

# CSIRO

Impossible without  
our partners

Australia's National Science Agency



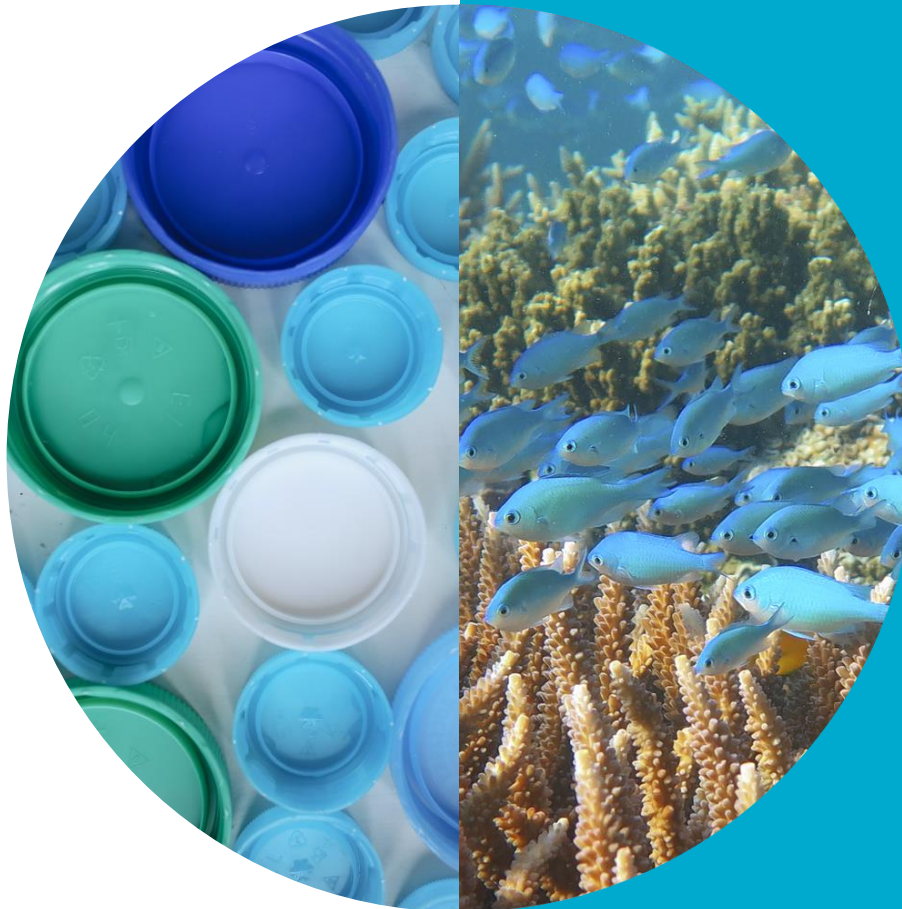


## The Future of Plastics Innovation in the Indo-Pacific

**Amelia Fyfield**

Director Southeast Asia  
CSIRO

Australia's National Science Agency



## Australia's national science agency

State-of-the-art  
national research  
infrastructure

## Australia's innovation catalyst

Nurturing and enabling the  
national innovation and  
commercialisation ecosystem

697

Patent families

\$1B+

Total market capitalisation  
of portfolio companies

2,400 partners

Turning science into  
solutions with industry,  
government and research  
collaborators

\$4.5B+ a year

Value delivered to the  
Australian economy  
through our science and  
technology

