



Economic Impact Assessment

Singleton Horticulture Project

Fortune Agribusiness Funds Management Pty Ltd

25 October 2022

→ **The Power of Commitment**



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Executive Summary

Project Overview

Fortune Agribusiness Funds Management Pty Ltd (the proponent or FAFM) engaged GHD Pty Ltd for the provision of environmental approval consultancy services for the development of the Singleton Horticulture Project (the “Singleton Farm” or the “Proposal”).

FAFM acquired Singleton Station, a 294,900 ha pastoral lease located in the Western Davenport region of the Northern Territory of Australia, following the promotion of horticulture investment in Central Australia by NT Government. This property has immediate access to key infrastructure such as power, road and rail. The site overlies significant, economic water resources, is in an area of low pest and disease prevalence and has favourable soils and climate. Singleton Station lies within the Western Davenport Water Control District which was declared a Beneficial Use Area under the Water Act in 2007 (Northern Territory Government 2018).

The proposed Singleton Farm involves 3,300 Ha of annual and perennial crop production utilising 40GL of groundwater per annum, accommodation for workers, and infrastructure to support the farming operations. The proposed farming operation will occupy less than 2% of the existing Singleton Station and at full production utilise approximately 0.03% of the water from the aquifer system it sits within.

The Singleton Farm is proposed to be developed in four stages over 9 years, with construction for stage one proposed to commence in mid-2023 and full operation proposed to be reached in 2036 (approximate).

The objectives of the proposed farm development are to:

- Establish a fruit and vegetable farm, which will provide early support for the growth of a new agriculture precinct in the region
- Provide employment and business opportunities for the region in a significant and sustainable manner for the local Indigenous people
- Establish a fruit and vegetable farm that provides key local infrastructure and will facilitate collaboration with other local agricultural businesses further benefiting the local community
- Improve food security through providing a source of food for local communities
- Establish bushtucker plots that provide additional produce to the local community which would be managed by the local indigenous community, as well as offering additional training and employment opportunities
- Grow fruit and vegetable crops that include but may not be limited to, grapes, (dried and table), mandarins, onions, carrots, rockmelon, avocado and jujube

The establishment of the Singleton fruit and vegetable farm is a ‘pioneer investment’ and ‘economic catalyst’ that will see the development of a major new industry in the Barkly Region in Central Australia.

The Proposal would be developed on a significant and stable scale with capacity that supports a sustainable fruit and vegetable horticultural industry. The economic scale of the Proposal will:

- underpin training and employment programs for the local community, in particular skills enhancement of local indigenous people
- build sustainable fruit and vegetable supply chain presenting commercial opportunity for additional parties to invest; and
- establish proven routes-to-market for the farm’s output, reducing risk and presenting investment opportunity for other projects to establish in the region.

Since self-Government, all Territory Governments have sought to broaden the Territory economy to expand opportunities for Territorians, add economic stability, and develop economic independence. This Proposal would add further growth consistent with the Northern Territory’s objectives.

The Proposal is being referred to the NT Environment Protection Authority (NT EPA) for consideration under section 48 of the Environment Protection Act. This report provides an assessment of the economic impacts of the Proposal.

Horticulture production

The proposed development will require a total clearing footprint of approximately 4,123Ha comprising two production blocks, shown in Figure 1 comprising several smaller horticultural plots, a bore field and access roads.

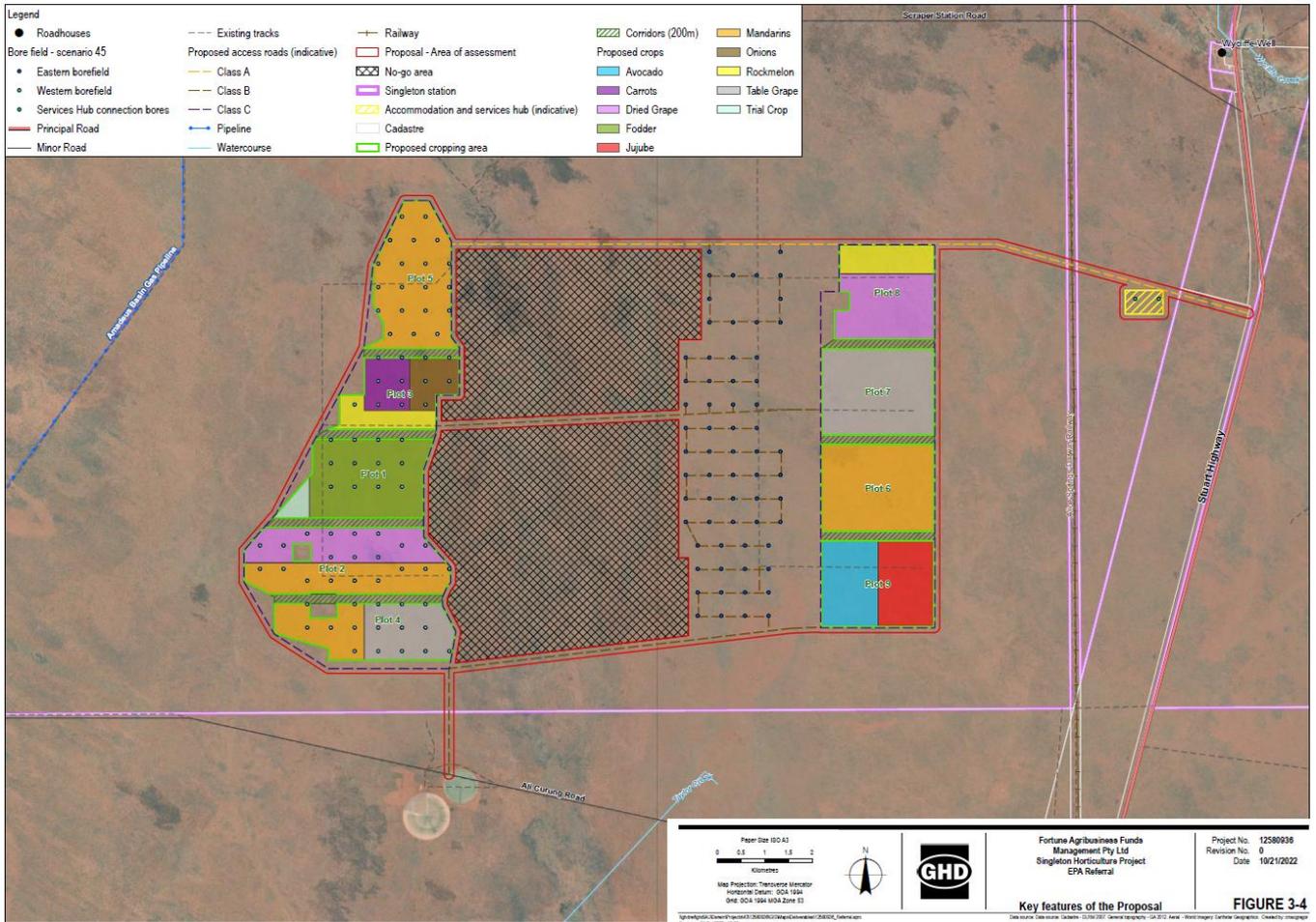


Figure 1 Proposed land/crop utilisation

Accommodation and services hub

An accommodation and services hub shown in Figure 2 will be developed within the area between the railway line and the Stuart Highway, which will include accommodation, machinery workshops, packing and cold storage facilities.

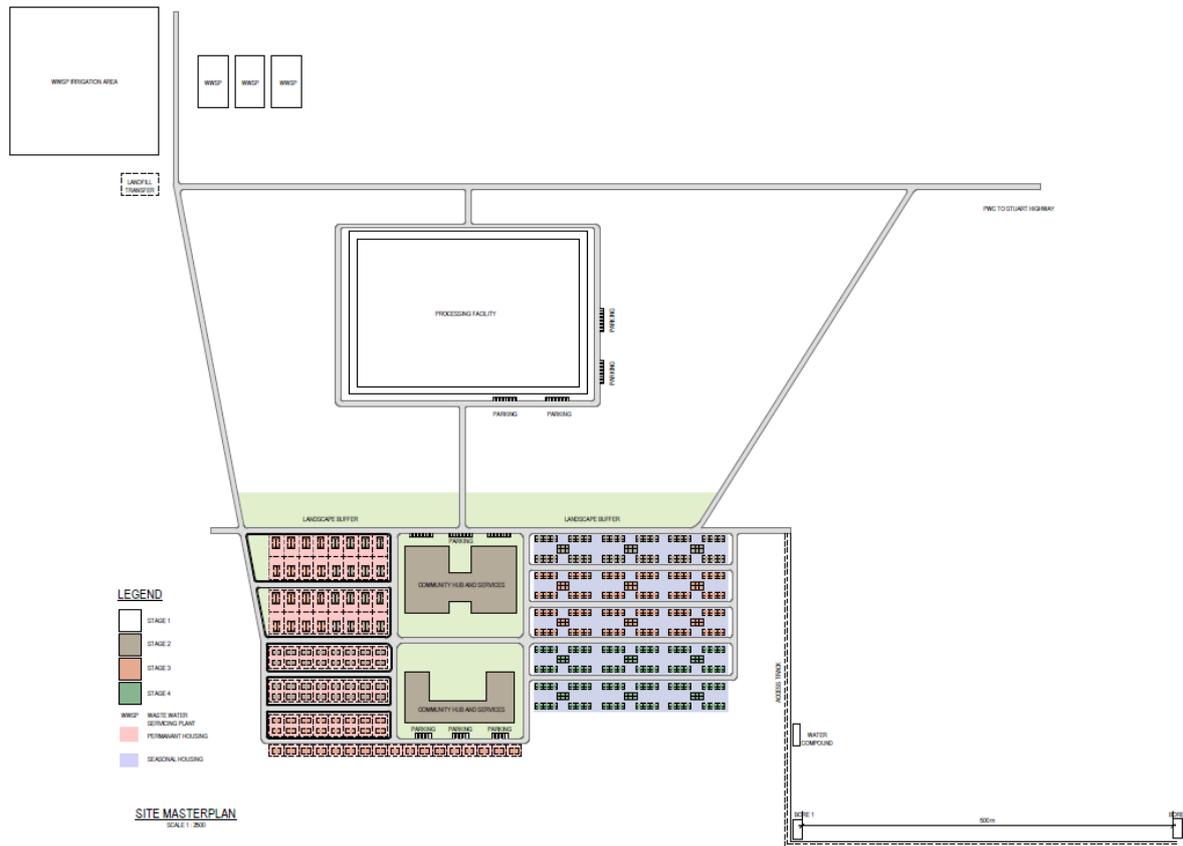


Figure 2 Indicative layout of accommodation and services hub

Staged farm development

As shown in the planting program Figure 3, staged development of the Singleton Farm will support careful growth of the farm, community facilities and infrastructure. Additionally, an important benefit of staged development includes a sensible rate of workforce development, skills sharing and enhancement, lessons gained in progressive stages and continuous improvement minimising impact.

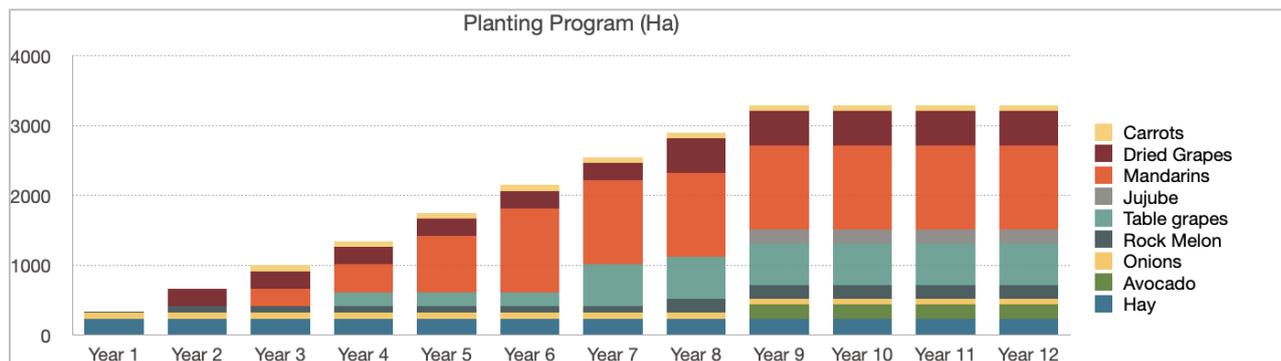


Figure 3 Planting Program

The staging of the Proposal reflects sensible economics, and benefits from knowledge accrued in progressive advancements in fruit and vegetable horticulture knowledge and science related to the Proposal site and influences to maximise quality in the fruit and vegetables grown. This underpins successful development of a resilient and robust horticulture industry in the Region.

Construction and operation of the Singleton Farm

The Proposal involves construction and operation of the fruit and vegetable farm as shown in Table 1.

Table 1 *Proposal development schedule*

Stage	Year	Accommodation requirements	Property development (construction)	Ongoing operations	Water allocation
1	0-3	<ul style="list-style-type: none"> – Offsite – Wycliffe Well 	<ul style="list-style-type: none"> – Land preparation – Establishment of irrigation infrastructure – Installation of farming infrastructure – Crop establishment and planting 	Ongoing farm maintenance and harvesting of the following horticultural plots: <ul style="list-style-type: none"> – Plot 1 – Plot 2 – Plot 3 	12 788 ML/yr
2	4-5	<ul style="list-style-type: none"> – 16 houses (family) – 32 shared apartments – 73 shared accommodation and amenities 	<ul style="list-style-type: none"> – Land preparation – Establishment of irrigation infrastructure – Installation of farming infrastructure – Crop establishment and planting – Establishment of accommodation and associated amenities 	Ongoing farm maintenance and harvesting of the following horticultural plots: <ul style="list-style-type: none"> – Plots 1 to 5 	22 845 ML/yr
3	6-7	<ul style="list-style-type: none"> – 8 houses (family) – 16 shared apartments – 140 shared accommodation and amenities 	<ul style="list-style-type: none"> – Land preparation – Establishment of irrigation infrastructure – Installation of farming infrastructure – Crop establishment and planting – Establishment of accommodation and associated amenities 	Ongoing farm maintenance and harvesting of the following horticultural plots: <ul style="list-style-type: none"> – Plots 1 to 7 	31 779 ML/yr
4	8-9+	<ul style="list-style-type: none"> – 6 houses (family) – 12 Shared apartments – 125 shared accommodation and amenities 	<ul style="list-style-type: none"> – Land preparation – Establishment of irrigation infrastructure – Installation of farming infrastructure – Crop establishment and planting – Establishment of accommodation and associated amenities 	Ongoing farm maintenance and harvesting of the following horticultural plots: <ul style="list-style-type: none"> – Plots 1 to 9 	40 000 ML/yr

The Proposal has a fully developed (all stages) capital cost of approximately \$252 million. This is made up of capital cost involved with the staged development, farm infrastructure, and the estimated cost of inputs supporting community infrastructure and services development.

The key Proposal capital costs are shown in Table 2.

Table 2 *Proposal Capex Components*

Proposal Capex Components	CAPEX (in A\$)
Accommodation and service hub	
Site Preparation	\$2,300,000
Irrigation Infrastructure and Bore Fields	\$34,700,000
Orchards and Vineyards	\$98,000,000
Plant and Equipment	\$12,700,000

Proposal Capex Components	CAPEX (in A\$)
On-farm infrastructure	\$2,300,000
Accommodation and service hub	
Accommodation & community Infrastructure	\$51,000,000
Packing line and sheds	\$26,000,000
Power and other services	\$25,000,000
Total accommodation & service hub cost	\$102,000,000
Total capital cost	\$252,000,000

The capital cost directly associated with farm establishment is estimated at \$150 million. The estimated balance of \$102 million of the total capital cost is made up of, supporting infrastructure - including accommodation and community infrastructure, fruit and vegetable packing line and buildings, power supply, water supply and other enabling infrastructure (such as communications etc.).

Ongoing operation of the farm would include:

- Fertiliser applied by fertigation with irrigation or through foliar spray.
- Pest/Disease Control
- Training and pruning of plants
- Replacement of plants as required.
- Removal/Recycle waste
- Processing and packing of harvested produce
- Storage on site and transportation of produce to market destinations
- Land is tilled, sowed, and harvested for horticultural crops to grow
- Pest control
- Water abstraction schedule
- Routine visual inspections
- Replacement of equipment and infrastructure as required
- Maintaining firebreaks

Once fully developed, the farm would have an estimated annual operating expenditure of over \$94 million, most of which would be spent locally.

Procurement

Projects of scale create opportunities for the wider business eco-system. FAFM is committed to bringing as much of the supply chain for its Proposal development and operation as close as possible to farm site. This reduces development risk for the Proposal and supports the regional community. FAFM plans to work with local businesses, the ICN, NT IBN, and the Territory Government to build robust and local supply chain.

FAFM's procurement preference is clearly local Barkly region first, Territory second, elsewhere third. Where firms outside the Territory may be needed, FAFM will actively encourage these to function as close to the site as possible and to employ locally.

The same principles will apply to FAFM's own employees; focussing on locals first, Territorians second, and elsewhere only when those options are exhausted. Similarly, training and skills development is critical to FAFM and the Proposal's development and productivity over time with the development of such programs for local people.

Employment delivers wages, and the multiplier effect from the benefit of wages being spent locally within the Barkly region is anticipated to be meaningful and support further direct and indirect local employment.

Economic impact

Production from the farm will contribute substantially to the Northern Territory economy. When fully developed, projected fruit and vegetable production revenue at a steady state is estimated to be \$200 million per annum in nominal terms. That would increase the horticultural production in the Northern Territory from \$341¹ million by 58% to \$541 million per annum. At a national level, this would mean the Northern Territory's horticulture production would increase from 2.8% to 4.5% of the current Australian horticultural production of approximately \$ 12 billion (excluding wine grapes).

