP ownership share and right to commercialisation returns based on cash and in-kind contributions > R&D tax incentive (for profit sponsors)
SME participating in SME Solutions Centre Projects	Ranging from $25K-$50K per participant	> 100% into a commercially focussed project up to 1 year in duration with research to be conducted by one or more of the CRC's research participants	> Yes, CRC matches SME's cash contributions utilising funding provided for this program by Food Innovation Australia Ltd	> Leveraged research (2x cash + in kind) > Access to broad research network > 100% IP ownership (subject to being able to commercialise within agreed period) > R&D tax incentive (for profit sponsors)
Gov't Research Provider: QDAF (QLD)	$4.3M	> ~ $1.4M over life of CRC to fund business development > Balance to research projects involving QDAF provided that each project includes a minimum cash contribution from industry/end user participants that is 50% of the QDAF cash contribution to that project. > No prescribed minimum return to QDAF on a project by project basis, each project is for negotiation, priority is to assemble best research solution and team possible across the research participants. Monitor overall QDAF returns at the portfolio level, target is a minimum $2:$1 cash return.	> No, CRC matches the industry/end user cash contribution only > Therefore (at a minimum) each project has a cash funding ratio of 1:1:2 (industry, CRC, QDAF) but ideally with higher industry and CRC where possible.	> R&D funding > IP ownership share and right to commercialisation returns based on cash and in-kind contributions > Default right to utilise IP for non-commercial purposes > Business development package ~$1.4M
Gov't Research Provider: SARDI (SA)	$3.5M (+$1M from PRIF grant)	> ~$1.2M over life of CRC to fund business development > Balance to research projects involving SARDI provided that each project includes a minimum cash contribution from industry/end user participants that is 50% of the SARDI cash contribution to that project. > No prescribed minimum return to SARDI on a project by project basis, each project is for negotiation, priority is to assemble best research solution and team possible across the research participants. Monitor SARDI returns at the portfolio level, target is a minimum $2:$1 cash return.	> No, CRC matches the industry/end user cash contribution only > Therefore (at a minimum) each project has a cash funding ratio of 1:1:1 (industry, CRC, SARDI) but ideally with higher industry and CRC components where possible.	> R&D funding > IP ownership share and right to commercialisation returns based on cash and in-kind contributions > Default right to utilise IP for non-commercial purposes > Business development package $1.2M > Postgrad top-up scholarships $400K (to be placed at participant universities) > Share of ~20% overhead on external revenue (through UA partnership arrangements)

Appendix 5 - Fight Food Waste CRC Funding Arrangements

Participant Category	Cash Contribution	Investment of Cash Contribution	Matching by CRC?	Returns to Participant
Gov't Research Provider: ChemCentre (WA)	$990K	> 100% into projects involving ChemCentre, no minimum cash contribution from industry/end user participants although this is highly desirable. > 100% of project expenditure expected to flow to ChemCentre	> Yes, CRC matches ChemCentre cash contribution, which includes a project-dependent industry funding component, and any additional applicable industry/end user contributions > Therefore (at a minimum) each project has a cash funding ratio of 1:1 (CRC, ChemCentre) but ideally with some additional industry component where possible	> R&D funding > 1st right to submit utilisation plan + non-commercial use > IP ownership share and right to commercialisation returns based on cash and in-kind contributions
University – Large: CQU, RMIT, UA, UQ	$2M each	> 100% applied towards CRC operational expenditure which is budgeted to be no more than 20% of overall expenditure over 10 years > Universities are expected to receive most of the direct research funding within the CRC on a competitive basis. > No prescribed minimum return to Universities on a project by project basis, each project is for negotiation, priority is to assemble best research solution and team possible across the research participants. Monitor overall University returns at the portfolio level, agreed target is a minimum $2:$1 cash return, with higher expectations desired by most universities.	> No CRC matching on University contributions > All projects must include an industry/end user	> R&D funding > IP ownership share and right to commercialisation returns based on in kind contributions (not on cash contributions) > Default right to utilise IP for non-commercial purposes > Program support package $1.5M per Uni > Postgrad top-up scholarships $600K per Uni > ~20% overhead on external revenue via Research Block Grants
University – Small: Curtin, QUT, USQ, Swinburne	Ranging from $500K-$1M	> 100% applied towards CRC operational expenditure which is budgeted to be no more than 20% of overall expenditure over 10 years > Universities are expected to receive most of the direct research funding within the CRC on a competitive basis. > No prescribed minimum return to Universities on a project by project basis, each project is for negotiation, priority is to assemble best research solution and team possible across the research participants. Monitor University returns at the portfolio level, agreed target is a minimum $2:$1 cash return, with higher expectations desired by most universities.	> No CRC matching on University contributions > All projects must include an industry/end user	> R&D funding > IP ownership share and right to commercialisation returns based on in kind contributions (not on cash contributions) > Default right to utilise IP for non-commercial purposes > Postgrad top-up scholarships $250K per Uni > ~20% overhead on external revenue via Research Block Grants

Appendix 6 – Referenced Documents

2018-2028 Strategic Plan:

https://fightfoodwastecrc.com.au/wp-content/uploads/2019/11/FightFoodWasteCRC_StrategicPlan_online.pdf

New Participant Admission Guidelines:

https://fightfoodwastecrc.com.au/wp-content/uploads/2022/07/new_participant_guidelines_final2-2.pdf

Nomination Form for New Participants:

https://fightfoodwastecrc.com.au/wp-content/uploads/2022/07/Nomination-Form-for-New-Participants2.pdf

Project Evaluation Criteria:

evaluation_criteria.pdf (fightfoodwastecrc.com.au)

fightfoodwastecrc.com.au

FIGHT FOOD WASTE
Cooperative Research Centre
REDUCE - TRANSFORM - ENGAGE

Australian Government
Department of Industry, Science and Resources

AusIndustry
Cooperative Research Centres Program