

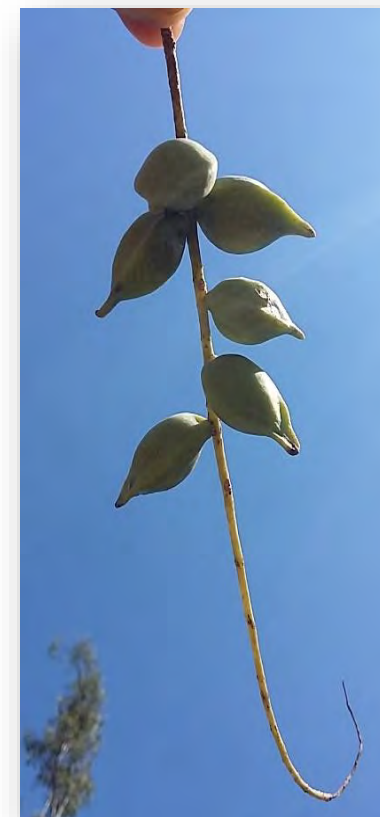
Can we create a sustainable functional food market using Australian native plant foods ?

Dr Smita Chaliha

Creating an Australian cuisine
through traditional Australian foods



11 - 13 NOVEMBER 2019
BRISBANE CONVENTION & EXHIBITION CENTRE



Functional foods

“Whole foods along with fortified, enriched or enhanced foods that have a potentially **beneficial effect on health** when consumed as part of a varied diet on regular basis at effective levels based on significant standards of evidence”.