It is projected that the fruit and vegetable farm production of \$200 million will find markets internationally as well as domestic sales. This considers that supply chain links match production growth, especially for exports through the Port of Darwin:

- 30% (i.e. \$60 million) Australian domestic consumption
- 70% (i.e. \$140 million) export consumption
- Of the 30% Australian domestic consumption approximately 20% of the 30% (i.e., \$12 million) would be consumed in the Northern Territory.

Importantly the availability of this additional Australian domestic consumption resource further underpins Australia's food security and self-sufficiency, especially within the Northern Territory.

The effective and efficient use of water in intensive fruit and vegetable production becomes abundantly clear when assessed alongside other Territory industries. When compared to 'broad acre farming', such as that associated with cotton or peanut farming, the production benefit and overall revenue to the Territory achieves a 5 to 10-fold higher return per GL of water.

Intensive fruit and vegetable production is expected to yield in the order of \$2 million to \$5 million revenue per GL of water used. 'Broad acre farming' is demonstrated to yield in the order of \$500k per GL of water irrigated. This is in addition to additional employment per ha associated with fruit and vegetable harvesting and processing.

Overall, intensive fruit and vegetable production contributes to enhanced:

- production of land per ha used \$30k to \$80k / ha
- production revenue per GL irrigated \$2 million to \$5 million / GL
- labour input per ha 0.15 FTE / ha
- economic stability through the application of a reliable water source, expanding agriculture activity
- increased GRP (Gross Regional Product) \$200 million per year which would be equivalent to a 45.8% increase additional to the \$436 million of the entire GRP of the Barkly region in 2021

Employment in Northern Territory

Employment - Construction

Construction will enhance employment in the short term, creating direct construction and farm establishment employment at the subject site, as well as creation of support (indirect) employment in the region and NT in general.

In particular it is estimated that the Proposal will support an average of 70 full time equivalent positions annually through construction reaching an estimated peak of 117 full time equivalent positions in year 7 (which consists of 67 direct positions and 50 indirect full time equivalent positions) as seen in the Figure 4

¹ 2020/21 Australian Horticulture Statistical Handbook

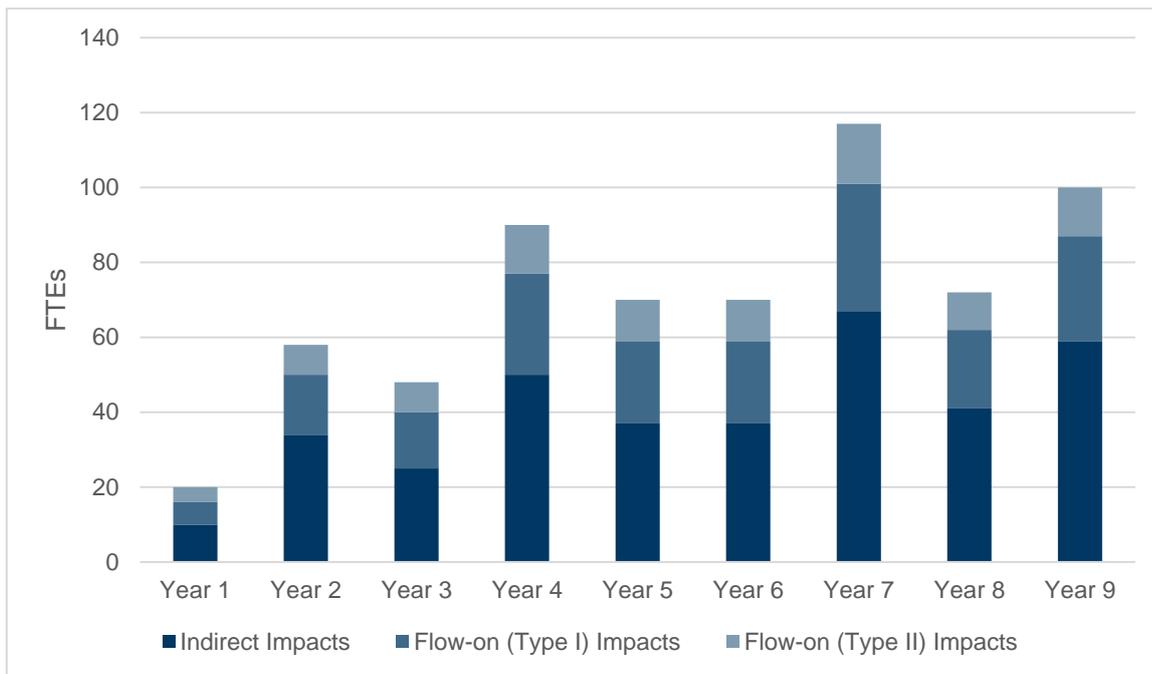


Figure 4 Annual construction impacts (FTE)

Employment - Operation

Once farm establishment is fully established, there will be a shift from construction employment to operational employment (maintenance, planting, harvest etc). The number of operational employees is projected to increase to year 15 when it is expected a *steady state* will be achieved (i.e. development is complete, and tree crops reach maturity). Employment generated at the facility would be both permanent positions and seasonal positions, given the nature of harvesting and re-planting.

Once steady state is reached, the operation is projected to support 426 total full time equivalent employees. This includes:

- 122 direct farm full time equivalent positions
- 37 full time equivalent seasonal positions
- 170 indirect full time equivalent positions
- 97 indirect supply chain full time equivalent positions

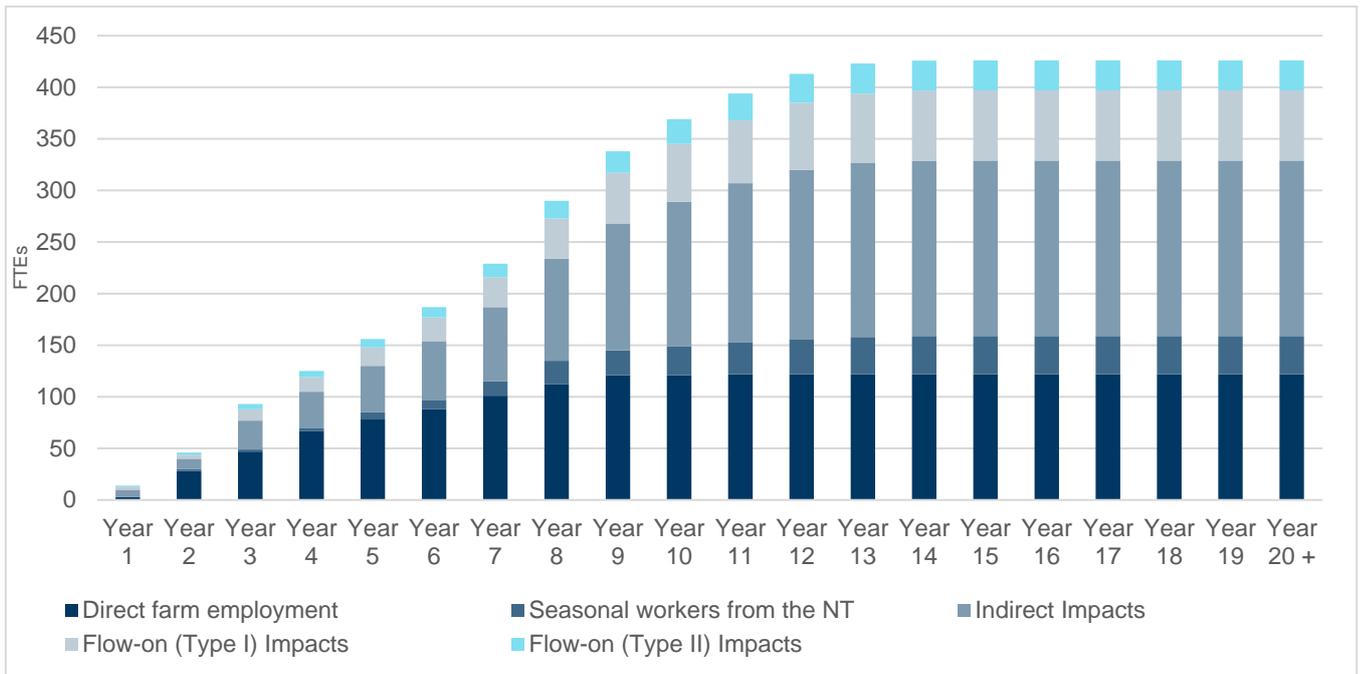


Figure 5 Annual operational impacts (FTE)

Value Add to Northern Territory

Value Add - Construction

The capital expenditure during construction will also result in a total value-add to the Northern Territory economy (Figure 6) of \$106.44 million in 4 stages over a nine-year development period.

Value-add peaks in year 7 of construction, delivering a benefit of \$19.13 million.

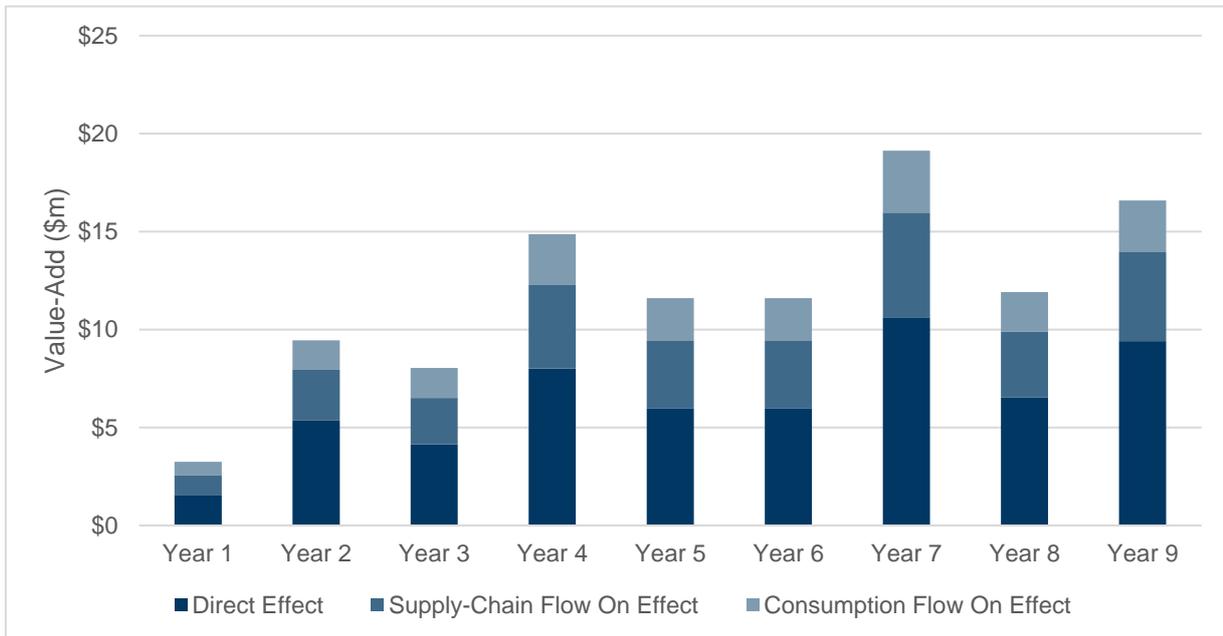


Figure 6 Value-add during construction period (\$ million)

Value Add - Operation

The operation phase of the Proposal will deliver an accumulated value add to the Northern Territory of \$1.017 billion over the proposed 30 years of operation.

Operational value-add estimates peak in year 15 and stabilise, delivering annual value-add of \$43.3 million beyond year 15.

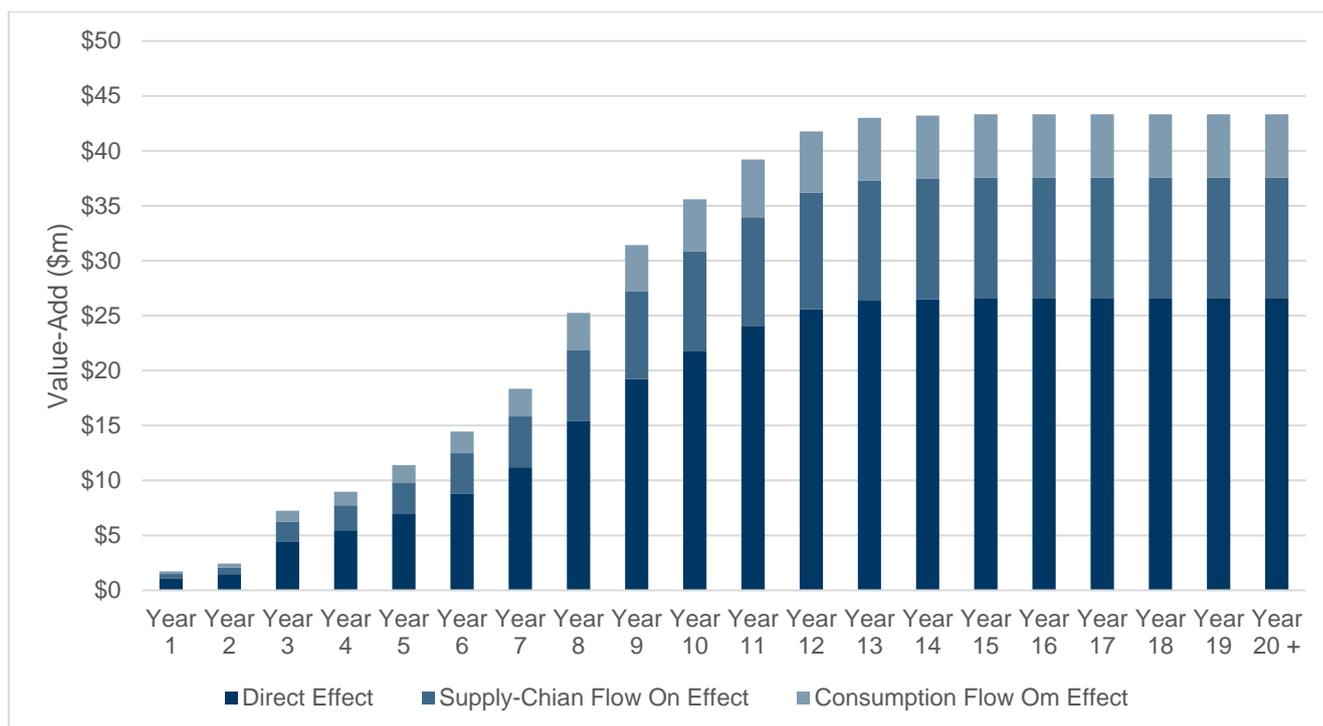


Figure 7 Value-add during operations period (\$ million)

The opportunity to double the Northern Territory’s fruit and vegetable high-density cropping sector presents great value not only to the Territory’s economy but also of benefit to the regions and communities through enhanced employment opportunities and wider economic benefits.

Conclusion

The Barkly LGA is an impoverished region with a social and economic disadvantage. The Barkly LGA is experiencing a declining population, a declining economy (GRP), the sustained highest unemployment in the NT, significantly lower weekly individual and household incomes and nearly 50% of the workforce is funded by Government(s).

The opportunity to expand the Northern Territory’s fruit and vegetable (intensive horticulture) sector presents great value not only to the Territory’s economy but also of benefit to the regions and communities through enhanced employment opportunities and wider economic benefits.

Traditionally, Northern Territory has achieved high economic growth through development of mining, animal farming and tourism. While each of these present on-going support to the Northern Territory’s economic future, long term growth can substantially benefit from expansion of the agricultural sector through intensive fruit and vegetable production.

Development of intensive fruit and vegetable production capacity not only strengthens Territory’s economy, but also contributes to increasing economic stability and the ‘future proofing’ of the overall economy considering potential industry cycles or swings, such as those seen in the mining industry, seasonal effects in tourism and skewed animal market agricultural profile. Importantly it adds to security in regional employment, training, workforce engagement and economic development.

Produce from the Singleton Farm has the potential to establish strong markets domestically and internationally. The Singleton Farm will provide job opportunities from not only the construction of the farm, but through the operational phases having a sustained positive impact on local employment and skills development.

Through well considered and deliberate irrigation, intensive fruit and vegetable production, gives rise to efficient and effective agriculture production with strong economic outcomes. In particular, the economic benefits

associated with the Proposal can leverage the Territory's considerable resources and utilise the land management experience of local indigenous people.

The economic impact of the Proposal is expected to be significant, with considerable contributions to regional output, value-add, employment and household incomes.

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1. Introduction

1.1 Proposal overview

1.1.1 Background

Fortune Agribusiness Funds Management Pty Ltd (the proponent or FAFM) engaged GHD Pty Ltd for the provision of environmental approval consultancy services for the development of the Singleton Horticulture Project (the “Singleton Farm” or the “Proposal”).

In 2015 a horticulture investment prospectus was developed for Central Australia by the Department of Primary Industry and Resources (DPIR) in consultation with the Central Australian Development Office to encourage investments in Central Australia, with a focus on the diversification of crops and unique opportunities to the region (Department of Environment and Natural Resources 2018). This report was reinforced by natural resource surveys conducted by the Department of Land, Planning and the Environment (2001) and Department of Environment and Natural Resources (2018 & Burgess *et al.*, 2016), which identified areas suitable for horticultural and agricultural development in the Singleton, Murray Downs areas and broader Western Davenport district.

Singleton Station lies within the Western Davenport Water Control District which was declared a Beneficial Use Area under the Water Act in 2007 (Northern Territory Government 2018). The amount of water available for allocation is based on the calculated aquifer recharge. Hence, the water extracted from the aquifers for irrigation will over time be replenished by rainfall events.