497

Active licenses

170+

Start-up companies  
from CSIRO science  
and technology

80+ countries

International customers &  
collaborators from more than  
80 countries

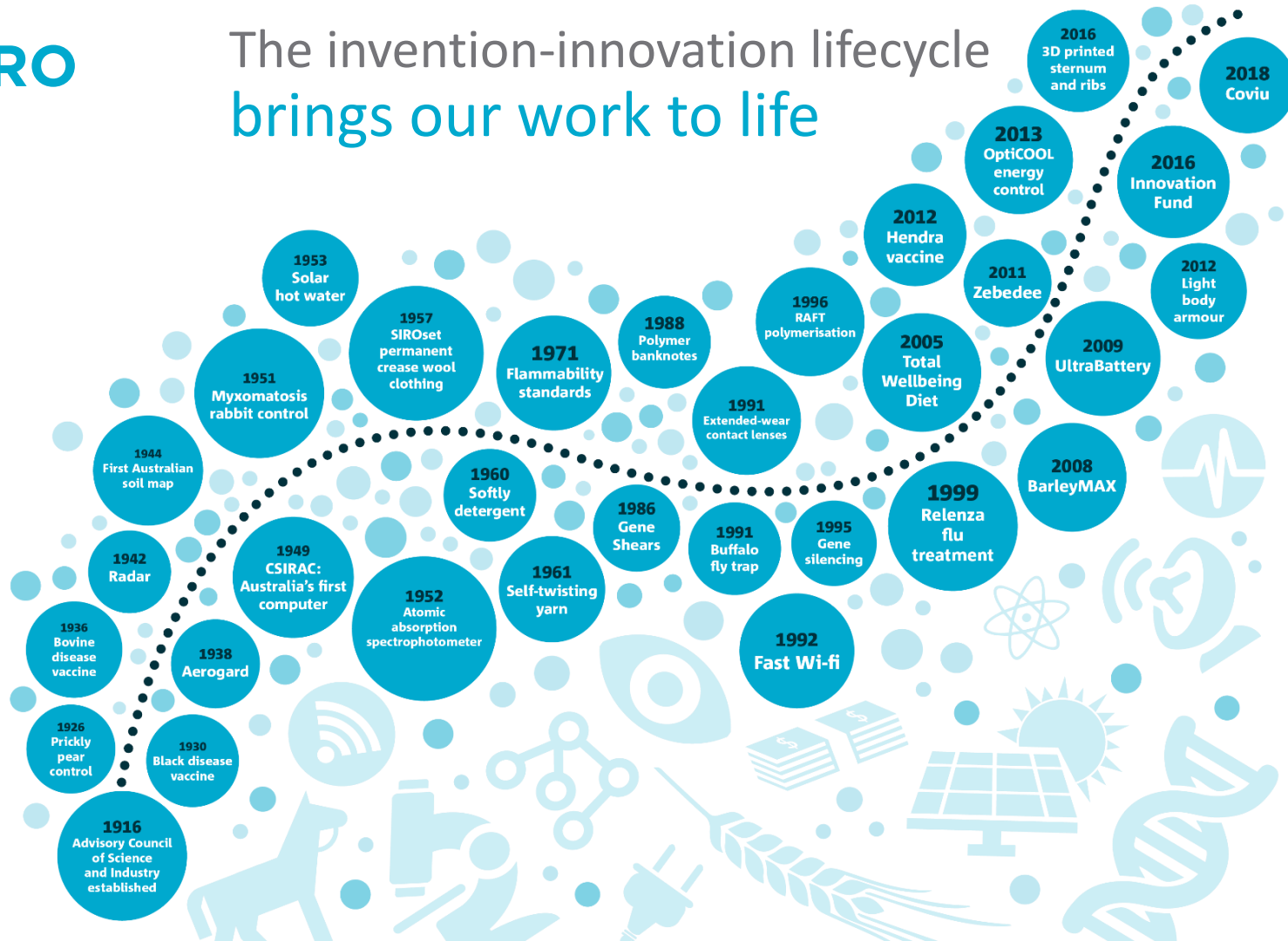
57 sites

Across the world including  
Australia, Singapore,  
Indonesia, Vietnam, US, Chile  
and France

5,500 dedicated people

One of the world's largest multidisciplinary  
science and technology organisations

## The invention-innovation lifecycle brings our work to life





# OUR CHALLENGES:

- **RESILIENT AND VALUABLE ENVIRONMENTS**
- **FOOD SECURITY AND QUALITY**
- **HEALTH AND WELLBEING**
- **SUSTAINABLE ENERGY AND RESOURCES**
- **FUTURE INDUSTRIES**
- **A SECURE AUSTRALIA AND REGION**