- *The Academy of Nutrition and Dietetics*



Enhanced
function

Disease risk
reduction

Food



Carrots

Processed food



Oat bran cereal

Processed
fortified food



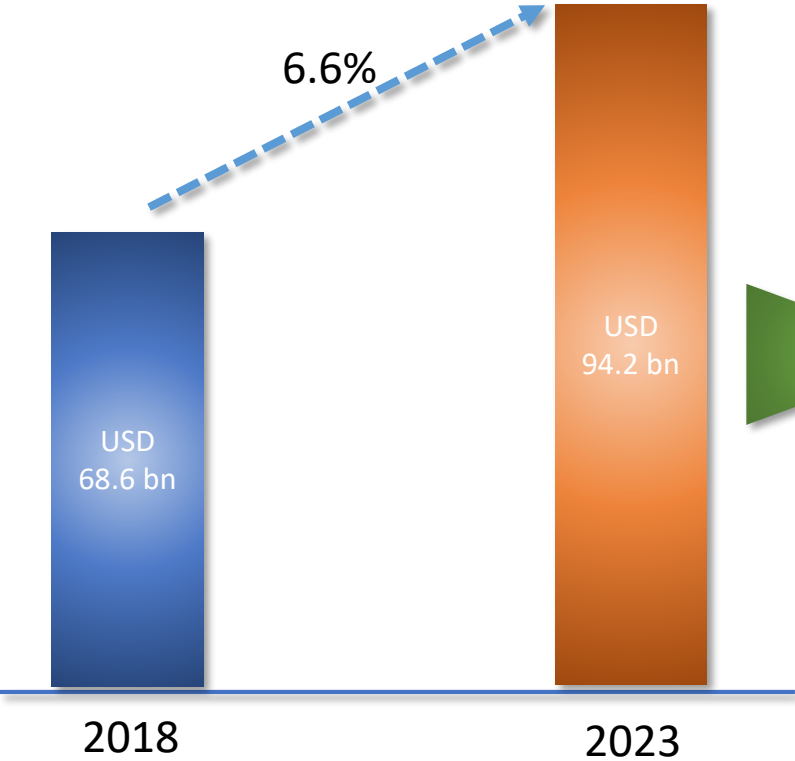
Calcium
enriched juice

Food enriched in
bioactive
component



High lycopene
tomatoes

Functional food ingredients market

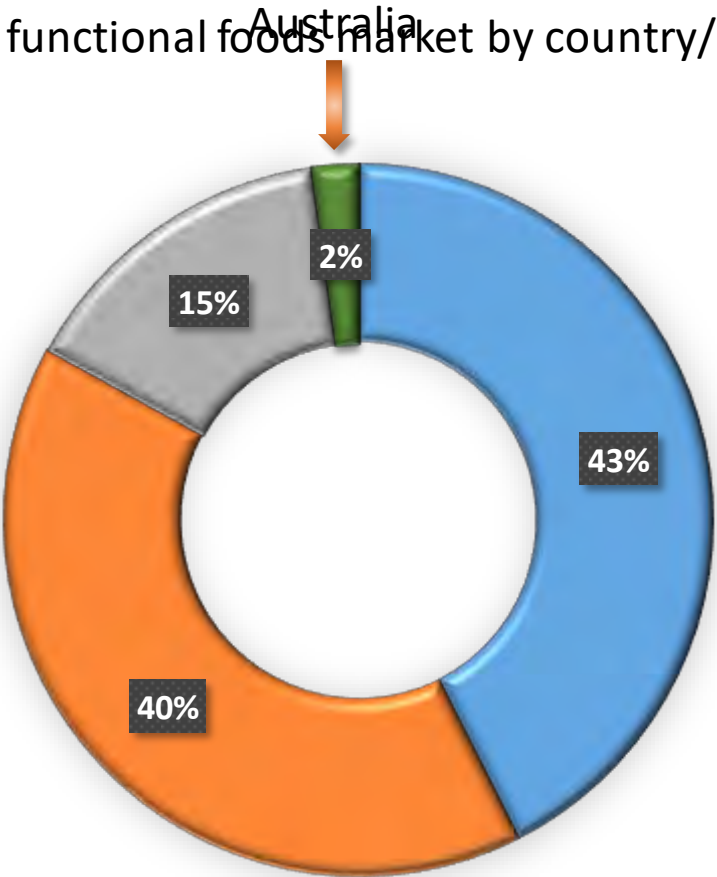


Growing health awareness leading to increased consumption of healthier foods/products

Growing incidence of chronic diseases

Global functional foods market by country/region

- Japan
- US
- Europe
- Australia

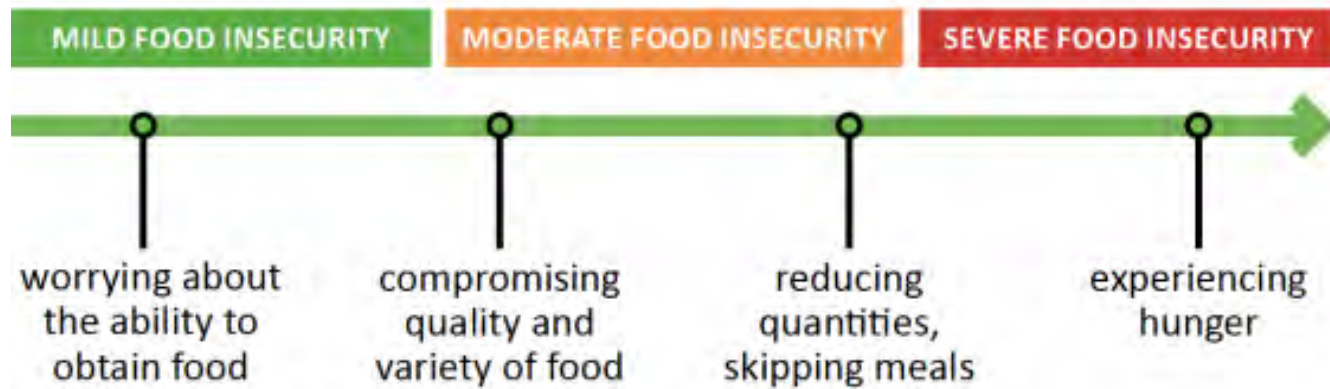


Global functional foods market by country/region, 2013 (% value)

Food, Functional, Health, Industries, Nutraceutical, 2014

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Hidden hunger and Food insecurity