In 2016, FAFM acquired Singleton Station, a 294,900 ha pastoral lease located in the Western Davenport region of the Northern Territory of Australia given the opportunity presented by the NTG in its 2015 Investment Prospectus. The property has immediate access to key infrastructure such as power, road and rail. The site overlies significant, water resources, is in an area of low pest and disease prevalence and has favourable soils and climate.

FAFM plans to develop the Proposal which when fully established involves 3,300 Ha of annual and perennial crop production utilising 40GL of groundwater per annum, accommodation for workers, and infrastructure to support the farming operations. The proposed farming operation will occupy less than 2% of the existing Singleton Station and at full production utilise approximately 0.03% of the water in the aquifer system.

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- Provide employment and business opportunities for the region in a significant and sustainable way for the local Indigenous people
- Establish a new fruit and vegetable farm that provides key local infrastructure and will collaborate support with other local agricultural businesses further benefiting the local community
- Improve food security through providing a source of food for local communities
- Establish bush tucker plots that provide additional produce to the local community which can be managed by the local indigenous community, as well as offering additional training and employment opportunities
- Grow fruit and vegetable crops that include but may not be limited to, grapes, (dried and table), mandarins, onions, carrots, rockmelon, avocado and jujube

The establishment of the Singleton fruit and vegetable farm is a ‘pioneer investment’ and ‘economic catalyst’ that will see the development of a major new industry in the Barkly Region in Central Australia.

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The Proposal is being referred to the NT Environment Protection Authority (NT EPA) for consideration under section 48 of the Environment Protection Act. This report provides an assessment of the economic impacts of the Proposal.

1.1.2 Horticulture production

FAFM proposes to develop 3,300 ha of intensive, irrigated horticulture on Singleton Station. The proposed development will require a total clearing footprint of approximately 4,123 ha comprising two production blocks, as shown in Figure 8 comprising several smaller horticultural plots, a bore field and access roads.

Singleton Station has access to key infrastructure including power, road and rail. The development area lies approximately 5 km to the east of the Amadeus Basin to Darwin Gas Pipeline, approximately 6 km to the west of the Alice Springs to Darwin Railway and approximately 7 km to the west of the Stuart Highway. The proposed Singleton Farm will be developed in 4 stages over approximately 9-years as follow:

- **Stage 1**
 - Plot 1 - 240 ha of Fodder and 20ha of trial crops in Year 1
 - Plot 2 - 250 ha of Dried Grapes in Year 2 and 250 ha of Mandarins in Year 3
 - Plot 3 - 240 ha of Onions/Carrots/Rockmelon in Year 3
- **Stage 2**
 - Plot 4 - 200 ha of Table Grapes and 150 ha of Mandarins in Year 4
 - Plot 5 - 400 ha of Mandarins in Year 5
- **Stage 3**
 - Plot 6 - 400 ha of Mandarins in Year 6
 - Plot 7 - 400 ha of Table Grapes in Year 7
- **Stage 4**
 - Plot 8 - 250 ha of Dried Grapes and 100 ha of Rockmelons in Year 8
 - Plot 9 - 200 ha Avocado and 200 ha Jujube in Year 9

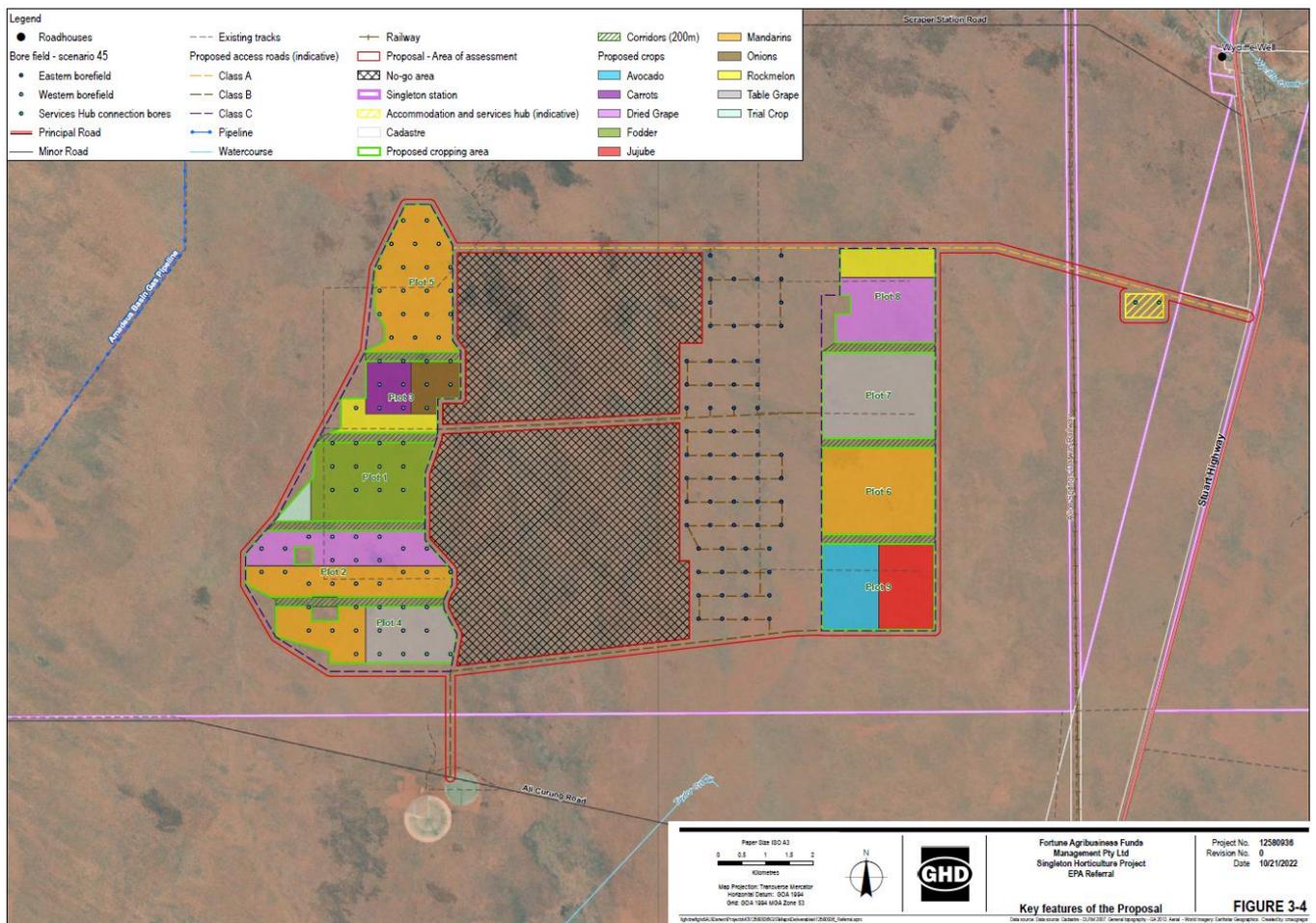


Figure 8 Proposed Singleton Farm

While FAFM must establish and operate a sophisticated farming operation, it is clearly understood what a difference the farm can make to the Barkly Region. FAFM accepts that is one of the key responsibilities that a pioneer investor must shoulder, and why FAFM is supporting regional partnerships as well as partnerships with the NT Government and the broader NT farming community.

FAFM is planning an innovative state-of-the-art farm based heavily on science. Whilst farming can be viewed simply as tilling, seeding, feeding and picking, science enables output optimisation. This Proposal seeks to lead horticulture development in Central Australia and contribute to national food security.

1.1.3 Accommodation and service hub

An accommodation and services hub will be developed within the area between the railway line and the Stuart Highway, which will include accommodation, machinery, workshops, packing and cold storage facilities (Refer to Figure 9).

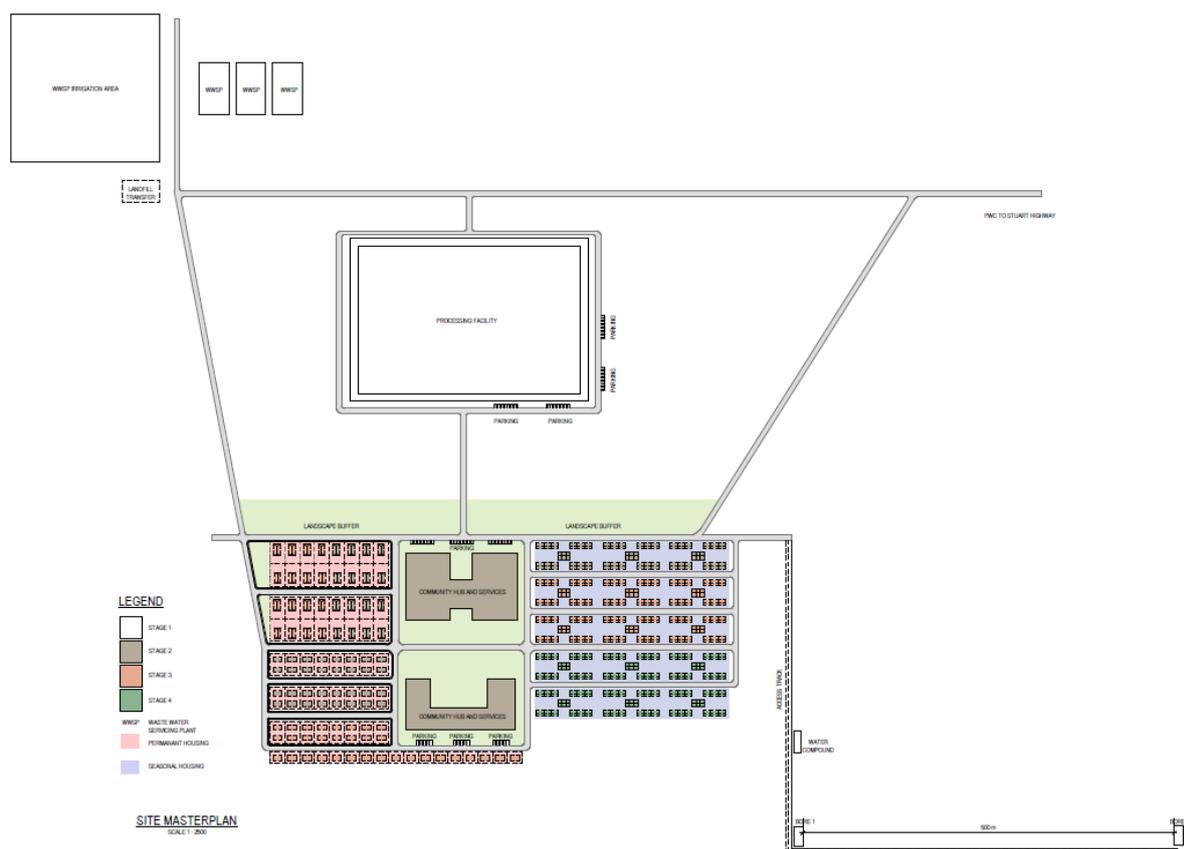


Figure 9 Indicative layout of accommodation and services hub

The Proposal will require accommodation, community infrastructure and services to support the needs of the business, its employees and the local community. Some of the key attributes of these community and service requirements include:

- Facilities for 150 permanent staff and families directly employed by Singleton Farm, and up to 1350 seasonal staff
- Packing and processing facilities,
- Cold storage
- Workshops and machinery sheds
- Power supply
- Telecommunications

The accommodation specifications have been prepared in accordance with the following guidelines:

- Northern Territory Government Employee Housing: Design Guidelines (March 2013)
- Seasonal Workers Program Employer Guidelines (April 2022)
- Northern Territory Department of Health Guidelines for Public Accommodation (March 2016)

In addition to the accommodation and associated amenities, additional common facilities include:

- Kitchen/Dining
- Wet mess
- Laundry services
- Gymnasium
- Administration buildings
- Waste handling and recycling centre
- Medical and emergency facilities

1.1.4 Staged farm development

The staged development will support careful growth of the farm, community facilities and infrastructure. Additionally, an important benefit of staged development includes a sensible rate of workforce development, skills sharing and enhancement, lessons gained in progressive stages and continuous improvement minimising impact.

Staging has been carefully planned and considers:

- Stages in clearing and fruit and vegetable planting
- Use of traditionally proven or more robust crops in the earlier years as per Figure 10 below, later years crop planting regime to be confirmed for development and rotation
- Progressive development of the bore field with necessary monitoring and potential for adjustments to be made ensuring compliance with environmental protection criteria
- Progressive workforce growth and skills development
- Progressive development of process infrastructure and community facilities when needed, to minimise over development and dormant facilities
- Up-front emphasis on early success with higher value permanent fruit and vegetables (including mandarins, grapes (for drying), table grapes)
- Progress on inclusion of suitable annual crops providing seasonal flexibility, especially with regard to water use
- Overall proposed fruit and vegetable crops proposed include but may not be limited to, grapes, (dried and table), mandarins, onions, carrots, rockmelon, avocado and jujube

Development including continuous improvement through the learnings from Stage 1 will inform Stages 2 to 4 to progress farm development, crop success, capitalise on market trends, inform crop rotation and optimise operational efficiency.

The staging of the Proposal reflects sensible economics, and benefits from knowledge accrued in progressive advancements in fruit and vegetable horticulture knowledge and science related to the Proposal site and influences to maximise quality in the fruit and vegetables grown. This underpins successful development of a resilient and robust horticulture industry in the Region.

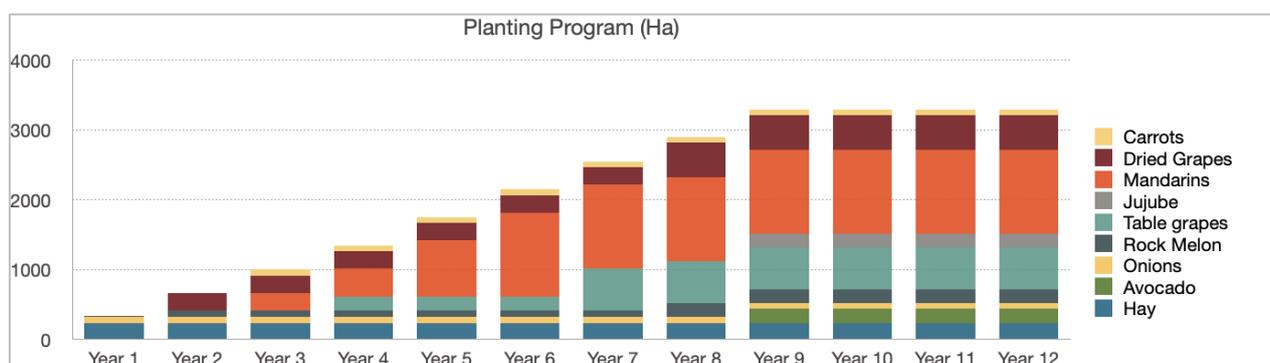


Figure 10 Staged farm development and planting program

1.1.5 Construction and operation of the Singleton Farm

The Proposal involves construction and operation activities of the Singleton Farm as shown in the Table 3 below. The Proposal site has direct access to existing key infrastructure such as power, road and rail.

Table 3 *Proposal construction activities and ongoing operations*

Stage	Year	Accommodation requirements	Property development (construction)	Ongoing operations	Water allocation
1	0-3	<ul style="list-style-type: none"> – Offsite – Wycliffe Well 	<ul style="list-style-type: none"> – Land preparation – Establishment of irrigation infrastructure – Installation of farming infrastructure – Crop establishment and planting 	<p>Ongoing farm maintenance and harvesting of the following horticultural plots:</p> <ul style="list-style-type: none"> – Plots 1 to 3 	12 788 ML/yr
2	4-5	<ul style="list-style-type: none"> – 16 houses (family) – 32 shared apartments – 73 shared accommodation and amenities 	<ul style="list-style-type: none"> – Land preparation – Establishment of irrigation infrastructure – Installation of farming infrastructure – Crop establishment and planting – Establishment of accommodation and associated amenities 	<p>Ongoing farm maintenance and harvesting of the following horticultural plots:</p> <ul style="list-style-type: none"> – Plots 1 to 5 	22 845 ML/yr
3	6-7	<ul style="list-style-type: none"> – 8 houses (family) – 16 shared apartments – 140 shared accommodation and amenities 	<ul style="list-style-type: none"> – Land preparation – Establishment of irrigation infrastructure – Installation of farming infrastructure – Crop establishment and planting – Establishment of accommodation and associated amenities 	<p>Ongoing farm maintenance and harvesting of the following horticultural plots:</p> <ul style="list-style-type: none"> – Plots 1 to 7 	31 779 ML/yr
4	8-9+	<ul style="list-style-type: none"> – 6 houses (family) – 12 Shared apartments – 125 shared accommodation and amenities 	<ul style="list-style-type: none"> – Land preparation – Establishment of irrigation infrastructure – Installation of farming infrastructure – Crop establishment and planting – Establishment of accommodation and associated amenities 	<p>Ongoing farm maintenance and harvesting of the following horticultural plots:</p> <ul style="list-style-type: none"> – Plots 1 to 9 	40 000 ML/yr

The Proposal will involve total capital cost of approximately \$252 million including the capital costs involved with the staged development of the farming operation, farm infrastructure, and the estimated cost of supporting community infrastructure and services

The key components of the anticipated capital costs are as follows:

Table 4 CAPEX Summary

Proposal Capex Components	CAPEX (in A\$)
Accommodation and service hub	
Site Preparation	\$2,300,000
Irrigation Infrastructure and Bore Fields	\$34,700,000
Orchards and Vineyards	\$98,000,000
Plant and Equipment	\$12,700,000
On-farm infrastructure	\$2,300,000
Accommodation and service hub	
Accommodation & community Infrastructure	\$51,000,000
Packing line and sheds	\$26,000,000
Power and other services	\$25,000,000
Total accommodation & service hub cost	\$102,000,000
Total capital cost	\$252,000,000

The capital cost directly associated with farm establishment is estimated at \$150 million. The estimated balance of \$102 million of the total capital cost is made up of, supporting infrastructure - including accommodation and community infrastructure, fruit and vegetable packing line and buildings, power supply, water supply and other enabling infrastructure (such as communications etc.).

