

# International Centre for BALANCED LAND USE

THE ROLE OF SCIENCE IN LAND  
AND RESOURCES MANAGEMENT

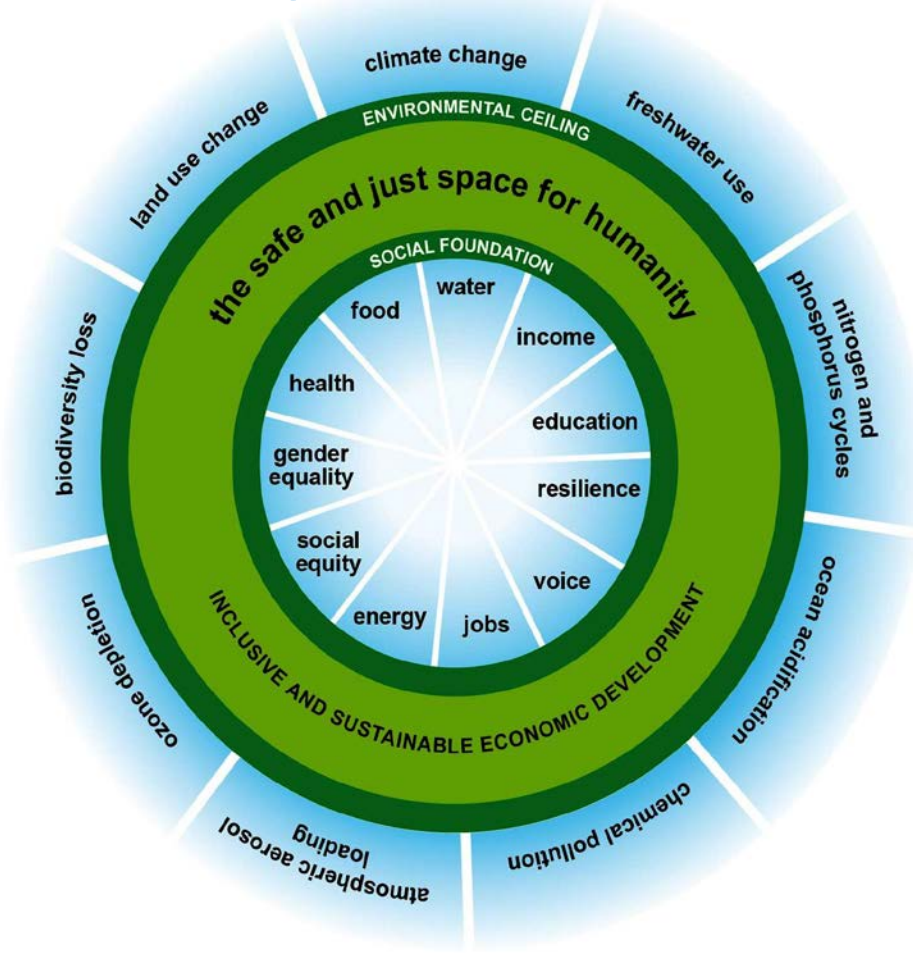
# International Centre for Balanced Land Use



A joint initiative of the  
NSW Government and  
University of Newcastle.

It aims to develop new  
technologies, management  
systems and practices for  
optimising land use.

# Defining Balanced Solutions



## Framework

- 1) **Parts of a Whole** - seeing **people** and the **environment** as integrated
- 2) **Finding middle ground** – different environmental, social and political, situations.
- 3) **Starting with what we know** – linking applied and fundamental knowledge.



# COLLABORATIVE RESEARCH

Economic Development and Employment - Strategies for growth and sustainability of key regional industries.

Community Health and Amenity - Strategies to manage the cumulative impacts of multiple developments

Technologies and systems required to rehabilitate land post-mining to highly productive uses including agriculture.