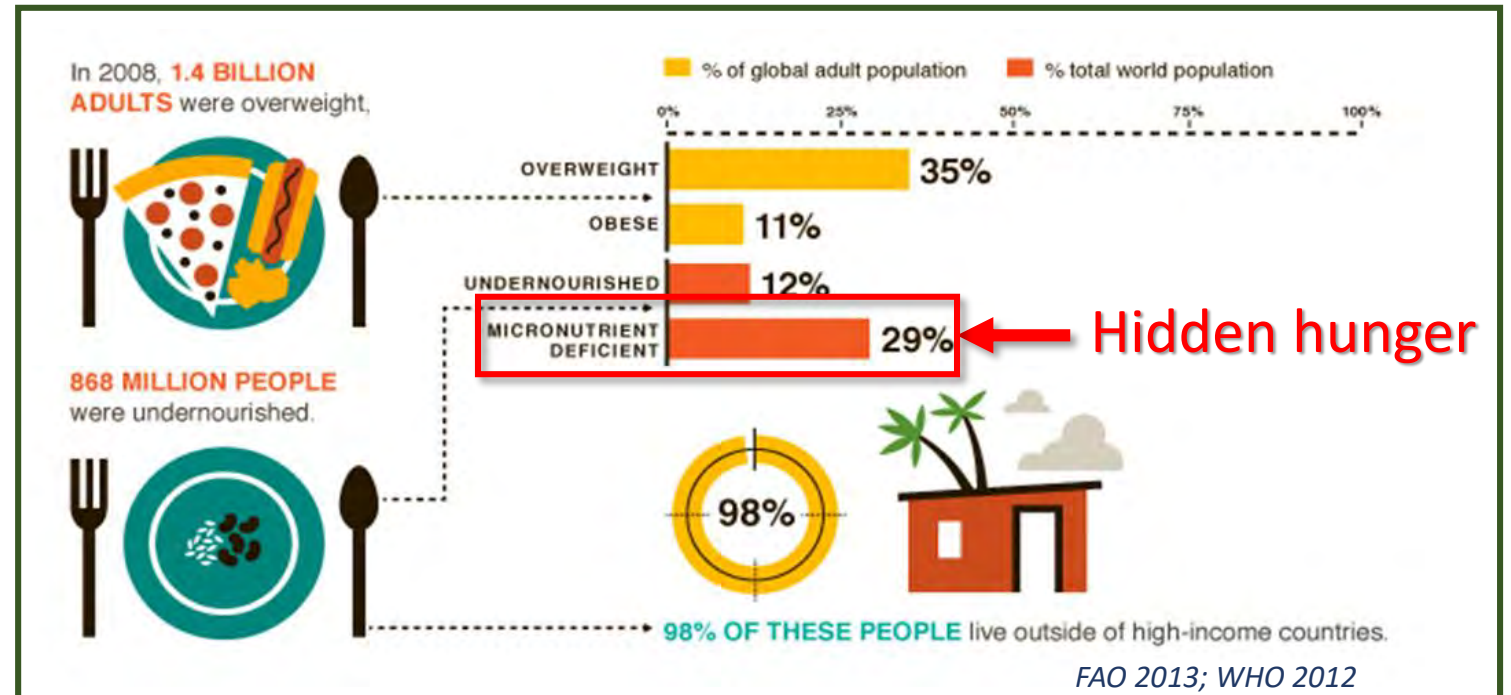
USDA Economic Research Service

*‘The state of being without reliable access to a **sufficient** quantity of **safe** and **nutritious** food to meet their dietary needs and food preferences for an active and healthy life’.*

- United Nation’s Food and Agriculture Organization

In Australia

- Indigenous people (24%);
- Unemployed people (23%);
- Single parent households (23%);
- Low-income earners (20%);
- Rental households (20%); and
- Young people (15%).



Lack of diet diversity & Hidden hunger

Hidden hunger

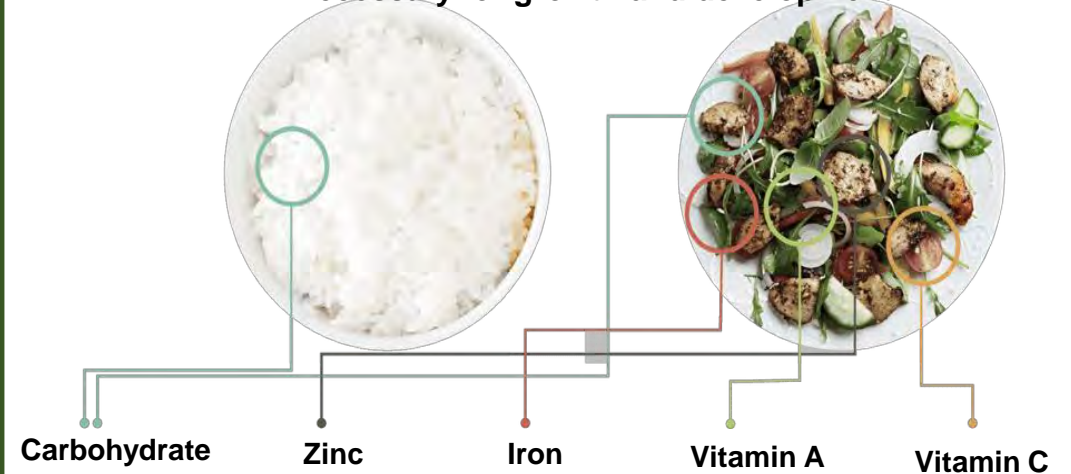
- Impaired **brain development** in children – learning difficulties & problem in performing work later in life.
- **Stunting** in children.
- Increased **risk of diseases** in children - 10x more likely to die from preventable diseases.
- People on Western diet – **40% less beneficial gut microbes** than hunter-gatherer tribesmen.
- **Deteriorating** soil health