Ongoing operation activities of the Singleton Farm will include:

- Fertiliser applied by fertigation with irrigation or through foliar spray.
- Pest/Disease Control
- Training and pruning of plants
- Replacement of plants as required.
- Removal/Recycle waste
- Processing and packing of harvested produce
- Storage on site and transportation of produce to market destinations
- Land is tilled, sowed, and harvested for horticultural crops to grow
- Pest control
- Water abstraction schedule
- Routine visual inspections
- Replacement of equipment and infrastructure as required
- Maintaining firebreaks

Once fully developed, the Singleton Farm will have annual operating expenditure of over \$94 million, much spent locally.

The type of permanent staff required for construction and operation of the Proposal is outlined in Table 5.

Table 5 *Indicative roles for permanent workforce*

Staff	Role
Construction staff	<ul style="list-style-type: none"> - Site supervisors - Engineers - Labourers - Tradespeople - Machinery operators - Surveyors
Permanent staff for general farm management	<ul style="list-style-type: none"> - General Manager - Agronomist - Entomologist - Compliance/OH&S - Logistics/Supply - Human Resources - Offsite bookkeeper - Administration - Accountant
Permanent staff for crop operational management	<ul style="list-style-type: none"> - Farm Management - Assistant management - Leading hand - Irrigation managers - Irrigation assistant - Tractor drivers - Permanent labour
Permanent staff for maintenance	<ul style="list-style-type: none"> - Maintenance Manager - Diesel mechanic - Engineer - Electrician - General building maintenance - Land management rangers - Assistants and cleaners

1.1.6 Procurement

Projects of scale create opportunities for the wider business eco-system. FAFM is committed to bringing as much of the supply chain for its Proposal development and operation as close as possible to farm site. This reduces development risk for the Proposal and supports the regional community. FAFM plans to work with local businesses, the ICN, NT IBN, and the Territory Government to build robust and local supply chain.

FAFM’s procurement preference is clearly local Barkly region first, Territory second, elsewhere third. Where firms outside the Territory may be needed, FAFM will actively encourage these to function as close to the site as possible and to employ locally.

The same principles will apply to FAFM’s own employees; focussing on locals first, Territorians second, and elsewhere only when those options are exhausted. Similarly, training and skills development is critical to FAFM and the Proposal’s development and productivity over time with the development of such programs for local people.

Employment delivers wages, and the multiplier effect from the benefit of wages being spent locally within the Barkly region is anticipated to be meaningful and support further direct and indirect local employment.

1.1.7 Financial model

The 3 way financial model used by FAFM for the Proposal has been developed by specialist consultant, Parity Analytic, based on a cost and economic analysis model used by GHD for agricultural projects.

The forecast financial information has been prepared based on various key assumptions that have been derived from the business plan which is contained within the Property Development Plan (PDP) prepared by GHD. Specialist expertise has been provided to GHD from a range of sources in order to prepare the PDP. Some of the key contributors include:

- CloudGMS – for detailed groundwater modelling, including the assessment of a range of bore field layouts and pumping regimes to deliver the required water as well as minimise impacts to Groundwater Dependent Ecosystems (GDEs)
- FreshLogic – for detailed analysis of crop suitability for Singleton and market access, leading to the final selection of crops to be grown
- Southern Cross Farms – for Proposal planning, farm establishment and operation advice, labour and equipment requirements, water demand modelling, and detailed financial models for each individual crop.
- Beanstalk Agtech – for consideration of current and emerging technologies that will improve productivity and efficiency of the overall Proposal
- Netafim – for concept design and costing of irrigation systems
- Chain Consulting – for supply chain and logistics strategy and costing

In addition, a number of individual specialists and advisers involved in the planning of the Proposal have provided inputs to the development of the financial model.

Leading valuation specialist, JLL, was engaged by FAFM to provide an independent review and valuation of the Singleton Horticulture Project, including review of the key assumptions used in the financial model.

1.2 Economic impact

1.2.1 Impact on NT agricultural sector

Production from the farm will contribute substantially to the Northern Territory economy. When fully developed, projected fruit and vegetable production revenue at a steady state is estimated to be \$200 million per annum in nominal terms. That would increase the horticultural production in the Northern Territory from \$341 million in 2019 (<https://nteconomy.nt.gov.au/industry-analysis/agriculture,-forestry-and-fishing>) by 58% to \$541 million per annum. At a national level, this would mean the Northern Territory's horticulture production would increase from 2.8% to 4.5% of the current overall Australian horticultural production of \$ 12 billion.

1.2.2 Product destinations

It is projected that the fruit and vegetable farm production of \$200 million ²will find markets internationally as well as domestic sales, as shown in the Table below This considers that supply chain links match production growth, especially for exports through the Port of Darwin.

Domestic	% Split								
	Mandarin	Table Grape	Avocado	Onion	Carrots	Rock Melon	Jujube	Hay	Dried Grape
Adelaide	10%	10%	10%	10%	10%	10%	10%		
Sydney	20%	20%	20%	20%	20%	20%	20%		
Brisbane	20%	20%	20%	20%	20%	20%	20%		
Melbourne	20%	20%	20%	20%	20%	20%	20%		
Perth	10%	10%	10%	10%	10%	10%	10%		

² GHD modelling based on forecasted crop planting

Darwin/Alice Springs	20%	20%	20%	20%	20%	20%	20%	100%	
Mildura									100%
	100%	100%	100%	100%	100%	100%	100%	100%	100%
Domestic Split	20%	20%	50%	50%	50%	50%	50%	100%	100%
International Split	80%	80%	50%	50%	50%	50%	50%	0%	0%

- 30% (i.e. \$60 million) Australian domestic consumption
- 70% (i.e. \$140 million) export consumption
- Of the 30% Australian domestic consumption approximately 20% of the 30% (i.e., \$12 million) would be consumed in the Northern Territory.

Importantly the availability of this additional Australian domestic consumption resource further underpins Australia’s food security and self-sufficiency, especially within the Northern Territory.

1.2.3 Benefit to Northern Territory

The opportunity to expand the Northern Territory’s fruit and vegetable (intensive horticulture) sector presents great value not only to the Territory’s economy but also of benefit to the regions and communities through enhanced employment opportunities and wider economic benefits.

Traditionally, Northern Territory has achieved high economic growth through development of mining, animal farming and tourism. While each of these present on-going support to the Northern Territory’s economic future, long term growth can substantially benefit from expansion of the agricultural sector through intensive fruit and vegetable production.

Development of intensive fruit and vegetable production capacity not only strengthens Territory’s economy, but also contributes to increasing economic stability and the ‘future proofing’ of the overall economy considering potential industry cycles or swings, such as those seen in the mining industry, seasonal effects in tourism and skewed animal market agricultural profile. Importantly it adds to security in regionally employment, training workforce engagement and economic development.

Through well considered and deliberate irrigation, intensive fruit, and vegetable production, combined with land and water, gives rise to efficient and effective agriculture production with strong economic outcomes. In particular, the economic benefits associated with the Proposal can leverage the Territory’s considerable resources and utilise key local populations and workforce experience on the land.

The effective and efficient use of water in intensive fruit and vegetable production becomes abundantly clear when assessed alongside other Territory industries. When compared to ‘broad acre farming’, such as that associated with cotton or peanut farming, the production benefit and overall revenue to the Territory achieves a 5 to 10-fold higher return per GL of water.

Intensive fruit and vegetable production is expected to yield in the order of \$2 million to \$5 million revenue per GL of water used. ‘Broad acre farming’ is demonstrated to yield between \$500k to \$750k per GL of water irrigated. This is in addition to additional employment per ha associated with fruit and vegetable harvesting and processing.

Overall, intensive fruit and vegetable production contributes to enhanced:³

- production of land per ha used \$30k to \$80k / ha
- production revenue per GL irrigated \$2 million to \$5 million / GL
- labour input per ha 0.15 FTE / ha
- economic stability through the application of a reliable water, expanding agriculture activity

³ Based on forecasted planting regime

- increased GRP (Gross Regional Product) \$200 million per year which would be equivalent to a 45.8% increase additional to the \$436 million of the entire GRP of the Barkly region in 2021

1.3 Purpose of this report

This Economic Impact Assessment has been prepared by GHD Pty Ltd (GHD) for Fortune Agribusiness Funds Management Pty Ltd (FAFM) to detail economic benefits of the Singleton Farm's development and its operation.

This assessment details potential economic benefits of with the Proposal along with those to address requirements for environmental assessment and approval under both the *Environment Protection Act 2019* (Northern Territory) (EP Act) and *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act).

The purpose of this assessment is to identify projected direct and indirect economic impact on the Northern Territory economy from the proposed intensive irrigated horticulture development and operation by FAFM. The direct and indirect impacts will be provided for both the construction and operational phases of the Proposal. The economic impacts for the construction and operational phases of the Proposal have been reported for:

- Output
- Gross value-add
- Full time equivalent (FTE) employment
- Wages and salaries

1.4 Scope of the assessment

This assessment supports the Referral to the EPA for the Proposal.

The scope of the assessment included:

- Preparation of an economic impact assessment through use of an Input-Output modelling approach by way of REMPLAN software (please refer to section 3.1.1. for further details on REMPLAN).
- Assessment of direct and indirect economic impacts over the construction and operational periods of the proposed fruit and vegetable horticultural farm.
- Prepare a report summarising the findings of the assessment.

1.5 Report structure

The Economic Impact Assessment report is comprised of the following sections:

- Executive Summary – Overview of the proposed Proposal
- **Section 1 – Introduction:** provides background information and an overview of the Proposal and its economic impact assessment
- **Section 2 – Regional Profile:** provides a brief outline of the existing profile of the surrounding regions to the Proposal
- **Section 3 – Economic Impact Assessment Assumptions:** summarises the steps undertaken in carrying out the assessment including model assumptions
- **Section 4 – Economic Impact Assessment:** summarises results of the economic impact assessment for the construction and operational periods of the Proposal
- **Section 5 – Summary of Results:** summarises the resource usage and economic impact assessment for the proposed uses
- **Section 6 – Conclusions:** provides an overview of the benefits of the Proposal to the Northern Territory's regional economy

1.6 Assumptions and limitations

1.6.1 Assumptions

The following assumptions have been considered as part of this report:

- Input-output modelling has been used to assess the economic impact of the Proposal. Key limitations of this approach can be found in section 3.1.2, including the assumption that there are no capacity constraints in terms of labour availability within the Northern Territory
- Capital expenditure, annual operating expenditure and share of those expenditure within the Northern Territory have been summarized from the outputs of a detailed three-way financial model developed by FAFM for the Proposal
- Expenditure items have been mapped to the ANZSIC codes which best reflect the expenditure item. Where expenditure items have more than one relevant ANZSIC code, the splits between each of these codes has been developed based on previous similar projects
- This assessment excludes examining any of the non-expenditure related costs of the Proposal

Additional assumptions, specifically relating to the economic impact assessment can be found in Section 3.

1.6.2 Limitations

This report has been prepared by GHD for Fortune Agribusiness Funds Management Pty Ltd and may only be used and relied on by Fortune Agribusiness Funds Management Pty Ltd for the purpose agreed between GHD and Fortune Agribusiness Funds Management Pty Ltd as set out in section 1.3 of this report.

GHD otherwise disclaims responsibility to any person other than Fortune Agribusiness Funds Management Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope and limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (Refer to Section 1.6.1 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

The assessment carried out and preparation of this report was limited to direct and indirect economic impacts from expenditure of the Proposal on the Northern Territory economy.

The assessment carried out and this report does not include consideration of other costs or benefits which may occur as part of the Proposal. (It assesses only economic activity generated because of the Proposal's expenditure within the Northern Territory. Anything outside of this was beyond of the scope of this assessment).

2. Regional Profile

This section presents a summary of economic, industry and employment data for Barkly Local Government Area (LGA) and Northern Territory - Outback SA4, with reference to Northern Territory where relevant.

2.1 Population overview

At the time of the 2016 Census the population of Barkly LGA was 6,655 persons. Estimated resident population data, published by the ABS, indicates that in June 2021 the Estimated Resident Population in Barkly was 7,457 persons with an average annual growth rate of -0.5% between 2010 and 2021 (Table 6).

Table 6 Estimated Resident Population, 2010-2021

Year	Barkly LGA	Northern Territory
2010 (number)	7,863	229,778
2015 (number)	7,572	244,692
2021 (number)	7,457	245,909
2010-2021 change (%)	-5.2%	7.0%
2015-2021 change (%)	-1.5%	0.5%
2010-2021 average annual growth rate (%)	-0.5%	-0.4%
2015-2021 average annual growth rate (%)	0.7%	0.1%

Source: ABS (2022) Population estimates and components by LGA, 2020 to 2021

As shown in Figure 11, Barkly LGA experienced substantial population decline over a 3-year period from 2013 to 2016, declining by 4.9%. The population further declined by 0.7% between 2016 and 2019, after which the population experienced a slight increase before plateauing between 2020 and 2021.

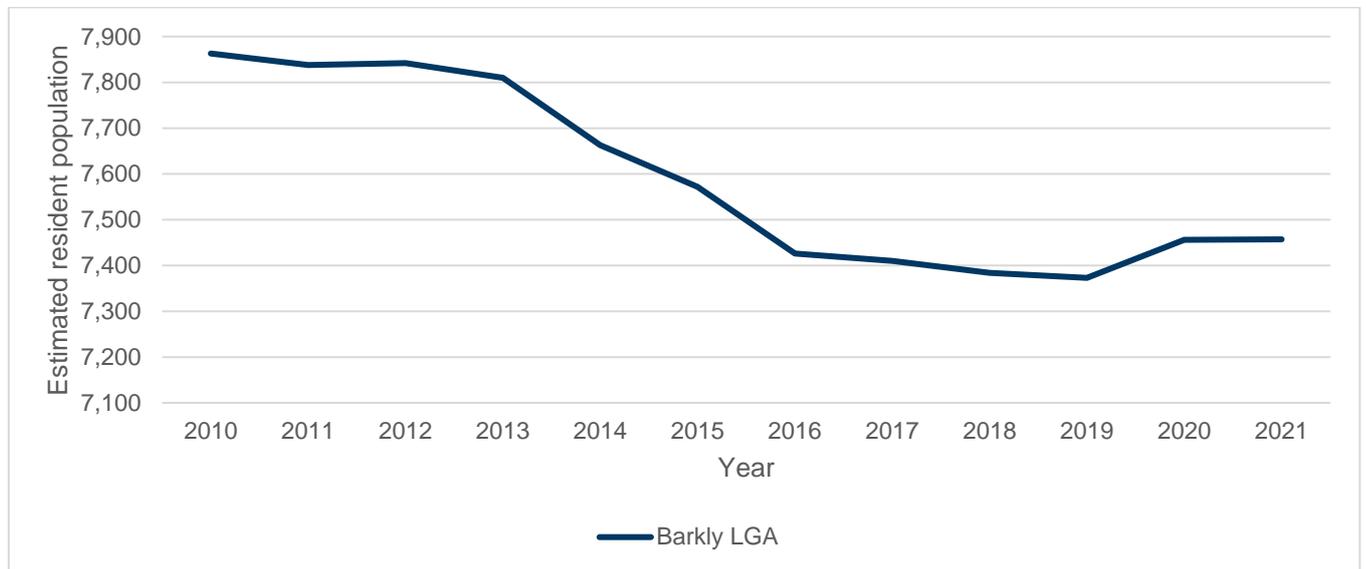


Figure 11 Estimated Resident Population, Barkly LGA, 2010-2021

Source: ABS (2022) Population estimates and components by LGA, 2020 to 2021

2.2 Key industries

In the 2020/21 financial year, agriculture, forestry and fishing had the largest output by industry in Barkly LGA, generating \$271 million across domestic and international exports (Economy id, 2021). Agriculture, forestry and fishing represents 38.4% of total output in Barkly LGA. The largest commodity produced was livestock slaughtering, which accounted for 98.2% of the Barkly LGA's total agricultural output in terms of value (Economy id, 2021).