# CSIRO'S MISSION PROGRAM:

OUR PURPOSE

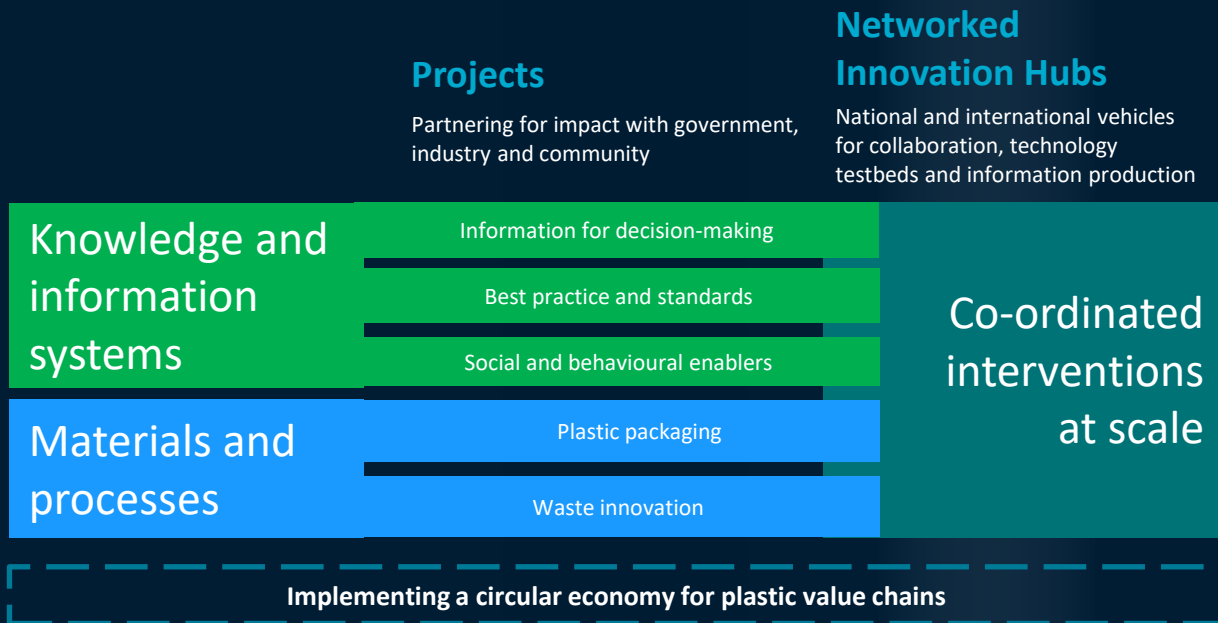
**Unlock a  
better future  
for everyone**

Our Missions are:

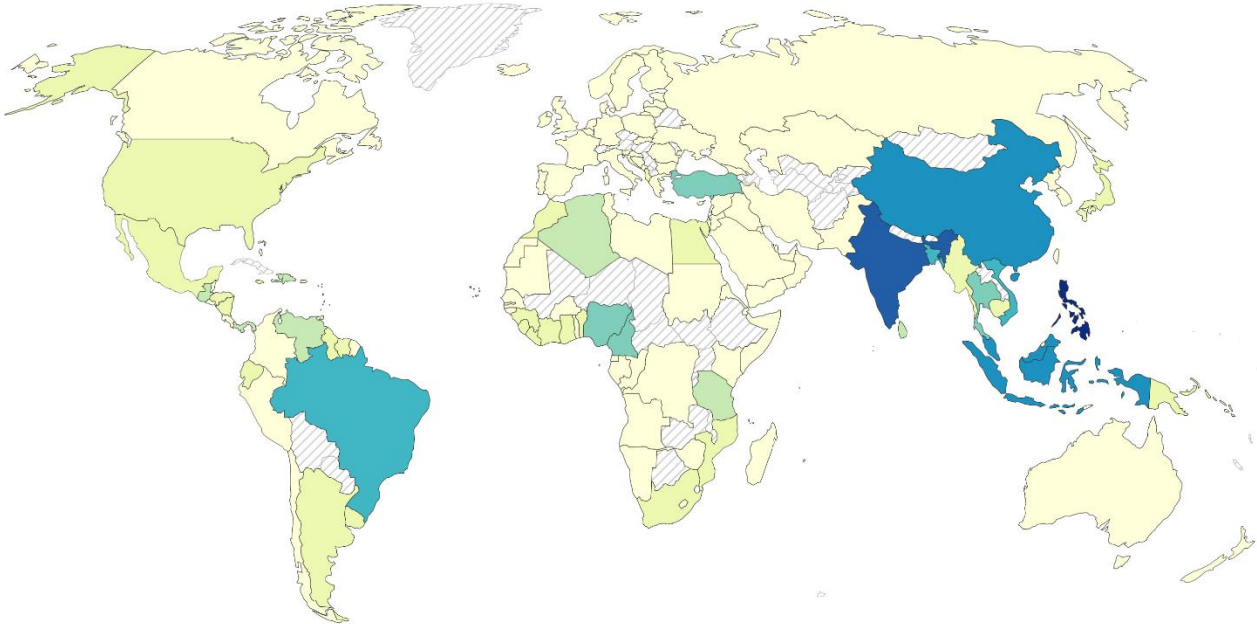
- **addressing grand challenges** for Australia and our region
- underpinned by **networked collaboration**
- enhancing **stakeholder collaboration**
- leveraging existing **investment**
- catalysing new sources of **funding**