Soil to Soul: Combating Hidden Hunger

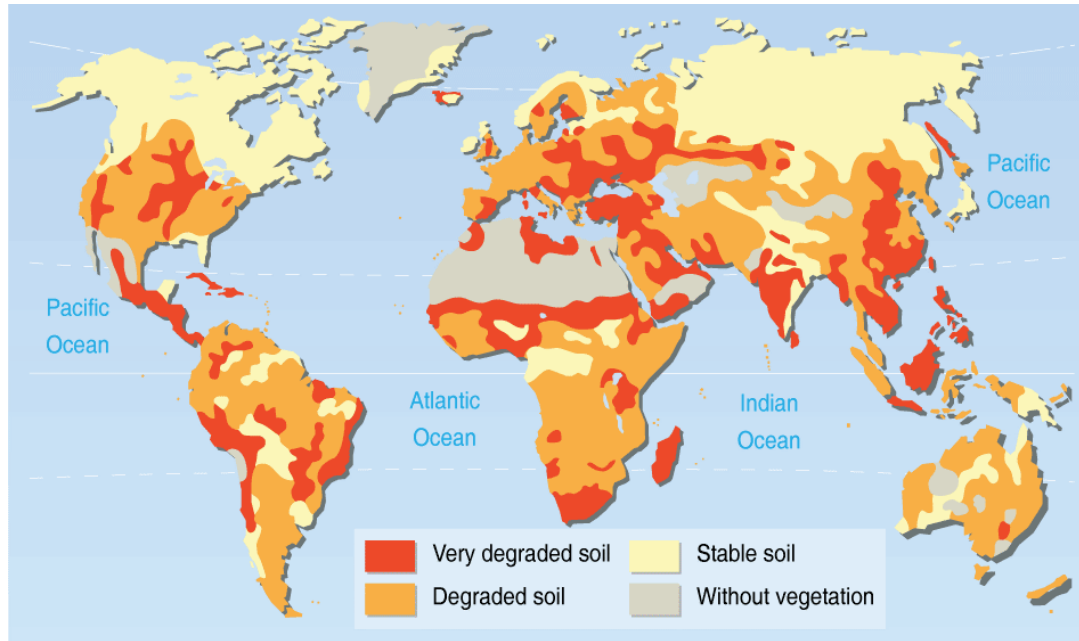
Kew 2014

Same calories, but only one contains vitamins necessary for growth and development



<https://almedalabs.com/hidden-hunger/>

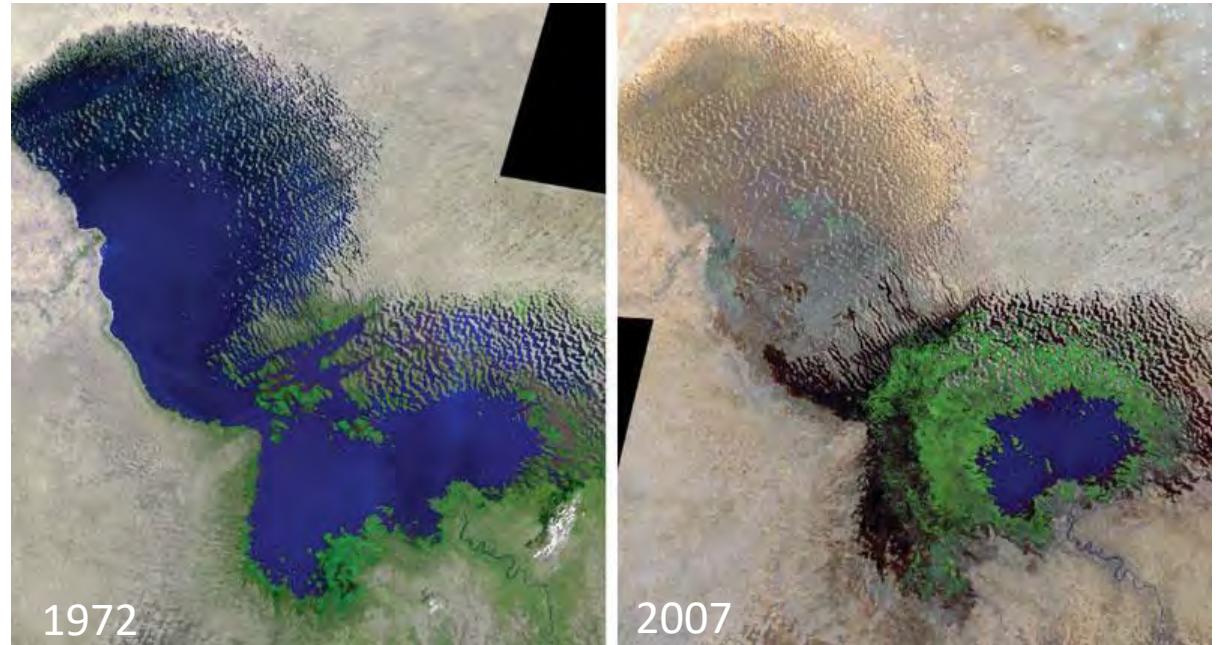
Sustainability issues...