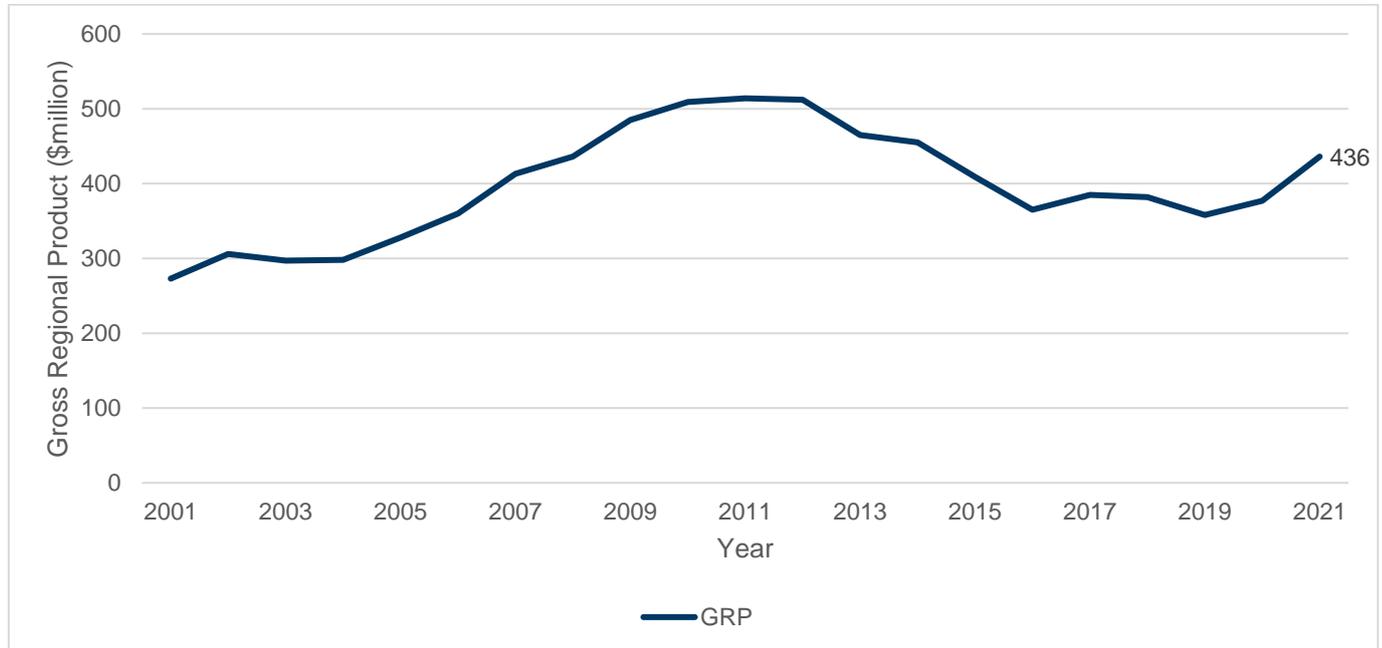


Figure 12 Gross Regional Product, 2001 – 2021, Barkly LGA

Source: National Institute of Economic and Industry Research (NIEIR) (2021). Compiled and presented in economy.id

The Barkly region was identified as a key tourist destination during transit, given its strategic location for travellers in transit through the Northern Territory. The Barkly Region Destination Management Plan was developed to manage tourism in the region over a 10-year period from 2020 to 2030. In 2019, 106,000 people visited Barkly, spending an average of 2.4 nights in the region and an average spend per trip of \$1,284 (Tourism NT, 2019).

In 2019/20, the total tourism and hospitality sales in the Barkly LGA was \$17.5 million, the total value added was \$8.8 million (Economy id, 2021). Tourism employs 118 persons in Barkly LGA, including 96 direct employees.

2.3 Labour force

2.3.1 Industry of employment

In 2016, the predominant industries of employment in Barkly LGA were public administration and safety (17.7%), health care and social assistance (17.4%), education and training 13.1% and agriculture, forestry and fishing (12.6%). As shown in Figure 13, compared with the Northern Territory, Barkly LGA had a considerably higher proportion of the labour force working in agriculture, forestry and fishing. The public sector and publicly funded services is the highest employer in the region at 48.2% total.

Industry	Barkly LGA	Northern Territory
Agriculture, Forestry and Fishing	12.6%	2.0%
Construction	4.8%	10.1%
Retail Trade	7.7%	7.3%
Accommodation and Food Services	4.5%	6.8%
Public Administration and Safety	17.7%	18.1%
Education and Training	13.1%	9.3%
Health Care and Social Assistance	17.4%	11.1%
Other Services	5.5%	4.1%

Figure 13 Industry of employment, Barkly LGA, 2016

Source: ABS (2017b) 2016 Census of Population and Housing. General Community Profile. Catalogue number 2001.0

2.3.2 Occupation

In Barkly LGA, the predominant occupation was professionals (19.4%), community and personal service (19.4%) and labourers (16.0%).

Table 7 Occupation of employment, Barkly LGA, 2016

Occupation	Barkly LGA	Northern Territory
Managers	13.0%	12.2%
Professionals	19.4%	20.1%
Technicians and trades	10.8%	15.8%
Community and personal service	19.4%	13.8%
Clerical and administrative	10.6%	13.7%
Sales	4.5%	6.8%
Machinery operators and drivers	2.9%	5.7%
Labourers	16.0%	9.4%
Not Stated	3.5%	2.5%

Source: ABS (2017b) 2016 Census of Population and Housing. General Community Profile. Catalogue number 2001.0

2.3.3 Labour force participation

The labour force participation rate in Barkly LGA was 51.3% in 2016, below that of the Northern Territory which had a labour force participation rate of 61.5%. In Barkly LGA, 75% of the labour force were employed and 24.9% were unemployed. The introduction of a project of this size will have a significant impact on employment, fulltime and seasonal. Given the local employment participation rate, the majority of the expanded workforce should be able to be sourced locally.

Table 8 Labour force, Barkly LGA, 2016

Statistical area	Barkly LGA	Northern Territory
Labour force	2,521	110,391
Employed	75.0%	93.0%
Unemployed	24.9%	7.0%
Not stated	11.2%	12.8%
Labour force participation	51.3%	61.5%

Source: ABS (2017b) 2016 Census of Population and Housing. General Community Profile. Catalogue number 2001.0

2.3.4 Unemployment rate

Figure 14 below shows the unemployment rate for Barkly LGA over an 11-year period from 2010 to 2021, compared to the Northern Territory – Outback SA4 and Northern Territory. The unemployment rate in Barkly LGA has been consistently above that of the SA4 and the Territory since 2010.

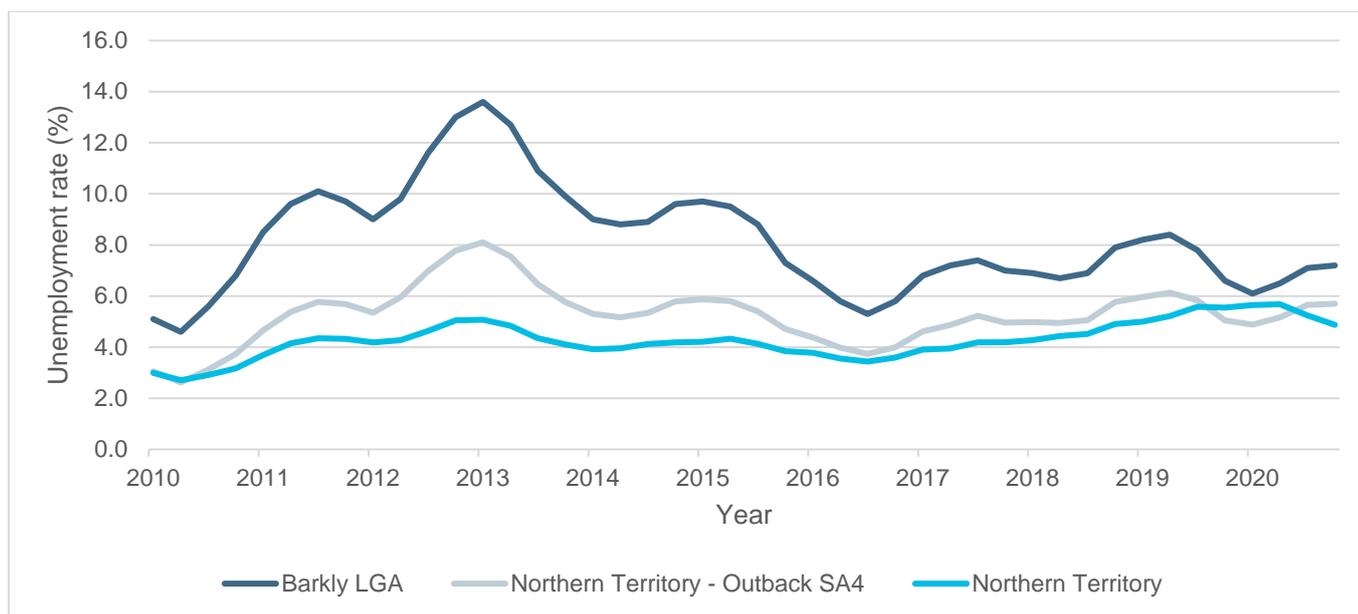


Figure 14 Unemployment rate, Barkly LGA, 2010-2021

Source: Australian Government (2021) Small area labour markets publication. ABS (2022) 6291.0.55.001 – RM1 – Labour force status by Age, Labour market region (ASGS) and Sex, October 1998 onwards

2.3.5 Income

Barkly LGA has a lower median weekly personal income and household income compared to Northern Territory. In 2016, the median weekly personal income in Barkly was \$375, compared to \$871 in the Northern Territory and a median weekly household income of \$1,323, compared to \$1,983 in the Northern Territory.

Table 9 Income, Barkly LGA, 2016

	Barkly LGA	Northern Territory
Median weekly personal income	\$375	\$871
Median weekly household income	\$1,323	\$1,983

Source: ABS (2017b) 2016 Census of Population and Housing. General Community Profile. Catalogue number 2001.0

2.4 Regional Profile Key findings

The Gross Regional Product (GRP) for Barkly LGA was \$436 million in 2021. The GRP has fluctuated over the last decade, from a high of \$512 million in 2012 before decreasing to a low of \$365 million in 2016. In the 2020/21 financial year, agriculture, forestry and fishing had the largest output by industry in Barkly LGA. Barkly has a growing tourism industry and has been identified as a key destination during transit in the Northern Territory, generating \$8.8 million in total value add in 2019/20.

The Singleton Farm will increase the GRP for the Barkly LGA by 45.8%. The Singleton Farm will contribute to stabilising the GRP of the region that is heavily impacted by transient projects, in particular mining which is affected by global commodity pricing.

Compared to the Northern Territory, Barkly LGA had a lower labour force participation rate of 51.3% of the working age population. Since 2010, the unemployment rate in Barkly LGA has been historically higher than the Northern Territory. At the time of the 2016 Census, 47.8% of the Indigenous labour force were unemployed, compared to 2.8% for the non-Indigenous labour force.

Barkly LGA had a lower income compared to Northern Territory in 2016, with a median weekly personal income of \$375 and a median weekly household income of \$1,323.

The Barkly LGA is experiencing a declining population, a declining economy (GRP), the highest unemployment in the NT, significantly lower weekly individual and household incomes and nearly 50% of the total workforce is funded by Government(s).

3. Economic Impact Assessment Assumptions

The following section outlines the method used in developing the economic impact assessment. Key assumptions used in assessment of economic impact of the Proposal's fruit and vegetable horticultural development and construction and operational periods are outlined.

3.1 Methodology

3.1.1 Input-Output Analysis Methodology

Estimates of economic change associated with Proposal are calculated using input-output modelling software on REMPLAN. REMPLAN Economy provides insights into the economic structure of regions and contributions of local industries to employment, production output, wages and salaries, regional imports and exports and value-added, as defined below:

- **Output:** The total value of all goods and services produced within a year (the final value of the good/service).
- **Value Add:** The value of output after deducting the cost of goods and services inputs in the production process
- **Incomes:** Level of wages and salaries paid to employees in each industry
- **Employment:** Level of employment supported by the industry, expressed as full time equivalent (FTE) positions

Local estimates of Gross Regional Product (GRP) are consistent with Australian Bureau of Statistics' (ABS) estimates for Gross Domestic product (GDP), delivering a detailed understanding of the contributions of regions to both state and national economies.

REMPPLAN defines the supply chain linkages between local industries and delivers economic impact modelling to support assessment for planning, investment attraction and funding.

Input-Output (IO) assessments also identify inter-industry relationships within an economy, identifying which purchases by one industry go into producing an output for another industry. IO analysis identifies direct and indirect (flow-on) impacts of one industry on other industries and the economy. IO modelling can therefore be used to assess the economic impact of an industry on the overall economy and how much the economy relies on the identified industry. IO modelling can also be used to examine a change in final demand of any one industry and the resultant change in activity of its supporting industries. These impacts are measured through:

- **Indirect impacts**, which are the first round of effects from direct expenditure on goods and services.
- **Flow-on impacts**, the second and subsequent round effects of the increased level of purchases by suppliers in response to increased sales. Flow-on impacts are disaggregated in two Types:
 - **Supply chain effects (Type I)**, which represent production induced support activity as a result of additional expenditure on goods and services, and subsequent round effects of increased purchases by suppliers in response to increased sales.
 - **Consumption effects (Type II)**, which represent consumption induced activity from additional household expenditure on goods and services resulting from additional wages and salaries paid within the economy.

3.1.2 Input-Output Model Limitations

It is important to note that economic multipliers are typically based on limited assumptions that can result in multipliers presenting a bias estimate of the benefits or costs of a project. Shortcomings and limitations of multipliers for economic impact analysis are outlined in Table 10.

Table 10 *Limitations of IO Modelling*

Constraint	Explanation
Lack of supply-side constraints	The most significant limitation of economic impact analysis using multipliers is the implicit assumption that the economy has no supply-side constraints. That is, it is assumed that extra output can be produced in an area without taking resources away from other activities, thus overstating economic impacts. The actual impact is typically dependent on the extent at which the economy is operating at or near capacity.
Fixed pricing	Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding out effects are not captured. In summary, IO modelling assumes that prices remain fixed and do not change as a result of the increased demand for a good or service.
Fixed ratios for intermediate inputs and production	Economic impact analysis using multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. As such, impact analysis using multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed to imply an equal increase in production for that product. However, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount.
No allowance for purchasers' marginal responses to change	Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.
Absence of budget constraints	Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.
Not applicable for small regions	Multipliers that have been calculated from the national input output table are not appropriate for use in economic impact analysis of projects in small regions. For small regions multipliers tend to be smaller than national multipliers since inter-industry linkages are normally relatively shallow. Inter-industry linkages tend to be shallow in small regions since they usually do not have the capacity to produce the wide range of goods used for inputs and consumption, instead importing a large proportion of these goods from other regions.

3.2 Model Assumptions

The following section outlines the processes and assumptions used to develop the inputs and drivers for the construction and operational impacts developed as part of the economic impact assessment.

3.2.1 Construction Impacts

Construction costs for the Proposal were summarised from the outputs of a detailed three-way financial model developed by FAFM for the Proposal. Construction is slated to occur over nine years, with a staged approach to construction and operation to occur. Over the entire nine-year construction phase, total capital expenditure is expected to amount to \$252.73 million. As part of the construction costs estimates provided by FAFM, the annual construction cost estimates, construction component and the proportion of capital expenditure sourced from the Northern Territory were provided.

The table below outlines the annual capital expenditure by expenditure category, and amount sourced from within the Northern Territory.

Table 11 Annual construction cost estimates (\$ million)

Construction component (\$M)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 5	Year 8	Year 9	Total
Land clearing and site preparation										
Expenditure within the NT (100%)	\$0.23	\$0.23	\$0.23	\$0.28	\$0.28	\$0.28	\$0.28	\$0.28	\$0.23	\$2.32
Total expenditure	\$0.23	\$0.23	\$0.23	\$0.28	\$0.28	\$0.28	\$0.28	\$0.28	\$0.23	\$2.32
Farming infrastructure and workers camp										
Expenditure within the NT (70%)	\$3.60	\$3.60	\$7.20	\$10.79	\$10.79	\$10.79	\$10.79	\$7.20	\$7.20	\$71.96
Total expenditure	\$5.14	\$5.14	\$10.28	\$15.42	\$15.42	\$15.42	\$15.42	\$10.28	\$10.28	\$102.80
Plant and equipment										
Expenditure within the NT (50%)	\$0.58	\$0.58	\$0.58	\$0.70	\$0.70	\$0.70	\$0.70	\$0.70	\$0.58	\$5.80
Total expenditure	\$1.16	\$1.16	\$1.16	\$1.39	\$1.39	\$1.39	\$1.39	\$1.39	\$1.16	\$11.59
Bores and pumps										
Expenditure within the NT (50%)	\$0.91	\$0.91	\$0.91	\$1.09	\$1.09	\$1.09	\$1.09	\$1.09	\$0.91	\$9.05
Total expenditure	\$1.81	\$1.81	\$1.81	\$2.17	\$2.17	\$2.17	\$2.17	\$2.17	\$1.81	\$18.09
Irrigation systems										
Expenditure within the NT (50%)	\$0.62	\$0.79	\$1.35	\$1.11	\$1.26	\$1.26	\$1.26	\$1.01	\$1.26	\$9.92
Total expenditure	\$1.24	\$1.58	\$2.70	\$2.21	\$2.52	\$2.52	\$2.52	\$2.02	\$2.52	\$19.83
Permanent crop establishment										
Expenditure within the NT (70%)	\$0.00	\$8.40	\$3.01	\$9.38	\$4.76	\$4.76	\$15.12	\$8.40	\$14.84	\$68.67
Total expenditure	\$0.00	\$12.00	\$4.30	\$13.40	\$6.80	\$6.80	\$21.60	\$12.00	\$21.20	\$98.10
Total capital expenditure										
Expenditure within the NT	\$5.93	\$14.50	\$13.27	\$23.34	\$18.87	\$18.87	\$29.23	\$18.67	\$25.01	\$167.71
Total expenditure	\$9.58	\$21.92	\$20.48	\$34.87	\$28.58	\$28.58	\$43.38	\$28.14	\$37.20	\$252.73

Taking into consideration the construction cost components, the construction cost items were allocated to the relevant Australian and New Zealand Standard Industry Classifications based off how they align to the relevant classifications. These classifications, along with the % splits between industries and ANZSIC classes are outlined in the table below.

Table 12 Capital Cost Distribution and Relevant ANZSIC

Proposal Cost Splits	ANZSIC Classification	% of cost
Land clearing & site preparation	Construction services	100%
Farming infrastructure & workers' camp	Residential building construction	25%
	Construction services	48%
	Non-residential building construction	23%
	Heavy and civil engineering construction	5%
Plants & equipment	Machinery and Equipment Manufacturing	100%
Bores & pumps	Machinery and Equipment Manufacturing	50%
	Construction services	50%
Irrigation systems	Heavy and civil engineering construction	60%
	Machinery and Equipment Manufacturing	40%
Permanent crop establishment	Agriculture	100%

This distribution has been applied to the annual construction costs over the 9-year construction period to identify the annual construction costs per industry, which is used as the basis for modelling the construction impacts.