# CSIRO's Ending Plastic Waste Mission

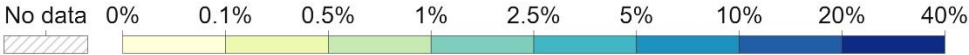
Reduce 80% of plastic waste entering our environment by 2030



# Share of global plastic waste emitted to the ocean, 2019



About **400 million tonnes** of plastic waste are produced every year.



# The Indo-Pacific Plastic Innovation Network Aims:

**To support the design and scale-up of disruptive technologies that can shift the dial on plastic waste across the Indo-Pacific region**





# IPPIN | Building a regional network



## Indo-Pacific Plastics Innovation Network

The IPPIN services the entire Indo-Pacific, connecting stakeholders, initiatives and resources to build maximum impact at a regional level.



## Mekong Plastics Innovation Alliance (Thailand, Vietnam, Cambodia & Laos)

The Mekong Plastics Innovation Alliance supports collaboration to end plastic waste across the Mekong Sub-region, with a strong focus on increasing coordination and building shared capacity.



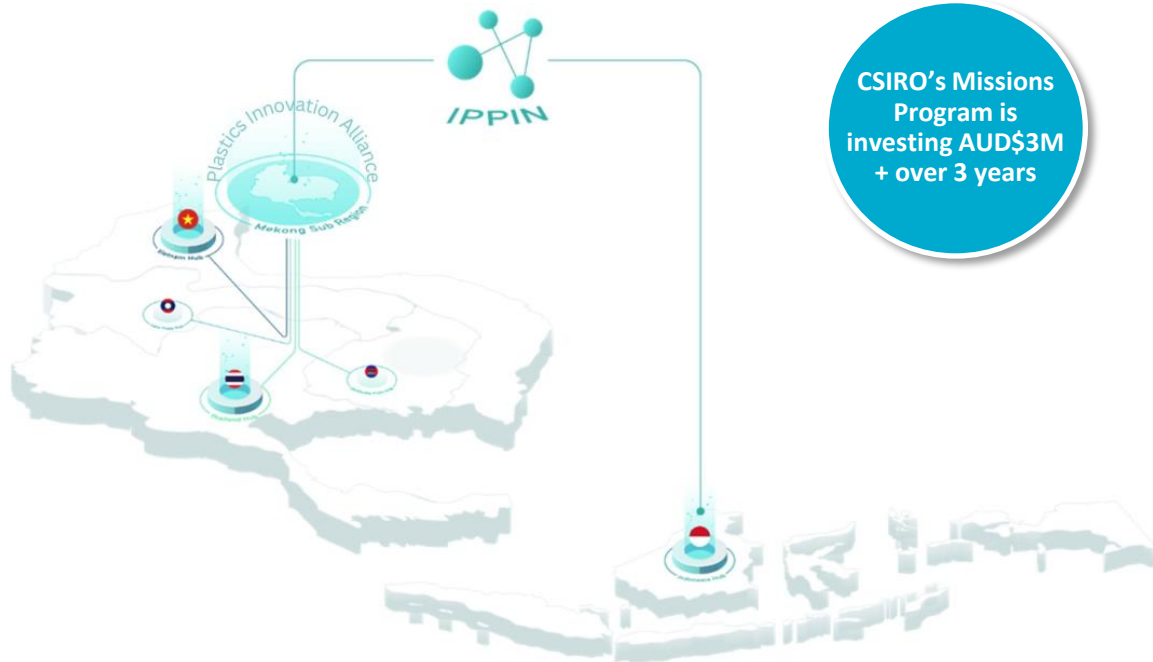
## Plastics Innovation Hubs (Indonesia, Vietnam & Thailand)

Flagship hubs servicing a country and building up local innovation and entrepreneurship to identify, initiate, build and grow solutions that shift the dial on plastic waste.