Source: UNEP, International Soil Reference and Information Centre (ISRIC), World Atlas of Desertification

Soil degradation

~24% of the world's farmland is affected by serious degradation (FAO 2008)



Lake Chad-- a source of **water** to millions of people in West Africa

Water scarcity

More than 5 billion people could suffer **water shortages** by 2050

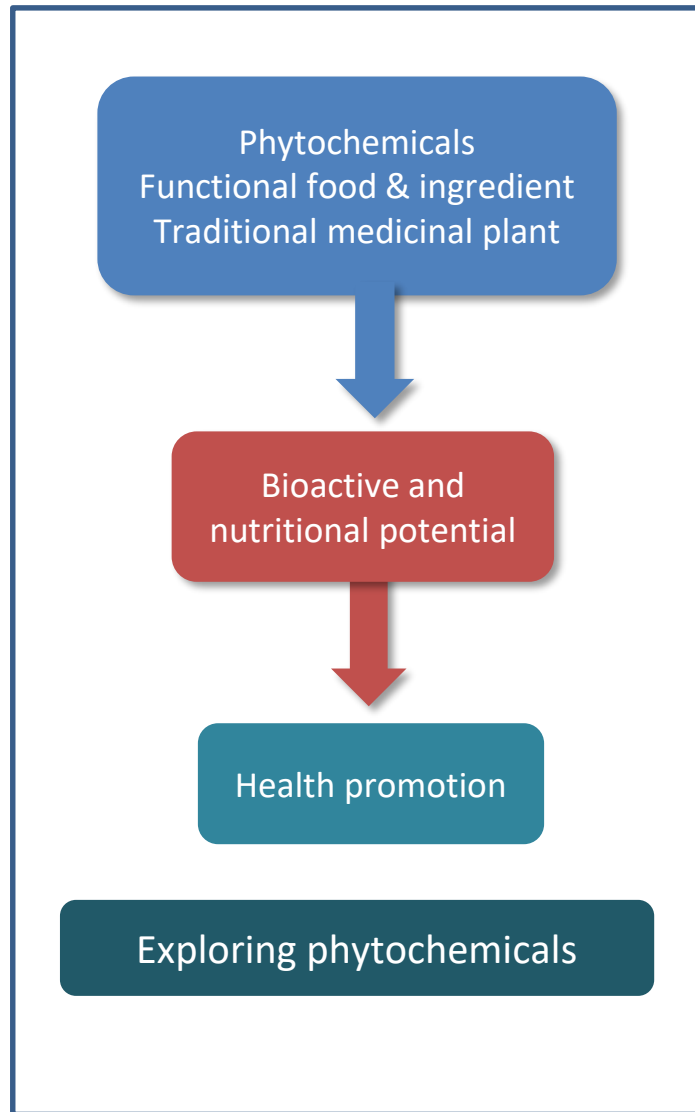
17 Sustainable Development Goals



THE GLOBAL GOALS
For Sustainable Development



Australian native plants



Lemon myrtle



Anise myrtle



Tasmanian Pepper Leaf



Riberry



Quandong



Muntries



Desert lime



Green finger lime



Red finger lime

Enhanced antioxidant activity

Why native plants are great candidate for...

Addressing diet diversity issues...



Kakadu plum
Terminalia ferdinandiana



- Ellagic acid, Vit C, Vit E
- P, K, Ca, Mg



Lemon myrtle
Backhousia citriodora



- Vit A, Vit E, Folate
- Ca, Zn, Mg



Wattle seeds
Acacia species



- K, Ca, Fe, Zn

Addressing sustainability issues...

- Well suited to the harsh and diverse Australian climate.
- Do not need pesticides, fertilizers, or watering → great for the environment and economical.
- Native plants reduce erosion, limit runoff, and remove excessive plant nutrients from the water → Protect water quality.
- Provide habitat, shelter and food for native wildlife → Protects biodiversity.



Boonjie Tamarind → Eaten by Musky Rat-kangaroos and cassowaries

Functional food
ingredient !!!!

Promote
sustainability !!!!

Kakadu plum (*Terminalia ferdinandiana*)



- **WA** and **NT** → different environmental conditions.
- **Medicinal** > food.
 - Treatment of cold and flu, headache.
 - Use as antiseptic and soothing balm.
 - Consumed → on hunting trips for quick energy and to quench thirst.
 - Pounded and soaked → **acidic drink**.
- **Wild harvest.**
- Orchard plantation has began.