Any non-Northern Territory and international expenditure has not been included in this assessment as there will be no economic stimulus from this expenditure on the Northern Territory economy.

Annual capital expenditure by ANZSIC classification, and non-Northern Territory expenditure is outlined in the table below.

Table 13 Distribution of Annual Capital Expenditure by ANZSIC Classifications (\$ million)

ANZSIC Classification (\$M)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Agriculture	\$0.00	\$8.40	\$3.01	\$9.38	\$4.76	\$4.76	\$15.12	\$8.40	\$14.84
Machinery and Equipment Manufacturing	\$1.28	\$1.35	\$1.57	\$1.68	\$1.74	\$1.74	\$1.74	\$1.64	\$1.54
Residential building construction	\$0.89	\$0.89	\$1.79	\$2.68	\$2.68	\$2.68	\$2.68	\$1.79	\$1.79
Non-residential building construction	\$0.82	\$0.82	\$1.64	\$2.46	\$2.46	\$2.46	\$2.46	\$1.64	\$1.64
Heavy and civil engineering construction	\$0.55	\$0.65	\$1.16	\$1.19	\$1.28	\$1.28	\$1.28	\$0.96	\$1.11
Construction services	\$2.39	\$2.39	\$4.11	\$5.96	\$5.96	\$5.96	\$5.96	\$4.25	\$4.11
Non-Northern Territory Expenditure	\$3.65	\$7.42	\$7.21	\$11.53	\$9.71	\$9.71	\$14.15	\$9.47	\$12.19

The expenditure in these industries was applied to REMPLAN's IO model for the Northern Territory to estimate the direct and indirect impacts of the expenditure.

3.2.2 Operational Impacts

Operational costs for the Proposal were also summarized from the outputs of a detailed three-way financial model developed by FAFM for the Proposal. Table 14 below summarises the operational expenditure totals by expenditure item over 30 years. Table 14 also shows the estimated percentage of the expenditure items being sourced within the Northern Territory to provide insight into direct economic impacts on the Northern Territory.

Table 14 Total Operational Expenditure totals (\$'000)

Operational Expenditure Item	Estimated percentage within NT	Totals over 30 years
Crop variable costs	70%	\$1,777,022
Permanent employee costs	80%	\$336,234
Management fee	50%	\$38,284
General R&M	50%	\$4,256
Sundries/contingencies	70%	\$8,507
Electricity – workshops & Cold Store	100%	\$7,194
Insurance (hail)	50%	\$6,701
Vehicle operating costs	100%	\$2,061
Plant and equipment leasing, R&M	50%	\$38,668
Overheads	80%	\$37,378
Total operating costs	-	\$2,256,305

The table below outlines the annual operational expenditure by expenditure category, and amount sourced from within the Northern Territory.

Table 15 Annual operational cost estimates, Years 1 to 10 (\$'000)

Construction component (\$'000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Crop variable costs										
Expenditure within the NT (70%)	\$2,197.3	\$2,986.2	\$9,113.3	\$11,114.6	\$13,962.2	\$17,640.7	\$22,270.5	\$30,732.1	\$38,053.4	\$43,302.0
Total expenditure	\$3,139.0	\$4,266.0	\$13,019.0	\$15,878.0	\$19,946.0	\$25,201.0	\$31,815.0	\$43,903.0	\$54,362.0	\$61,860.0
Permanent employee costs										
Expenditure within the NT (80%)	\$822.4	\$1,612.8	\$3,161.6	\$4,268.8	\$5,533.6	\$6,798.4	\$8,063.2	\$9,169.6	\$10,434.4	\$10,434.4
Total expenditure	\$1,028.0	\$2,016.0	\$3,952.0	\$5,336.0	\$6,917.0	\$8,498.0	\$10,079.0	\$11,462.0	\$13,043.0	\$13,043.0
Management fees										
Expenditure within the NT (50%)	\$58.5	\$115.0	\$225.0	\$304.0	\$394.0	\$484.0	\$574.0	\$652.5	\$742.5	\$742.5
Total expenditure	\$117.0	\$230.0	\$450.0	\$608.0	\$788.0	\$968.0	\$1,148.0	\$1,305.0	\$1,485.0	\$1,485.0
General repairs and maintenance										
Expenditure within the NT (50%)	\$6.5	\$13.0	\$25.0	\$34.0	\$44.0	\$54.0	\$64.0	\$72.5	\$82.5	\$82.5
Total expenditure	\$13.0	\$26.0	\$50.0	\$68.0	\$88.0	\$108.0	\$128.0	\$145.0	\$165.0	\$165.0
Sundries/contingencies										
Expenditure within the NT (70%)	\$18.2	\$35.7	\$70.0	\$94.5	\$122.5	\$150.5	\$178.5	\$203.0	\$231.0	\$231.0
Total expenditure	\$26.0	\$51.0	\$100.0	\$135.0	\$175.0	\$215.0	\$255.0	\$290.0	\$330.0	\$330.0
Electricity										
Expenditure within the NT (100%)	\$22.0	\$43.0	\$85.0	\$114.0	\$148.0	\$182.0	\$216.0	\$246.0	\$279.0	\$279.0
Total expenditure	\$22.0	\$43.0	\$85.0	\$114.0	\$148.0	\$182.0	\$216.0	\$246.0	\$279.0	\$279.0
Insurance										
Expenditure within the NT (50%)	\$10.0	\$20.0	\$39.5	\$53.0	\$69.0	\$84.5	\$100.5	\$114.0	\$130.0	\$130.0
Total expenditure	\$20.0	\$40.0	\$79.0	\$106.0	\$138.0	\$169.0	\$201.0	\$228.0	\$260.0	\$260.0
Vehicle operating costs										
Expenditure within the NT (100%)	\$6.0	\$12.0	\$24.0	\$33.0	\$42.0	\$52.0	\$62.0	\$70.0	\$80.0	\$80.0
Total expenditure	\$6.0	\$12.0	\$24.0	\$33.0	\$42.0	\$52.0	\$62.0	\$70.0	\$80.0	\$80.0
Plant and equipment repairs and maintenance										
Expenditure within the NT (50%)	\$59.0	\$116.0	\$227.5	\$307.0	\$397.5	\$488.5	\$579.5	\$659.0	\$750.0	\$750.0

Construction component (\$'000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total expenditure	\$118.0	\$232.0	\$455.0	\$614.0	\$795.0	\$977.0	\$1,159.0	\$1,318.0	\$1,500.0	\$1,500.0
Overheads										
Expenditure within the NT (80%)	\$91.2	\$179.2	\$351.2	\$474.4	\$615.2	\$756.0	\$896.0	\$1,019.2	\$1,160.0	\$1,160.0
Total expenditure	\$114.0	\$224.0	\$439.0	\$593.0	\$769.0	\$945.0	\$1,120.0	\$1,274.0	\$1,450.0	\$1,450.0
Total operational expenditure										
Expenditure within the NT	\$2,372.6	\$3,328.8	\$9,791.5	\$12,028.3	\$15,145.1	\$19,095.1	\$23,998.3	\$32,702.8	\$40,298.9	\$45,552.1
Total expenditure	\$4,603.0	\$7,140.0	\$18,653.0	\$23,485.0	\$29,806.0	\$37,315.0	\$46,183.0	\$60,241.0	\$72,954.0	\$80,452.0

Table 16 Annual operational cost estimates, Years 11 to 30 (\$'000)

Construction component (\$'000)	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20 & Beyond
Crop variable costs										
Expenditure within the NT (70%)	\$47,838.7	\$51,057.3	\$52,610.6	\$52,860.5	\$53,011.0	\$53,011.0	\$53,011.0	\$53,011.0	\$53,011.0	\$53,011.0
Total expenditure	\$68,341.0	\$72,939.0	\$75,158.0	\$75,515.0	\$75,730.0	\$75,730.0	\$75,730.0	\$75,730.0	\$75,730.0	\$75,730.0
Permanent employee costs										
Expenditure within the NT (80%)	\$10,434.4	\$10,434.4	\$10,434.4	\$10,434.4	\$10,434.4	\$10,434.4	\$10,434.4	\$10,434.4	\$10,434.4	\$10,434.4
Total expenditure	\$13,043.0	\$13,043.0	\$13,043.0	\$13,043.0	\$13,043.0	\$13,043.0	\$13,043.0	\$13,043.0	\$13,043.0	\$13,043.0
Management fees										
Expenditure within the NT (50%)	\$742.5	\$742.5	\$742.5	\$742.5	\$742.5	\$742.5	\$742.5	\$742.5	\$742.5	\$742.5
Total expenditure	\$1,485.0	\$1,485.0	\$1,485.0	\$1,485.0	\$1,485.0	\$1,485.0	\$1,485.0	\$1,485.0	\$1,485.0	\$1,485.0
General repairs and maintenance										
Expenditure within the NT (50%)	\$82.5	\$82.5	\$82.5	\$82.5	\$82.5	\$82.5	\$82.5	\$82.5	\$82.5	\$82.5
Total expenditure	\$165.0	\$165.0	\$165.0	\$165.0	\$165.0	\$165.0	\$165.0	\$165.0	\$165.0	\$165.0
Sundries/contingencies										
Expenditure within the NT (70%)	\$231.0	\$231.0	\$231.0	\$231.0	\$231.0	\$231.0	\$231.0	\$231.0	\$231.0	\$231.0
Total expenditure	\$330.0	\$330.0	\$330.0	\$330.0	\$330.0	\$330.0	\$330.0	\$330.0	\$330.0	\$330.0
Electricity										
Expenditure within the NT (100%)	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0
Total expenditure	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0	\$279.0
Insurance										
Expenditure within the NT (50%)	\$130.0	\$130.0	\$130.0	\$130.0	\$130.0	\$130.0	\$130.0	\$130.0	\$130.0	\$130.0
Total expenditure	\$260.0	\$260.0	\$260.0	\$260.0	\$260.0	\$260.0	\$260.0	\$260.0	\$260.0	\$260.0
Vehicle operating costs										
Expenditure within the NT (100%)	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0
Total expenditure	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0	\$80.0
Plant and equipment repairs and maintenance										
Expenditure within the NT (50%)	\$750.0	\$750.0	\$750.0	\$750.0	\$750.0	\$750.0	\$750.0	\$750.0	\$750.0	\$750.0

Construction component (\$'000)	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20 & Beyond
Total expenditure	\$1,500.0	\$1,500.0	\$1,500.0	\$1,500.0	\$1,500.0	\$1,500.0	\$1,500.0	\$1,500.0	\$1,500.0	\$1,500.0
Overheads&										
Expenditure within the NT (80%)	\$1,160.0	\$1,160.0	\$1,160.0	\$1,160.0	\$1,160.0	\$1,160.0	\$1,160.0	\$1,160.0	\$1,160.0	\$1,160.0
Total expenditure	\$1,450.0	\$1,450.0	\$1,450.0	\$1,450.0	\$1,450.0	\$1,450.0	\$1,450.0	\$1,450.0	\$1,450.0	\$1,450.0
Total operational expenditure										
Expenditure within the NT	\$50,092.1	\$53,312.8	\$54,867.1	\$55,117.1	\$55,267.7	\$55,267.7	\$55,267.7	\$55,267.7	\$55,267.7	\$55,267.7
Total expenditure	\$86,933.0	\$91,531.0	\$93,750.0	\$94,107.0	\$94,322.0	\$94,322.0	\$94,322.0	\$94,322.0	\$94,322.0	\$94,322.0

Based on the identified operational expenditure items and the percentage of expenditure in the Northern Territory, the following assumptions have been made in linking these identified cost items to their relevant the ABS ANZSIC classifications, as shown in Table 17.

Table 17 ANZSIC Industry Classifications of Operational Expenditure Items

Proposal Cost Splits	ANZSIC Classification	% of cost
Crop variable costs	Agriculture	100%
Permanent employee costs	Wages - Transfer payment	100%
Management fee	Professional, scientific and technical services	100%
General repair and maintenance	Other repair and maintenance	100%
Electricity	Electricity distribution	100%
Insurance	Insurance and superannuation funds	100%
Vehicle operating costs	Automotive repair and maintenance Mineral, metal and chemical wholesaling	20% 80%
Plant and equipment repair and maintenance	Other repair and maintenance	100%
Overheads	Transfer payment as predominately staff costs	100%

This distribution has been applied to the annual operational costs across the 30-year operational phase to identify the annual operational costs per industry, which is used as the basis for modelling the operational impacts.

Operational expenditure items which do not result in an economic impact and reflect a transfer from one person or organisation to another, are classified as a transfer payment. Transfer payments are often not captured as part of an economic impact assessment as there is no associated economic benefit incurred as a result of these payments. For the items which may be considered a transfer payment, their expenditure has not been modelled in this assessment

Any non-Northern Territory and international expenditure has not been included in this assessment as there will be no economic stimulus from this expenditure on the Northern Territory economy.

Annual operational expenditure by ANZSIC classification, and non-Northern Territory expenditure is outlined in the table below.

Table 18 *Distribution of Annual Operational Expenditure by ANZSIC Classifications (\$'000)*

Year	Agriculture	Professional, scientific & technical services	Other repair and maintenance	Electricity distribution	Insurance and Superannuation funds	Automotive repair and maintenance	Mineral, Metal and Chemical Wholesaling
Year 1	\$2,209.71	\$58.83	\$65.87	\$22.12	\$10.06	\$1.21	\$4.83
Year 2	\$3,016.08	\$116.15	\$130.29	\$43.43	\$20.20	\$2.42	\$9.70
Year 3	\$9,314.98	\$229.98	\$258.09	\$86.88	\$40.37	\$4.91	\$19.62
Year 4	\$11,438.47	\$312.86	\$350.94	\$117.32	\$54.54	\$6.79	\$27.17
Year 5	\$14,485.36	\$408.76	\$458.04	\$153.55	\$71.59	\$8.71	\$34.86
Year 6	\$18,458.63	\$506.44	\$567.65	\$190.44	\$88.42	\$10.88	\$43.53
Year 7	\$23,514.42	\$606.06	\$679.44	\$228.06	\$106.11	\$13.09	\$52.37
Year 8	\$32,772.96	\$695.83	\$780.08	\$262.34	\$121.57	\$14.93	\$59.72
Year 9	\$40,980.30	\$799.61	\$896.53	\$300.46	\$140.00	\$17.23	\$68.92
Year 10	\$46,717.33	\$801.06	\$898.16	\$301.01	\$140.25	\$17.26	\$69.05
Year 11	\$51,679.75	\$802.12	\$899.34	\$301.40	\$140.44	\$17.28	\$69.14
Year 12	\$55,201.96	\$802.77	\$900.08	\$301.65	\$140.55	\$17.30	\$69.20
Year 13	\$56,902.19	\$803.07	\$900.41	\$301.76	\$140.60	\$17.31	\$69.22
Year 14	\$57,175.75	\$803.11	\$900.46	\$301.78	\$140.61	\$17.31	\$69.22
Year 15	\$57,340.51	\$803.14	\$900.49	\$301.79	\$140.62	\$17.31	\$69.23
Year 16	\$57,340.51	\$803.14	\$900.49	\$301.79	\$140.62	\$17.31	\$69.23
Year 17	\$57,340.51	\$803.14	\$900.49	\$301.79	\$140.62	\$17.31	\$69.23
Year 18	\$57,340.51	\$803.14	\$900.49	\$301.79	\$140.62	\$17.31	\$69.23
Year 19	\$57,340.51	\$803.14	\$900.49	\$301.79	\$140.62	\$17.31	\$69.23
Year 20 & Beyond	\$57,340.51	\$803.14	\$900.49	\$301.79	\$140.62	\$17.31	\$69.23

The expenditure in these industries was applied to REMPLAN's IO model for the Northern Territory to estimate the direct and indirect impacts of the expenditure.

4. Economic Impact Assessment

The following section provides the results of the economic impact assessment on both the construction and operational phases.

4.1 Construction Phase

The following section outlines the economic impacts associated with the construction phase of the Proposal.

Table 19 outlines the annual direct and indirect construction impacts of the Proposal on the Northern Territory economy. It is expected that Year 7 will observe the largest annual impacts on the Northern Territory, corresponding with the peak of construction, with output impacted by \$48.4 million.

It is estimated that the Proposal will support in excess of 70 full time equivalent positions annually through to the completion of construction reaching an estimated peak of 117 full time equivalent positions in year 7 (consisting of 67 direct positions and 50 indirect full time equivalent positions), as demonstrated in Figure 15 construction will enhance employment in the short term, creating direct construction and farm establishment employment at the farm locations as well as the creation of support (indirect) employment in the region and NT in general.