## Proto Hubs (Laos & Cambodia)

Fledgling initiatives with potential to scale into long-term hubs by activating local stakeholder groups, understanding the current context and finding long-term strategic partners.



CSIRO's Missions  
Program is  
investing AUD\$3M  
+ over 3 years

# CSIRO Hubs are adding to, not starting new

PLASTICS INNOVATION HUB  
Challenge Statements

PROVIDED OUTSIDE THE HUB  
Hand-over areas

## 1. Reduce or Substitute

Sustainable alternatives  
which outperform existing  
plastics



Australian Government  
Department of Foreign Affairs and Trade

CSIRO



## 2. Redesign



Improving plastics and  
capturing value beyond first  
use



Australian Government  
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## Across the Lifecycle



Empower decision  
making through reliable  
and accessible  
information



Australian Government  
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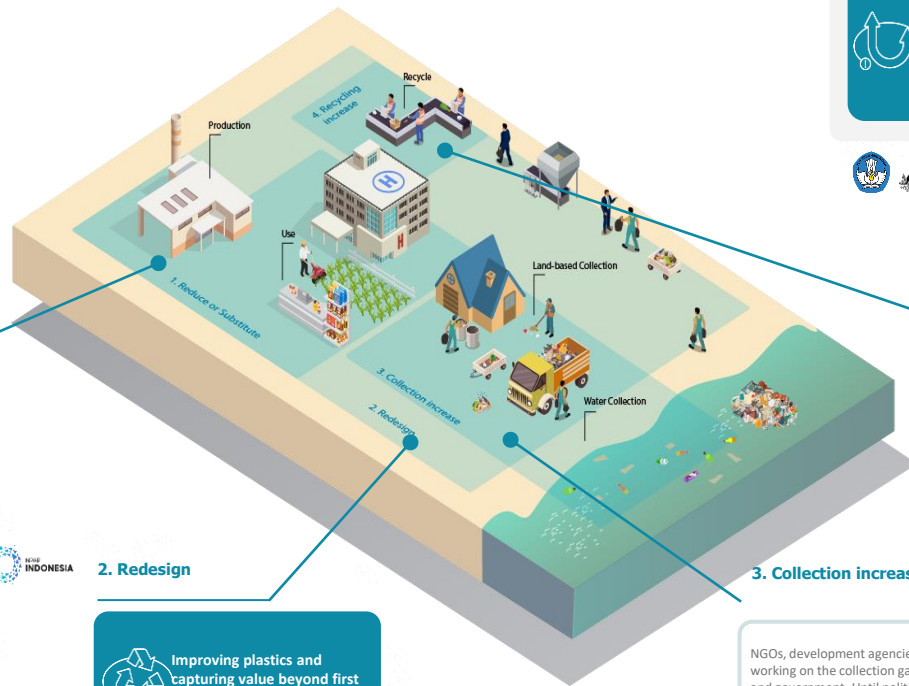
KOMPAS  
INDONESIA