Kakadu plum – Plant morphology



Ascorbic acid
Gallic acid
Ellagic acid
Vitamin E

Antioxidant

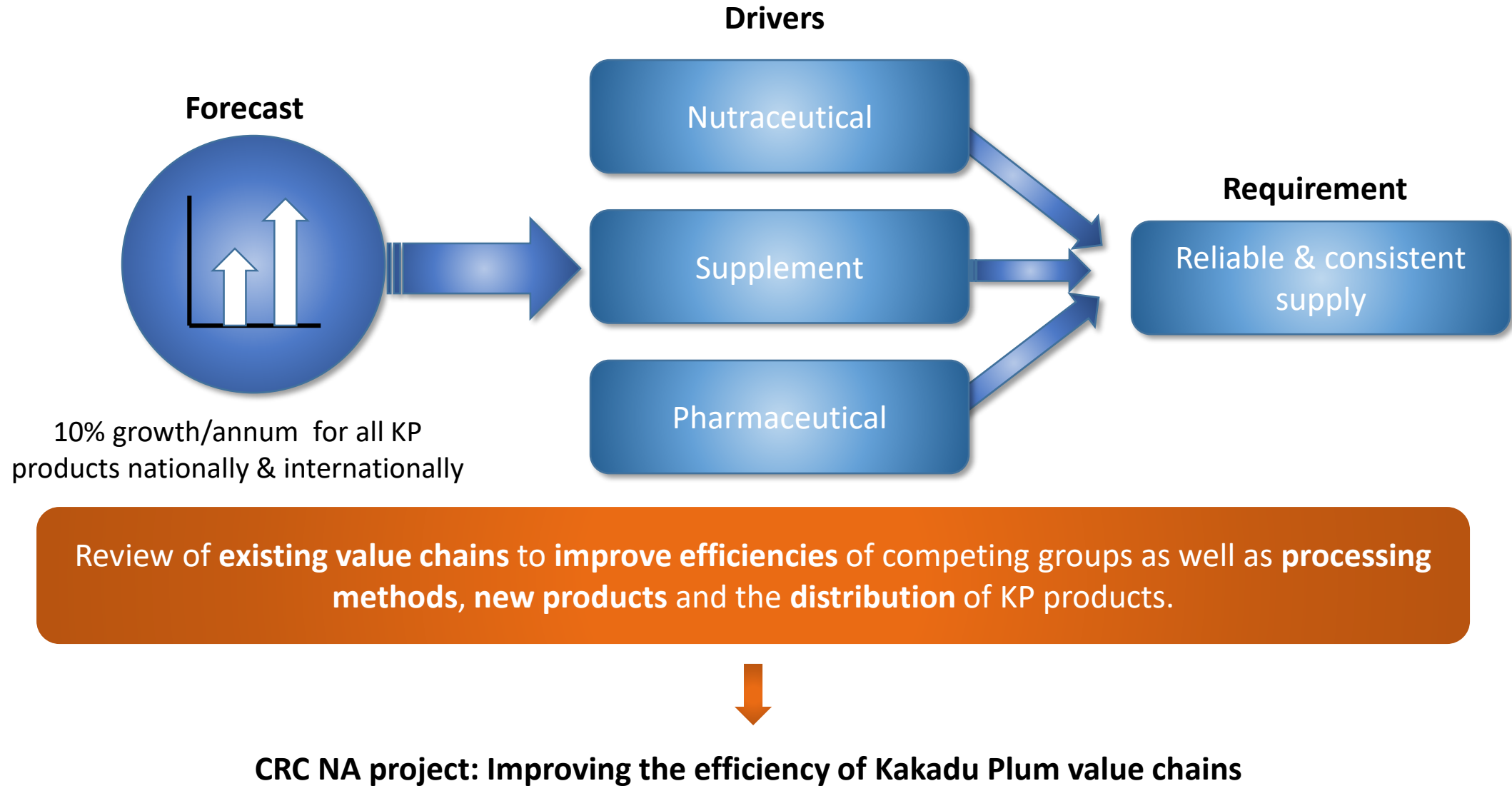
Anti-inflammatory

Antimicrobial



Ideal functional
food ingredient





CRC NA project: Improving the efficiency of Kakadu Plum value chains

Existing Aboriginal suppliers of Kakadu Plum in the **Daley River** Port Keats Land Trust region of NT and **Kimberley** region of WA

Mapping, analysing
and identifying
efficiencies of value
chains

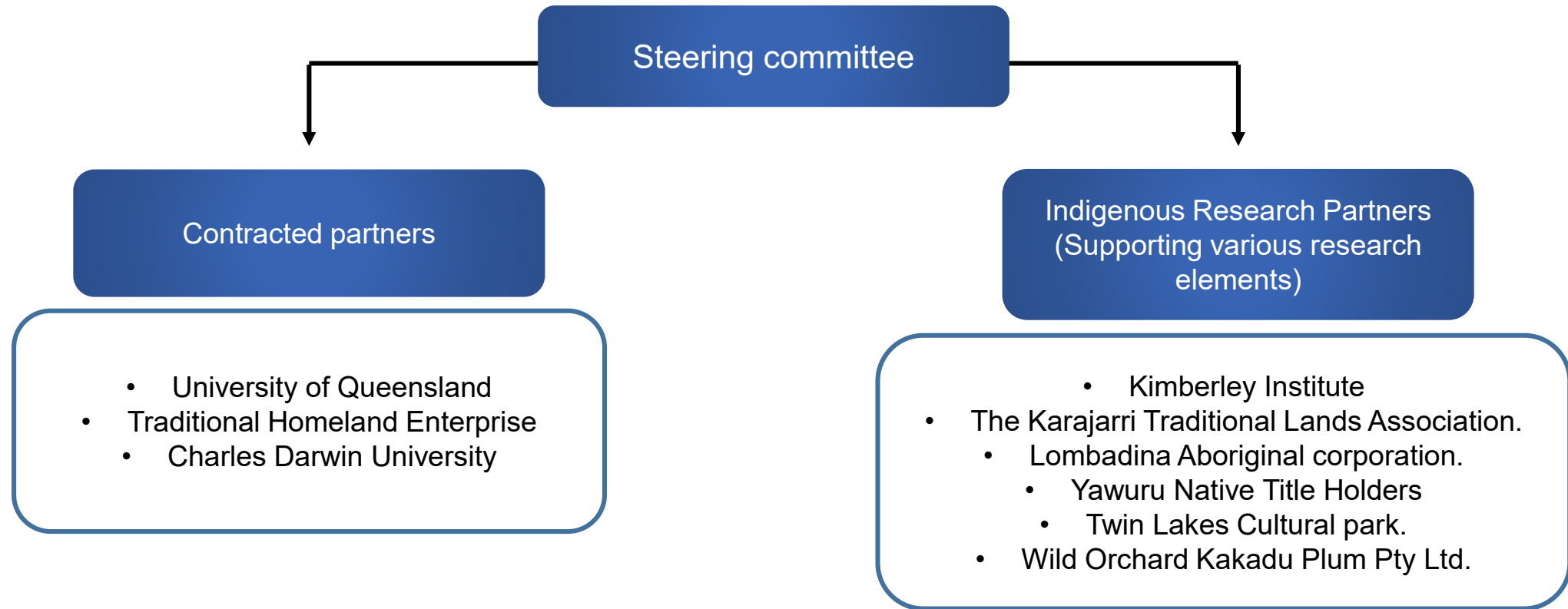
Identifying
impediments and
solutions to
overcoming them

