

Australia's lessons on climate-resilient agriculture

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Context

- “I love a sunburnt country...of droughts and flooding rains” *My Country*, Dorothea Mackellar, 1908
- Long history managing climate variability
- 30 years+ experience with managing climate *change*
- Lessons drawn from multiple national government departments, our independent national scientific research organisation (CSIRO), and our dedicated international research-for-development agricultural agency (ACIAR)





Lesson 1: Improving sustainability is an essential foundation, but not sufficient

- Farmer-led movements in 1990s
 - Minimum till, conservation agriculture – soil and water sustainability in a dry climate
 - Landcare – native vegetation on farms
- Continue to support with National Landcare Program and Emissions Reduction Fund (pays farmers for carbon credits)
- Need to go beyond, especially as much of this work was done before Paris Agreement



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Lesson 2: Innovation systems are needed, often started from the ground up

- Farmers and Indigenous peoples are often the innovators
- Example - Red seaweed (*Asparagopsis*) as cattle feed additive to reduce enteric methane began with farmer observations
- Need to put research and industry support around farmers themselves (*innovation systems*) – in regional areas
- New Future Drought Hubs

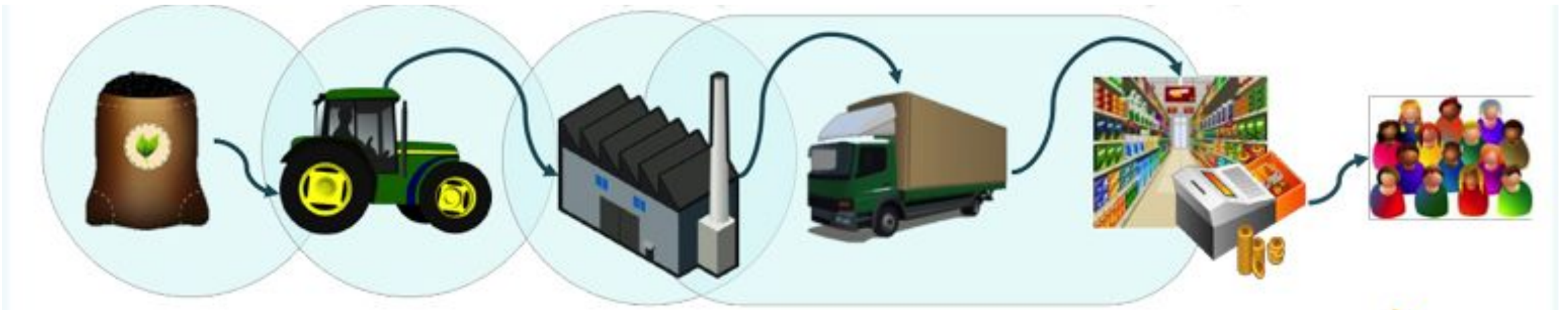


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Lesson 3: Farmers are key actors, but they need coordinated whole of industry, government & community support

- Agricultural policy focused on supporting farmers to have individual responsibility for action, but more ambitious action only possible with associated changes across broader value chains
- Requires whole-of-govt and public-private cooperation at a scale not seen before
- Established federal cross-departmental Resilience Reference Group





Lesson 4: Co-benefits are essential

- Motivation for action (especially mitigation & its increasing transaction costs)
- Climate decisions sit in the broader context of farmer decisions – need to respect the full decision space
- CSIRO says we are now at a point where everything we do in agricultural development needs to contribute to adaptation *and* mitigation – the three are no longer able to be separate



Lesson 5: Fast-moving baselines require *anticipatory* planning and action

- By the time we put in place responses to impacts directly experienced, our responses are outdated
- Support with science of foresighting, scenario creation, decision-making across scenarios, resilience as the *capacity* to keep changing
- Wine industry good example of anticipatory planning – shifting/expanding vineyard locations



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Lesson 6: Climate knowledge and information, digitally enabled is critical national infrastructure

- Southern hemispheric climate science, sequestration models (like the forest accounting FullCAM) can be continuously improved and serve multiple functions
 - Support integrity & transparency
 - More automated approaches (Tier 3, data management) lower initiation costs of new actions
- Need to be shared in a context-relevant way – new Australian Climate Service





Lesson 7: Capacity to broker, facilitate and navigate complexity must be grown rapidly

- Information alone insufficient for action
- Bridging information with anticipatory action by farmers but nested within value chains with whole of industry, government and community support requires specialist local brokers
- Scale and speed of economic & land-use transitions require large capacity for this brokering – currently top-heavy in technical science
- Learned through Climate-Smart Villages internationally



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Lesson 8: ‘Technical’ support is now multi and interdisciplinary – systems and integration science



- Just as much about the science of social, institutional, and economic change as about technical agricultural solutions – science behind ALL the elements in the figure to the left
- ACIAR investing in transdisciplinary programs and new Climate Change Program dedicated to ‘systems transformation’



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Moving forward

- New policy commitments - climate & biodiversity crises
- More ground-up innovation, especially supporting Indigenous voice and perspectives
- Deeper cooperation and capacity-sharing with partners in our region and internationally
- Cross-learning between adaptation, transition, resilience, managing disruption (incl COVID), DRR - all about how to manage emergent systems risks
- Transdisciplinary research to support the socio-technical-institutional systems change we need