## 4. Recycling increase

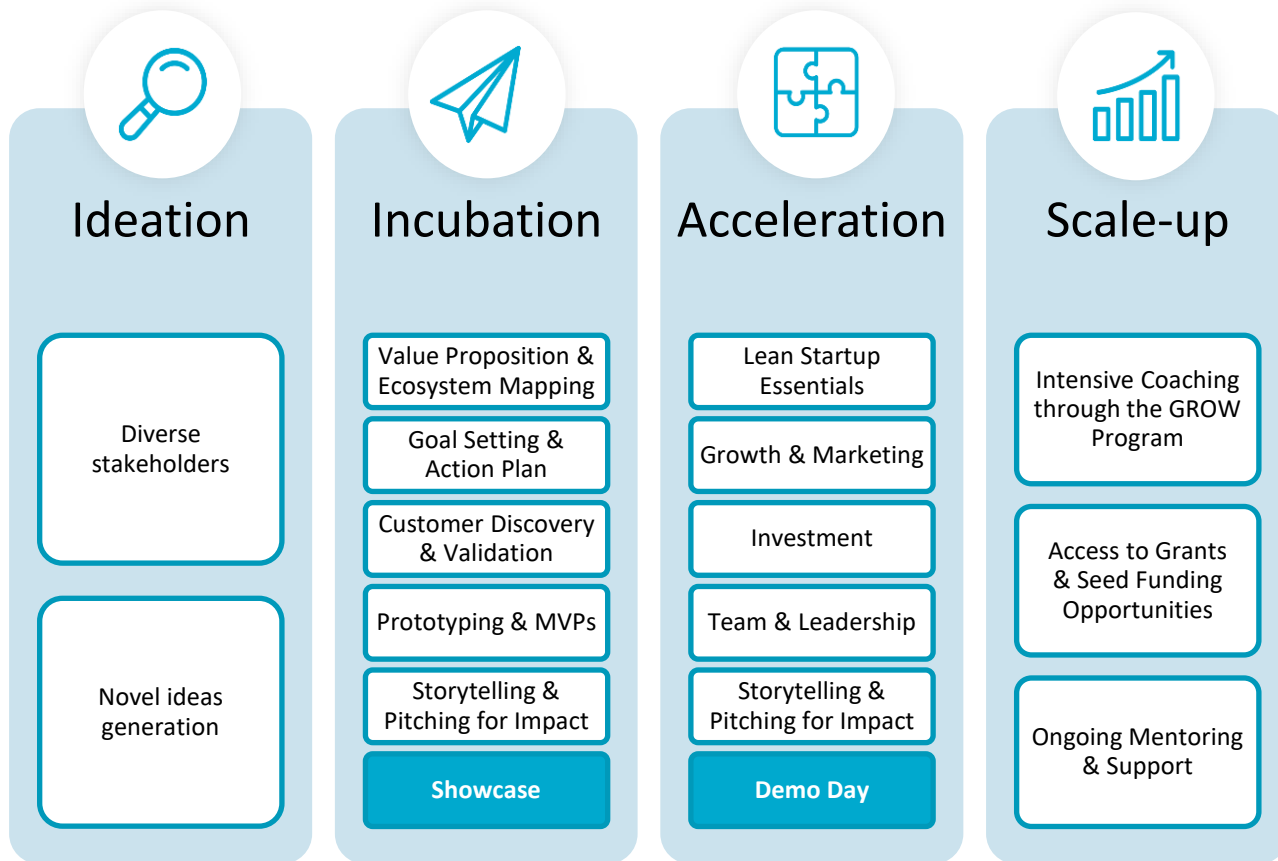
Philanthropy, NGOs and development  
partners are working on large scale  
infrastructure projects with local  
municipalities and other government  
agencies. The Hub resources are better  
placed in other areas where there is  
currently less active stakeholder  
participation.

## 3. Collection increase

NGOs, development agencies and startups are  
working on the collection gap with community  
and government. Until political will and public  
education increase the need for deep tech in this  
domain is low.



# Hubs support 'Seed to Scale' Innovation



## Greenhope – cassava based compostable plastic

Since their venture began, Greenhope have successfully replaced **12 billion pieces of conventional plastic into biodegradable cassava-based plastic** and improved the welfare of 179 cassava farmers.





# TranspiratiONal-SBM

Case Study  
Indonesia Hub Participant

## Sprayable Biodegradable Mulch (SBM)

An eco-friendly solution to replace non-biodegradable plastic mulch films

CSIRO's sprayable biodegradable mulch (SBM) will help farmers increase crop yield with fewer inputs and less environmental impact. The SBM technology is a water-based polyurethane emulsion that forms a membrane when sprayed onto the soil. The SBM membrane will disintegrate and biodegrade within a period determined by its formulation and applied rate, leaving no contamination or toxic residue in the soil or water runoff.

### Technology Readiness - TRL7

- Prototype near or at planned operational
- The solution has been field tested in its target market and can demonstrate the desired outcomes.

- ✓ Water saving (up to 30%)
- ✓ Excellent weed suppression
- ✓ Biodegradable
- ✓ Mechanical (spray) application
- ✓ (Cost parity with plastic)
- ✓ No waste, collection or disposal
- ✓ Application to horticulture, orchard and field crops



ขอบคุณ

Thank you

Together, we're using  
innovative science and  
technology to create a better  
future for all.

**Will you join us?**





## Next steps?

Register your interest in our  
innovation programs



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