Innovative solutions
to local processing
and maintaining
fruit quality

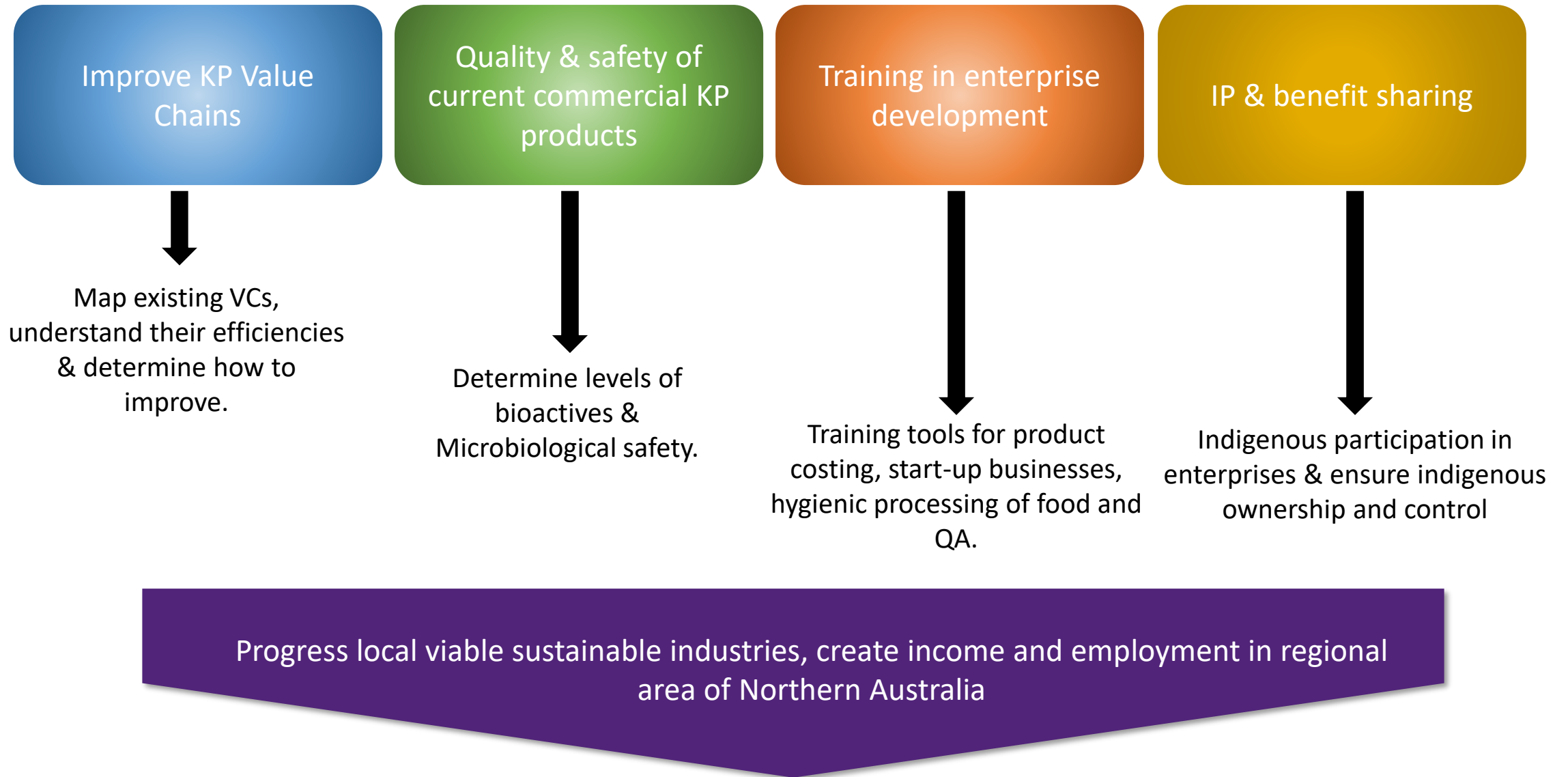
Development of
new commercial
applications