Alternative policy frameworks for biodiversity offsets

# Hunter Region - Resource Intensive

## **Agriculture**

- *\$14.5 billion to NSW annually, with 43,500 farm businesses in NSW*

## **Mining**

- *Total \$11.3 billion to NSW in 2014/15*
- *21,265 workers supported*



# Hunter Region - Resource Intensive

## **Wine**

*NSW provides 34% of Australia's \$5 billion wine industry  
- \$500 million to NSW pa.*

## **Thoroughbreds**

- *A \$2.4 billion contributor to the NSW economy annually.*
- *One of three international Centres of breeding*

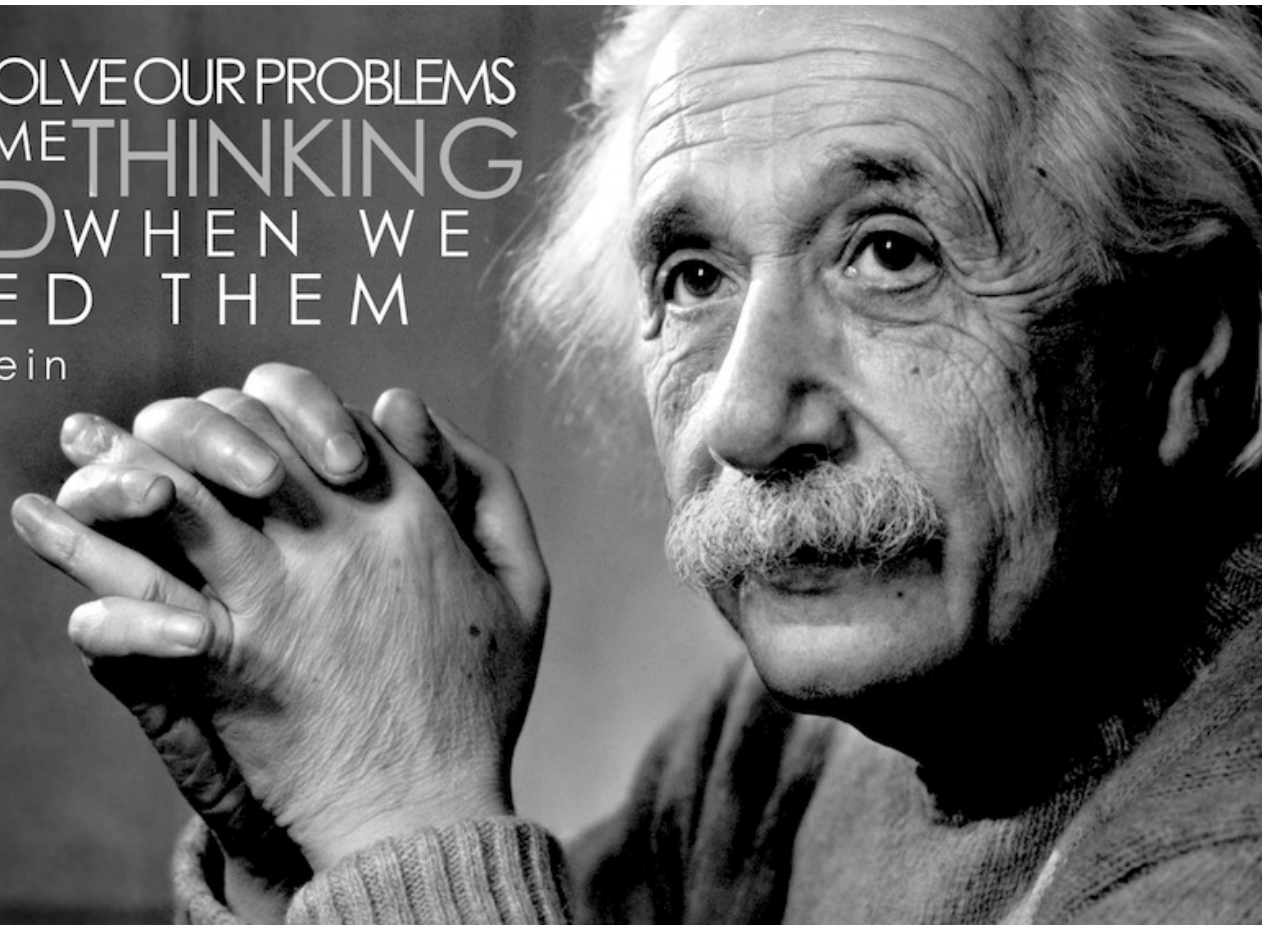




*“Identifying **land and infrastructure** requirements that can support the future development of the region’s coal and alternative energy resources will enable the Upper Hunter to respond to new and emerging opportunities”*

– Hunter Regional Plan 2036.