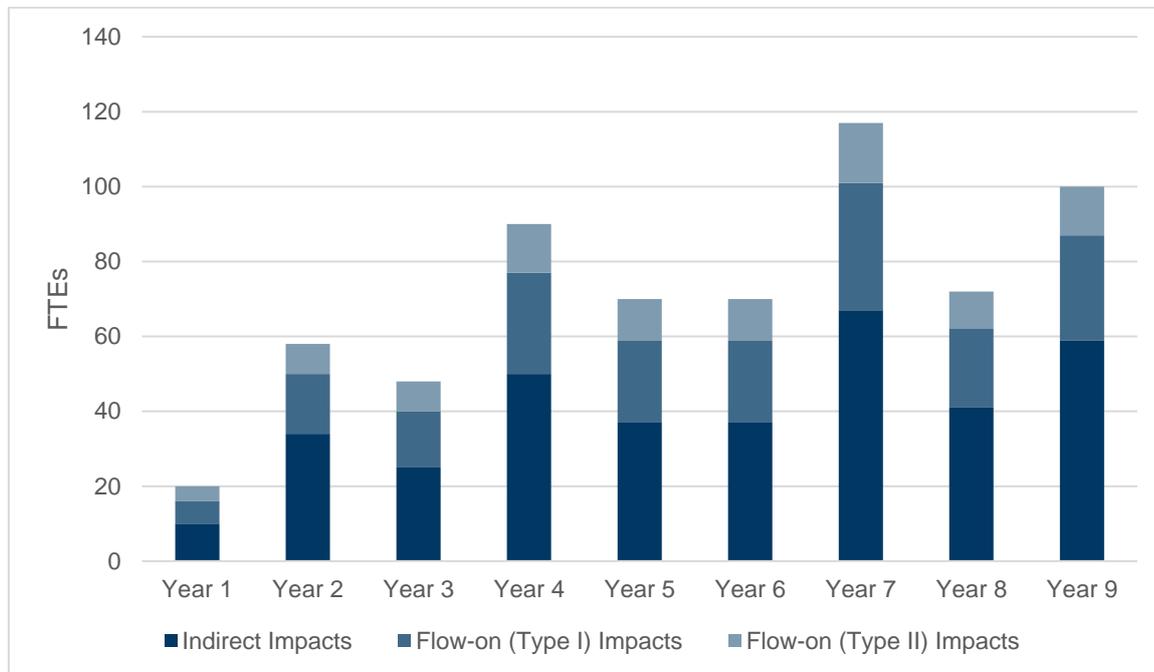


Figure 15 Annual construction impacts on employment (FTE)

Furthermore, peak construction in Year 7 is estimated to deliver \$19.13 million in value add to the Northern Territory economy. The value add in the other eight years of the construction period ranges from \$3.25 million in Year 1 to \$16.58 million in Year 9, with a total value add of \$106.44 million, as demonstrated in Figure 16 below.

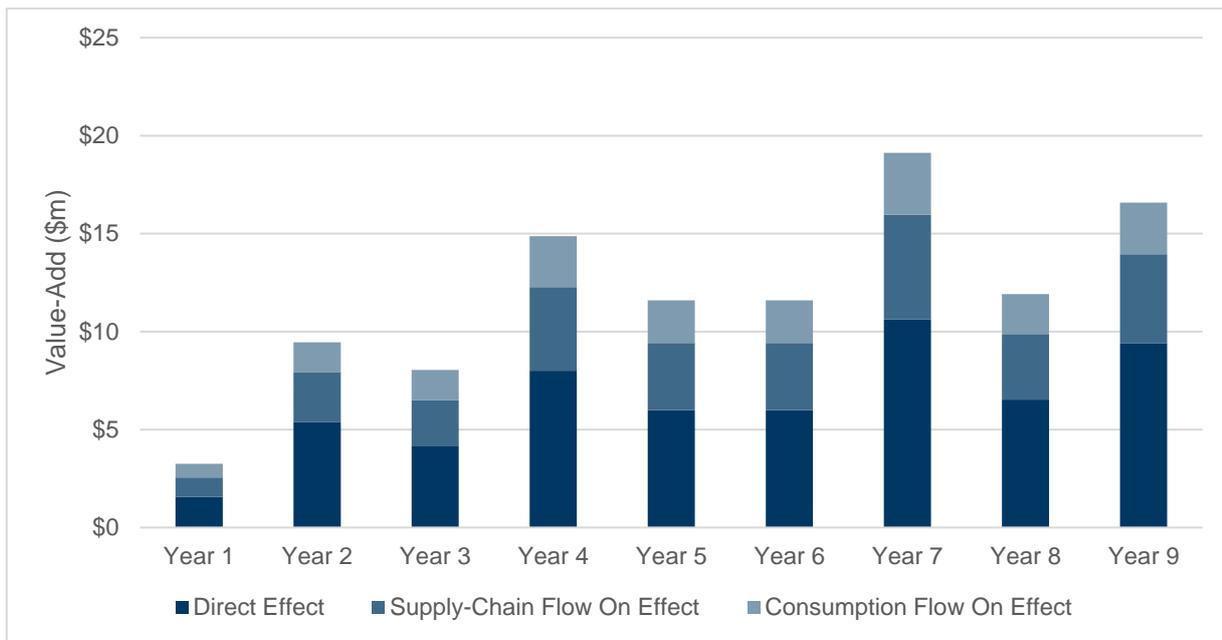


Figure 16 Value-add during construction period (\$ million)

Table 19 below details the economic impacts associated with the construction phase of the Proposal.

Table 19 Annual Construction Impacts on the Northern Territory economy, \$ million (years 1 to 9)

Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total Impacts
Output										
Direct Impacts	\$5.93	\$14.50	\$13.27	\$23.34	\$18.87	\$18.87	\$29.23	\$18.67	\$25.01	\$167.71
Flow-on (Type I) Impacts	\$2.66	\$6.50	\$6.21	\$11.05	\$9.02	\$9.02	\$13.70	\$8.63	\$11.52	\$78.31
Flow-on (Type II) Impacts	\$1.22	\$2.63	\$2.67	\$4.51	\$3.79	\$3.79	\$5.48	\$3.53	\$4.58	\$32.19
Total per year	\$9.81	\$23.63	\$22.15	\$38.91	\$31.69	\$31.69	\$48.41	\$30.83	\$41.11	\$278.21
Value added										
Direct Impacts	\$1.57	\$5.38	\$4.15	\$8.01	\$5.99	\$5.99	\$10.62	\$6.53	\$9.41	\$57.64
Flow-on (Type I) Impacts	\$0.99	\$2.56	\$2.36	\$4.26	\$3.43	\$3.43	\$5.35	\$3.35	\$4.54	\$30.27
Flow-on (Type II) Impacts	\$0.70	\$1.51	\$1.53	\$2.60	\$2.18	\$2.18	\$3.15	\$2.03	\$2.63	\$18.53
Total per year	\$3.25	\$9.45	\$8.04	\$14.87	\$11.60	\$11.60	\$19.13	\$11.91	\$16.58	\$106.44
Wages and salaries										
Direct Impacts	\$0.86	\$1.73	\$1.81	\$2.99	\$2.55	\$2.55	\$3.59	\$2.34	\$2.98	\$21.40
Flow-on (Type I) Impacts	\$0.57	\$1.35	\$1.31	\$2.31	\$1.90	\$1.90	\$2.84	\$1.80	\$2.38	\$16.37
Flow-on (Type II) Impacts	\$0.27	\$0.58	\$0.59	\$0.99	\$0.83	\$0.83	\$1.21	\$0.78	\$1.01	\$7.09
Total per year	\$1.70	\$3.66	\$3.72	\$6.29	\$5.28	\$5.28	\$7.64	\$4.92	\$6.38	\$44.86

Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total Impacts
Employment (FTE)										
Indirect Impacts	10	34	25	50	37	37	67	41	59	-
Flow-on (Type I) Impacts	6	16	15	27	22	22	34	21	28	-
Flow-on (Type II) Impacts	4	8	8	13	11	11	16	10	13	-
Total per year	20	58	48	90	70	70	117	72	100	-

4.2 Operational Phase

Based on the expected operational expenditure and assumptions outlined in section 3.2.2, the annual operational impacts have been estimated. Once farm establishment is completed, we will see a shift from construction employment to operational employment (maintenance, planting, harvest etc). Notably, the number of operational employees is projected to continually grow to up to year 15 when steady state, full farm development is achieved. Some of the positions created will be full time, but key activities such as harvesting, re-planting etc will create seasonal employment.

The operations phase of the Proposal will deliver an accumulated value-add to the Northern Territory of \$1,017 million over the proposed 30 years of operation. Annually, once expenditure reaches the 'steady state' in year 15 (noting agriculture production reaches steady state in 13), the Proposal will result in an additional \$43.3 million of value add to the Northern Territory economy as a result of the additional expenditure.

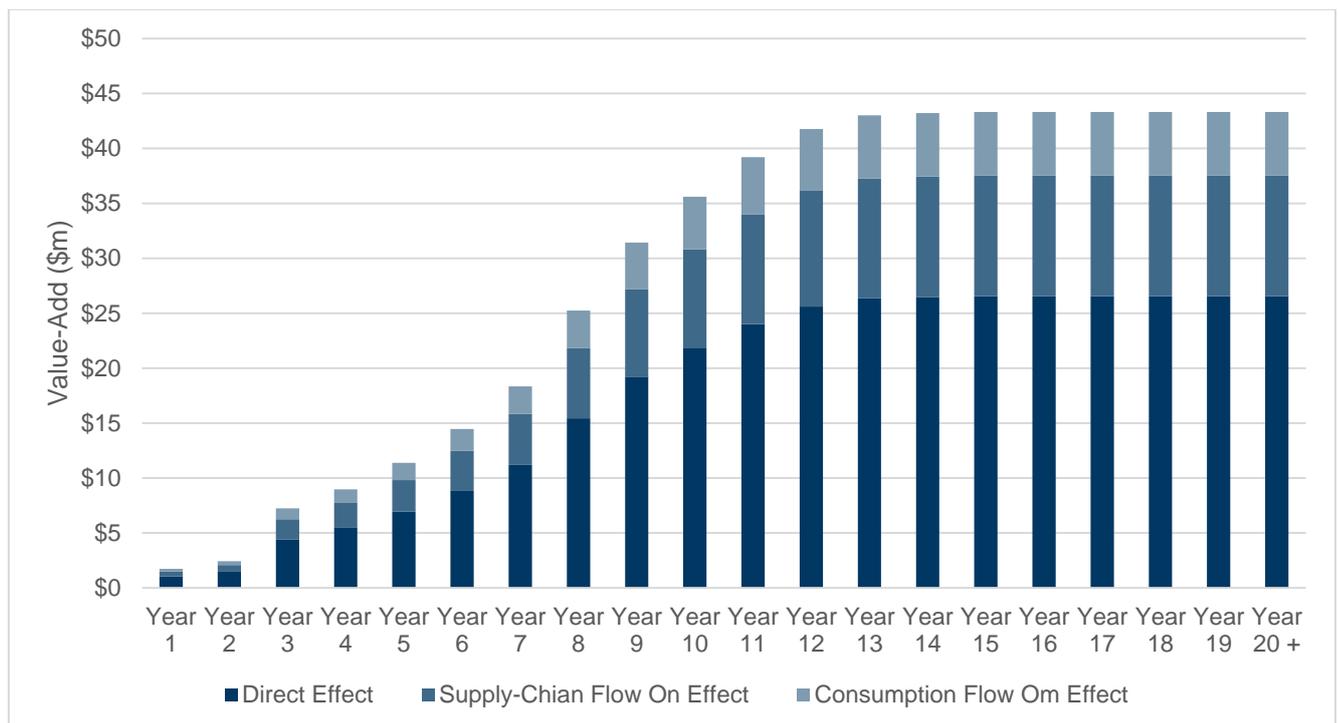


Figure 17 Value-add during operations period (\$ million)

Based on modelling undertaken from SCF, from year 13 onwards, the Proposal will support an additional 152 permanent farm employees, and 1,350 seasonal workers, equivalent to 340 FTE positions annually.

Based on information provided from FAFM, of the 152 permanent farm employees, 80% would be from within the Northern Territory (amounting to 122 full time equivalent employees) and approximately 11% of seasonal workers would be from the Northern Territory (amounting to approximately 37 full time equivalent employees). Based on

this, the Proposal is estimated to support 426 full time equivalent employees through both direct employment and as a result of annual expenditure within the Northern Territory economy annually from year 15.

Once steady state is reached, the operation is projected to support 426 total full time equivalent employees. This includes:

- 122 direct farm full time equivalent positions
- 37 full time equivalent seasonal positions
- 170 indirect full time equivalent positions
- 97 indirect supply chain full time equivalent positions

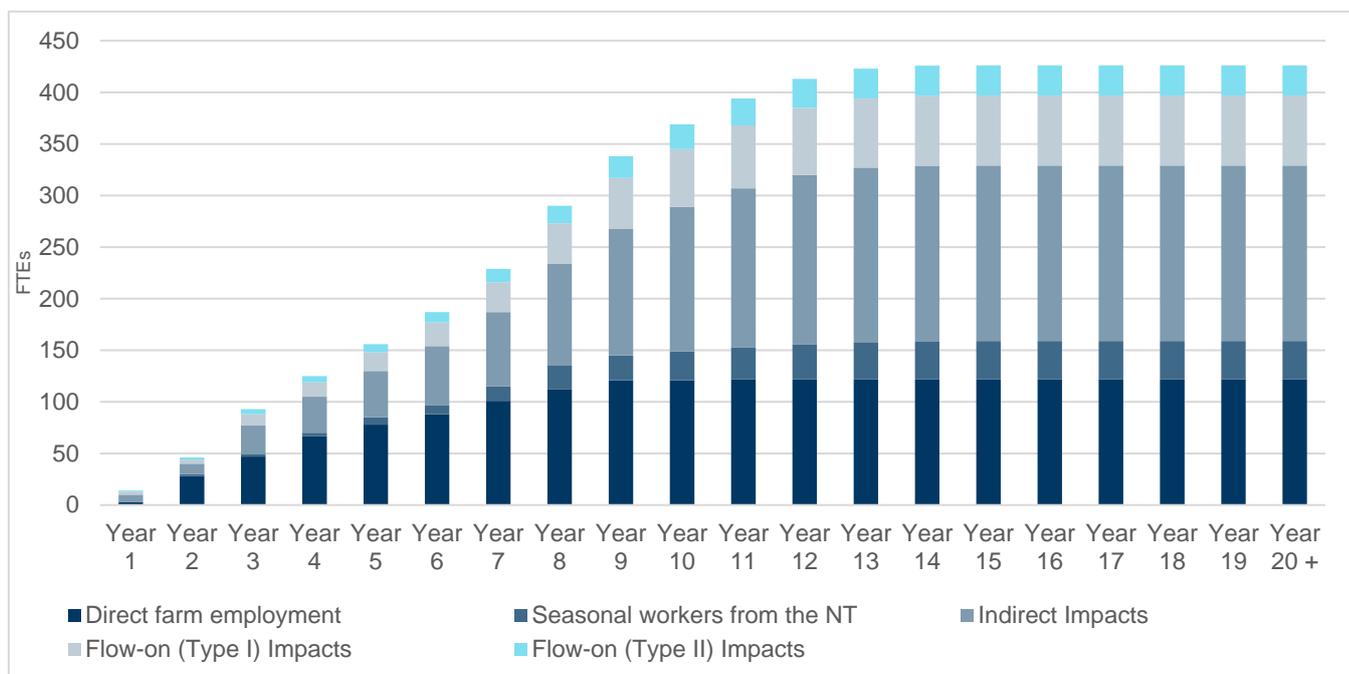


Figure 18 Annual operational impacts on employment (FTE)

Total output will be impacted by \$96.4 million at its maximum, occurring first in year 15 and continuing beyond year 15. Wages and salaries will be most impacted from year 15 also, delivering a potential benefit of \$14.0 million for the NT. This can be seen in Table 20 and Table 21 below.