CRCNA objectives

Governance structure

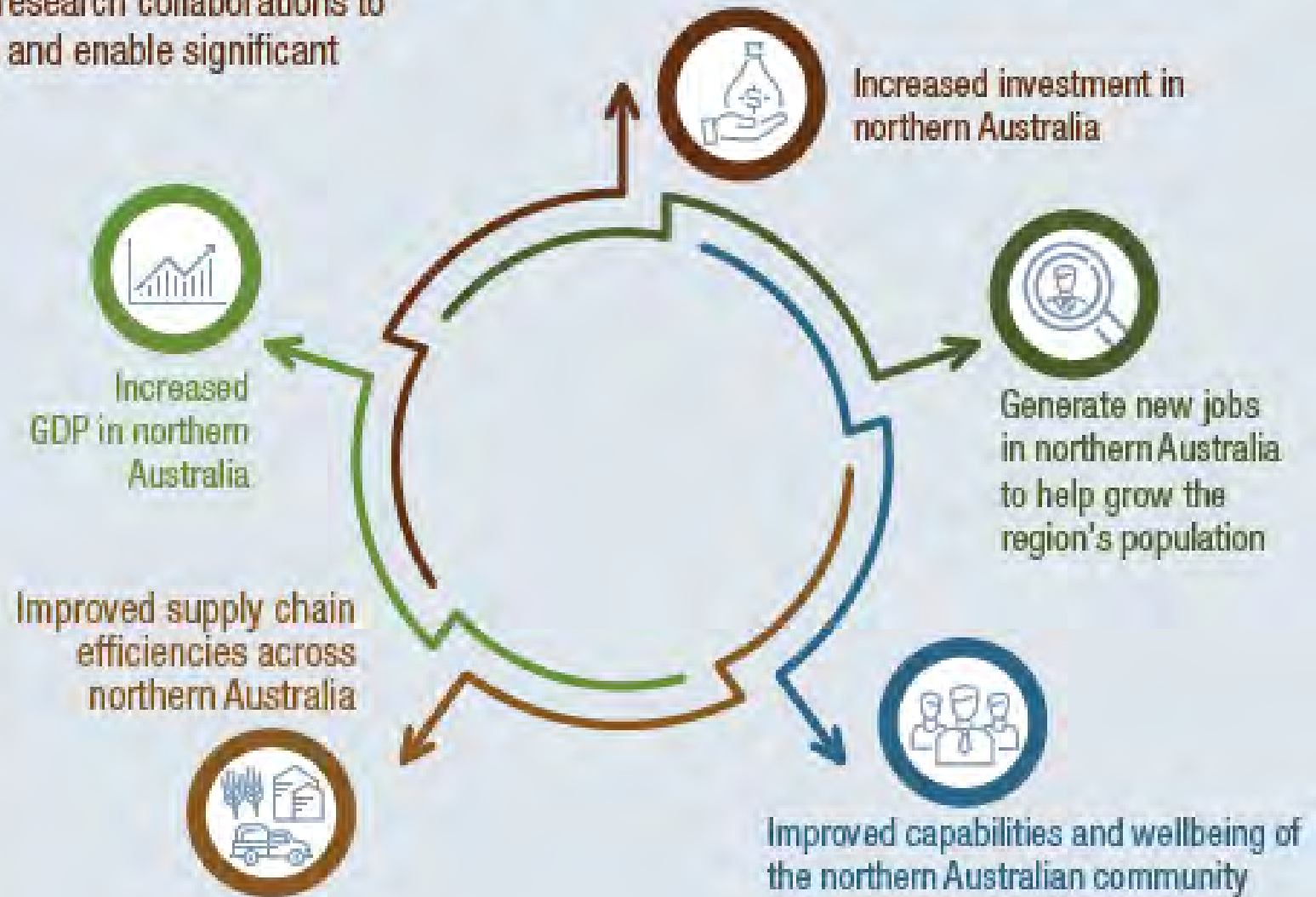


Key Project Objectives



Growing northern Australia through research and development

We invest in industry-led research collaborations to lower investment barriers and enable significant capital to flow leading to:



Acknowledgements



We acknowledge the Traditional Owners of the lands on which the botanicals we study are harvested, and respect the knowledge and experience the Traditional Owners hold regarding the care, harvest and use of these plants.

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Australian Government
Australian Research Council