WE CANNOT SOLVE OUR PROBLEMS  
WITH THE SAME THINKING  
WE USED WHEN WE  
CREATED THEM  
-Albert Einstein





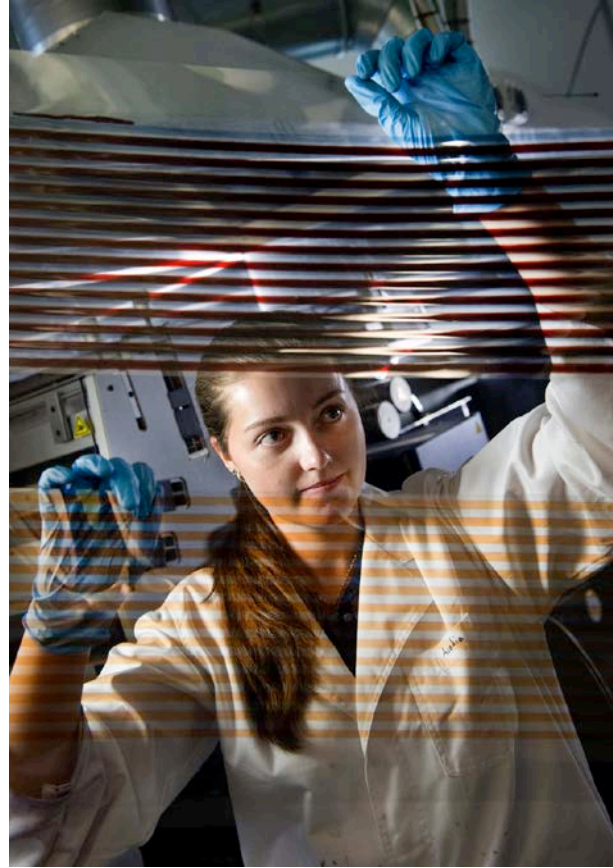
# Rapid progress and opportunities in food production



Graphic Provided by Raj Khosla

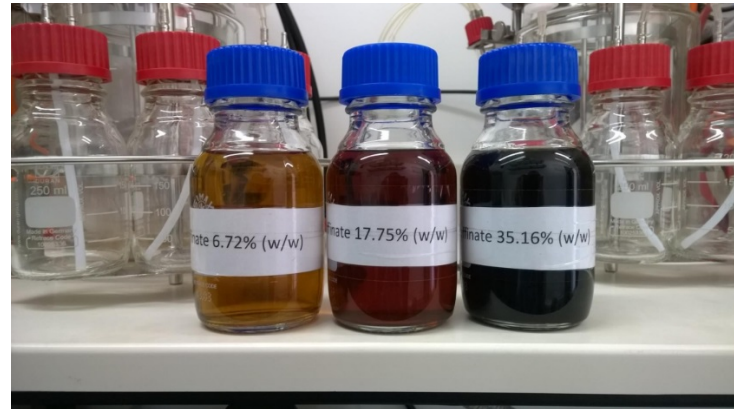


# Advanced Materials Technologies for Energy



# Biofuel – Renewable Energy from Ethanol

- \$20M US for **commercial viability for ethanol fuel**
- **Second generation technology** uses waste organics, not food.
- **Cellulosic Ethanol Plant** uses acid hydrolysis technology



*Slide: Russell Reeves, ETHTECH*

# Mine Land Rehabilitation Technologies

## Tailings to topsoil

- Remove tailings dams
- Convert mineral waste into valuable resources
- Reduce environmental risk
- Create productive use of mined land/buffer zones
- Develop new agri-businesses
- Utilise proven technology for de-watering

# Innovative Use of Mining Buffer Lands

Areas of focus include -

- Intensive Agriculture
- Useful final voids
- Energy cropping
- Biodiversity & environmental services
- Technology industries



A black and white photograph of a person wearing a white lab coat and a hairnet, standing in a greenhouse. The person is looking down at a row of plants in a raised bed. The greenhouse structure is visible in the background. A large teal circle is overlaid on the image, containing the text "UPPER HUNTER INNOVATION PRECINCT".

**UPPER HUNTER  
INNOVATION  
PRECINCT**



## Partnership between Muswellbrook Shire Council and the University of Newcastle

To promote innovation and training in:

- energy technologies
- environmental remediation,
- land use management,
- soil productivity,
- water management,
- climate adaptation,
- energy efficiency,
- precision or high efficiency agriculture.

# THANKS



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