Table 20 Annual operational impacts on the Northern Territory economy, \$ million (years 1 to 10)

Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Output										
Direct Impacts	\$2.37	\$3.34	\$9.95	\$12.31	\$15.62	\$19.87	\$25.20	\$34.71	\$43.20	\$48.94
Flow-on (Type I) Impacts	\$1.06	\$1.49	\$4.46	\$5.51	\$6.99	\$8.89	\$11.28	\$15.55	\$19.37	\$21.96
Flow-on (Type II) Impacts	\$0.41	\$0.59	\$1.71	\$2.13	\$2.71	\$3.44	\$4.35	\$5.93	\$7.36	\$8.30
Total per year	\$3.84	\$5.42	\$16.12	\$19.94	\$25.31	\$32.19	\$40.82	\$56.19	\$69.93	\$79.20
Value added										
Direct Impacts	\$1.05	\$1.48	\$4.42	\$5.47	\$6.94	\$8.82	\$11.20	\$15.44	\$19.23	\$21.80
Flow-on (Type I) Impacts	\$0.44	\$0.61	\$1.83	\$2.27	\$2.88	\$3.66	\$4.64	\$6.40	\$7.97	\$9.03
Flow-on (Type II) Impacts	\$0.24	\$0.34	\$0.99	\$1.23	\$1.56	\$1.98	\$2.50	\$3.41	\$4.23	\$4.77

Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total per year	\$1.73	\$2.43	\$7.25	\$8.96	\$11.37	\$14.46	\$18.34	\$25.25	\$31.43	\$35.60
Wages and salaries										
Direct Impacts	\$0.26	\$0.38	\$1.10	\$1.37	\$1.74	\$2.21	\$2.79	\$3.78	\$4.67	\$5.25
Flow-on (Type I) Impacts	\$0.22	\$0.31	\$0.91	\$1.13	\$1.44	\$1.83	\$2.32	\$3.18	\$3.96	\$4.48
Flow-on (Type II) Impacts	\$0.09	\$0.13	\$0.38	\$0.47	\$0.60	\$0.76	\$0.96	\$1.31	\$1.62	\$1.83
Total per year	\$0.57	\$0.82	\$2.39	\$2.97	\$3.77	\$4.79	\$6.06	\$8.27	\$10.25	\$11.56
Employment (FTE)										
Direct farm employment	3	28	47	67	78	88	101	112	121	121
Seasonal workers from the NT	0	2	2	3	7	9	14	23	24	28
Indirect Impacts	7	10	28	35	45	57	72	99	123	140
Flow-on (Type I) Impacts	3	4	11	14	18	23	29	39	49	56
Flow-on (Type II) Impacts	1	2	5	6	8	10	13	17	21	24
Total per year	14	46	93	125	156	187	229	290	338	369

Table 21 Annual operational impacts on the Northern Territory economy, \$ million (years 11 to 30)

Impact	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Years 20 - 30
Output										
Direct Impacts	\$53.91	\$57.43	\$59.13	\$59.41	\$59.57	\$59.57	\$59.57	\$59.57	\$59.57	\$59.57
Flow-on (Type I) Impacts	\$24.20	\$25.79	\$26.56	\$26.68	\$26.76	\$26.76	\$26.76	\$26.76	\$26.76	\$26.76
Flow-on (Type II) Impacts	\$9.11	\$9.68	\$9.96	\$10.00	\$10.03	\$10.03	\$10.03	\$10.03	\$10.03	\$10.03
Total per year	\$87.22	\$92.90	\$95.65	\$96.09	\$96.36	\$96.36	\$96.36	\$96.36	\$96.36	\$96.36
Value added										
Direct Impacts	\$24.02	\$25.60	\$26.36	\$26.48	\$26.55	\$26.55	\$26.55	\$26.55	\$26.55	\$26.55
Flow-on (Type I) Impacts	\$9.95	\$10.60	\$10.92	\$10.97	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00
Flow-on (Type II) Impacts	\$5.24	\$5.57	\$5.73	\$5.76	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77
Total per year	\$39.21	\$41.77	\$43.00	\$43.20	\$43.32	\$43.32	\$43.32	\$43.32	\$43.32	\$43.32
Wages and salaries										
Direct Impacts	\$5.75	\$6.10	\$6.27	\$6.30	\$6.32	\$6.32	\$6.32	\$6.32	\$6.32	\$6.32
Flow-on (Type I) Impacts	\$4.94	\$5.26	\$5.41	\$5.44	\$5.45	\$5.45	\$5.45	\$5.45	\$5.45	\$5.45
Flow-on (Type II) Impacts	\$2.00	\$2.13	\$2.19	\$2.20	\$2.21	\$2.21	\$2.21	\$2.21	\$2.21	\$2.21
Total per year	\$12.69	\$13.49	\$13.88	\$13.94	\$13.98	\$13.98	\$13.98	\$13.98	\$13.98	\$13.98

Impact	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Years 20 - 30
Employment (FTE)										
Direct farm employment	122	122	122	122	122	122	122	122	122	122
Seasonal workers from the NT	31	34	36	37	37	37	37	37	37	37
Indirect Impacts	154	164	169	170	170	170	170	170	170	170
Flow-on (Type I) Impacts	61	65	67	68	68	68	68	68	68	68
Flow-on (Type II) Impacts	26	28	29	29	29	29	29	29	29	29
Total per year	394	413	423	426	426	426	426	426	426	426

5. Summary of results

The section below summarises the resource usage and the impacts the Proposal has on the value add and employment within the northern Territory.

5.1 Economic Impact

The economic impact of the Proposal is significant, with considerable contributions to regional output, value-add, employment and household incomes. The following table provides a high-level summary of the economic impact of the Proposal with construction measured as a total impact and operating impacts as an annual impact after the project reaches steady state.

Table 22 Summary of Economic Contribution Modelling

	Output (\$m)	Value-Added (\$m)	Wages and salaries (\$m)	Employment (FTEs)
Direct				
Construction	\$167.71	\$57.64	\$21.40	40 average per annum
Operating (per annum)	\$59.57	\$26.55	\$6.32	159 incl. seasonal workers
Indirect				
Construction	\$110.50	\$48.80	\$44.86	32 average per annum
Operating (per annum)	\$36.79	\$16.77	\$7.66	170
Total				
Construction	\$278.21	\$106.44	\$66.26	72 average per annum
Operating (per annum)	\$96.36	\$43.32	\$13.98	329 incl. seasonal workers

5.1.1 Construction Phase

The total construction expenditure of \$252.73 million, spread across nine years, is estimated to result in a maximum of 117 full time equivalent positions in year 7 (consisting of 67 direct and 50 indirect full time equivalent positions). From year 4 onwards, it is estimated that the Proposal will support more than 70 full time equivalent positions annually through to the completion of construction.

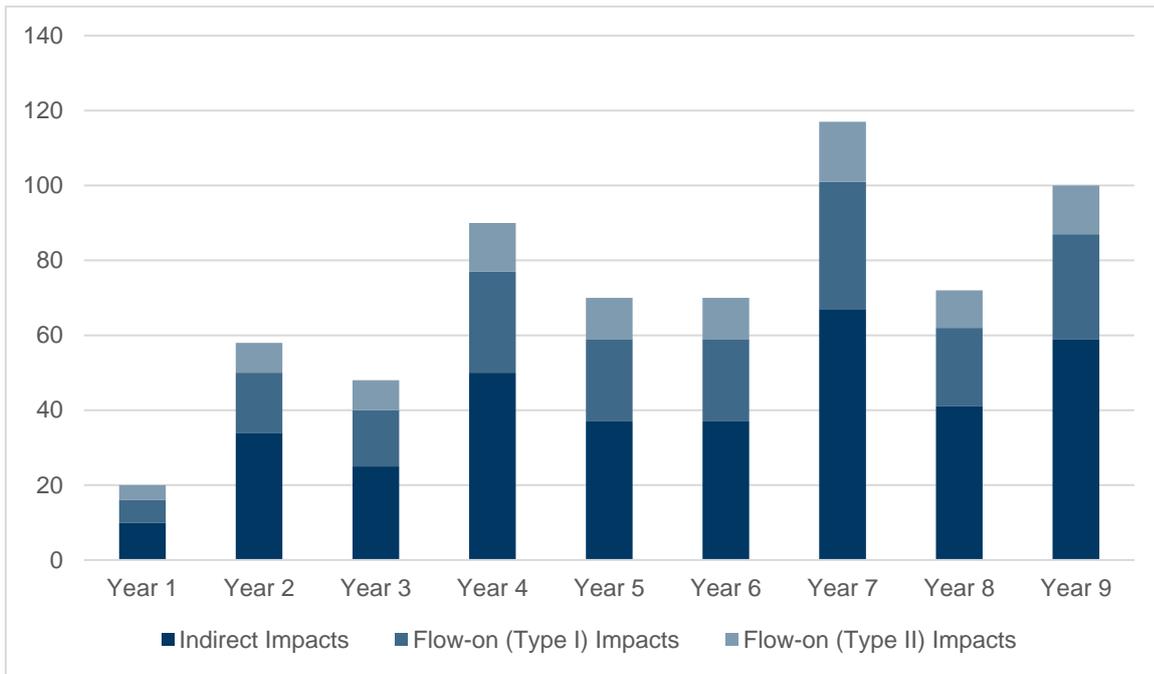


Figure 19 Annual construction impacts on employment (FTE)

The construction expenditure will also result in a total value-add of \$106.44 million across the nine-year period. Value-add peaks in year 7 of construction, delivering a benefit of \$19.13 million

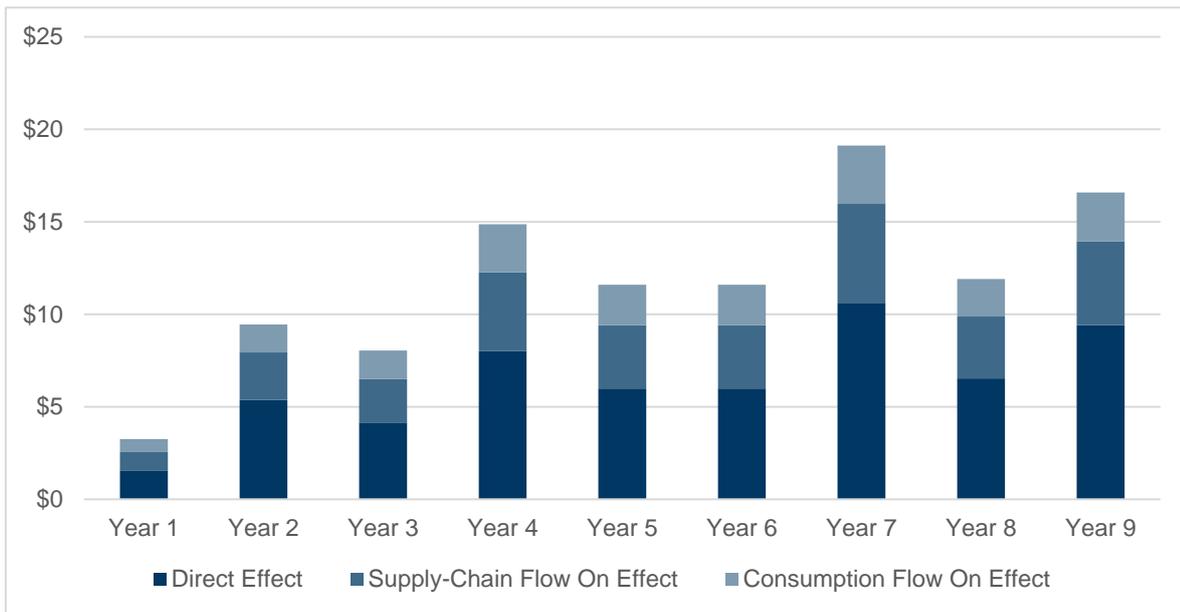


Figure 20 Value-add during construction period (\$ million)

5.1.2 Operating Phase

The number of operational employees is projected to ramp up through to year 15 once steady state operations are projected to be reached. Once steady state is reached, the operation is projected to support 426 total full time equivalent employees, including:

- 122 direct farm full time equivalent positions
- 37 full time equivalent seasonal positions
- 170 indirect full time equivalent positions
- 97 indirect supply chain full time equivalent positions.

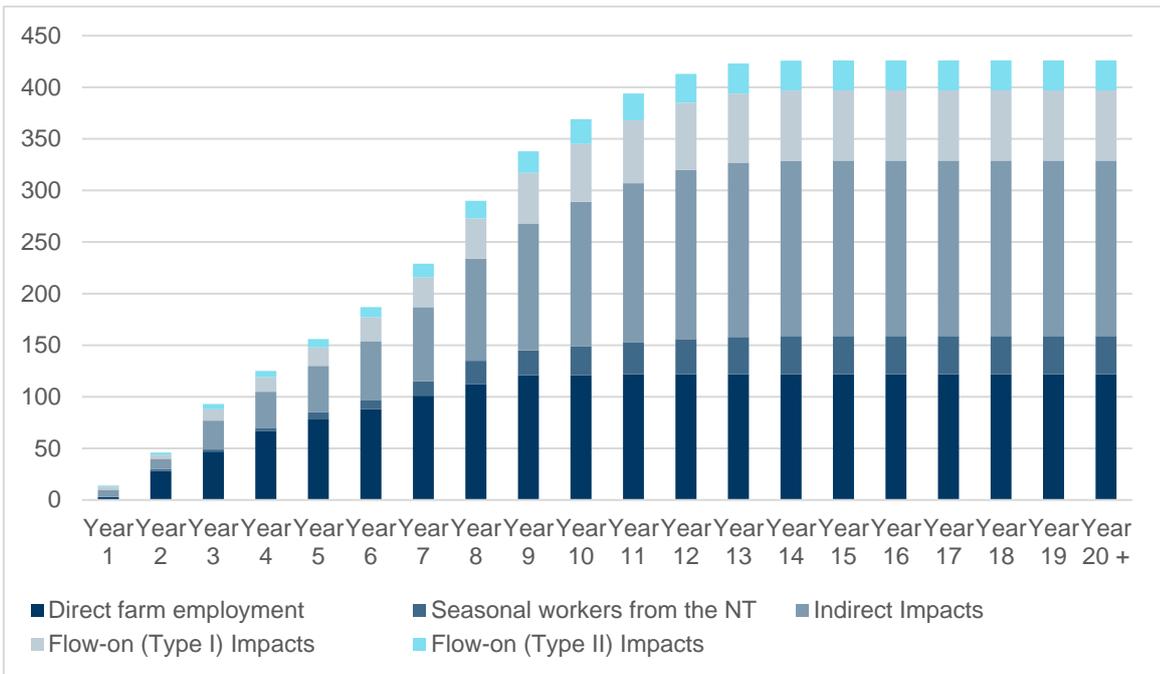


Figure 21 Annual operational impacts on employment (FTE)

The operations phase of the Proposal will deliver an accumulated value add of \$1.017 billion over the 30 years of operation. Value-add estimates peak in year 15 and stabilise, delivering annual value-add of \$43.3 million beyond year 15.

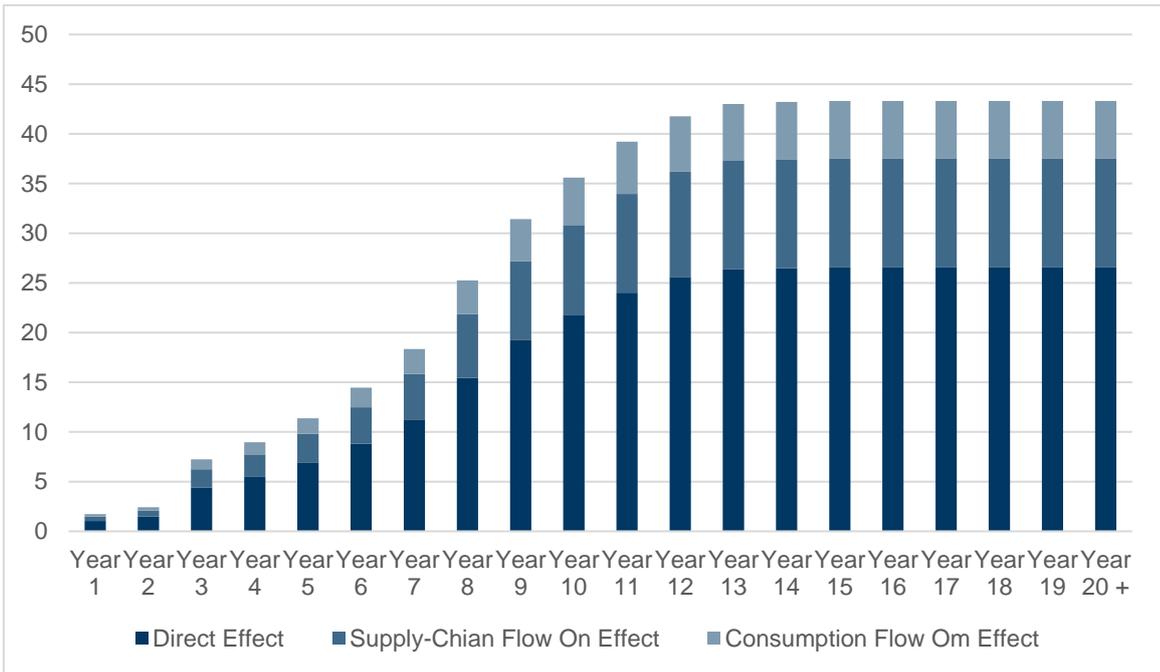


Figure 22 Value-add during operations period (\$ million)

6. Conclusion

The Barkly LGA is an impoverished region with a social and economic disadvantage. The Barkly LGA is experiencing a declining population, a declining economy (GRP), the sustained highest unemployment in the NT, significantly lower weekly individual and household incomes and nearly 50% of the workforce is funded by Government(s).

Production from the Singleton Farm will contribute substantially to the Northern Territory economy and will significantly diversify and expand the local economy. Once fully developed, projected fruit and vegetable production revenue for the steady state is expected to be \$200 million in nominal terms. That would increase the horticultural production in the Northern Territory from \$341⁴ million by 58% to \$541 million per annum. At a national level, this would mean the Northern Territory's horticulture production would increase from 2.8% to 4.5% of the current Australian horticultural production of approximately \$ 12 billion (excluding wine grapes).

The opportunity to expand the Northern Territory's fruit and vegetable (intensive horticulture) sector presents great value not only to the Territory's economy but also of benefit to the regions and communities through enhanced employment opportunities and wider economic benefits.

Traditionally, Northern Territory has achieved high economic growth through development of mining, animal farming and tourism. While each of these present on-going support to the Northern Territory's economic future, long term growth can substantially benefit from expansion of the agricultural sector through intensive fruit and vegetable production.

The establishment of the Singleton Farm is very much a 'pioneer investment' or 'economic catalyst' that will see the development of a major new industry for the Barkly Region. This Proposal has the potential to set the standard for large scale horticulture operations in Central Australia and thus contribute enormously to national food security. The power of those scale economies can:

- underpin training and employment programs for the local community, in particular skills enhancement of local indigenous people
- build sustainable fruit and vegetable supply chain presenting commercial opportunity for additional parties to invest; and
- establish proven routes-to-market for the farm's output, reducing risk and presenting investment opportunity for other projects to establish in the region.

Development of intensive fruit and vegetable production capacity not only strengthens Territory's economy, but also contributes to increasing economic stability and the 'future proofing' of the overall economy considering potential industry cycles or swings, such as those seen in the mining industry, seasonal effects in tourism and skewed animal market agricultural profile. Importantly it adds to security in regional employment, training, workforce engagement and economic development.

Produce from the Singleton Farm has the potential to establish strong markets domestically and internationally. The Singleton Farm will provide job opportunities from not only the construction of the farm, but through the operational phases having a sustained positive impact on local employment and skills development.

Through well considered and deliberate irrigation, intensive fruit and vegetable production, gives rise to efficient and effective agriculture production with strong economic outcomes. In particular, the economic benefits associated with the Proposal can leverage the Territory's considerable resources and utilise the land management experience of local indigenous people.

The economic impact of the Proposal is expected to be significant, with considerable contributions to regional output, value-add, employment and household incomes.

⁴ 2020/21 Australian Horticulture Statistical Handbook



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