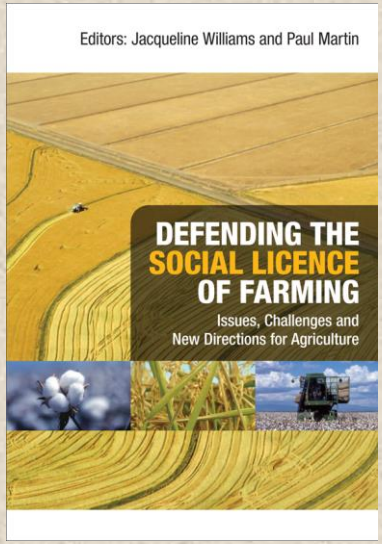
Social Licence to Farm: Sustainable Agriculture Recognition Systems

Jacky Williams
Ecosystem Management
University of New England, Australia

une University of New England

Overview

- Social licence and sustainability recognition
- Risks of current policy vacuum
- What is sustainable agriculture?
  - Definitions: Australia
  - Definitions: globally
- The Global context
- Who will deliver sustainable agriculture?
- Opportunities for local-regional systems



Social licence

FRDC 2019

Politics, property rights, regulation, trust building, social responsibility/ accountability. **Final chapter presents a strategy to defend farmers social licence: a conceptual framework for recognition of sustainable agriculture.**

Trust is at the heart of social licence. Trust based relationships between agricultural industry and society (government, civil society/NGOs, consumers) to give farmers the freedom to operate. Trust needs to be built and maintained, and takes time.

Current trust is determined by translation of what is sustainable through voluntary sustainability standards (VSS), western science, civil society and government.

Where is the farmers' translation of sustainability recognized and validated?

Current challenges facing the global food system (OECD 2019)

- The global food system is expected to provide safe and nutritious food to a population that will likely grow from 7.5 billion people today, to nearly **10 billion by 2050.**
- The agro-food sector also provides a livelihood for millions of people. There are an estimated **570 million farms worldwide today** (predominantly rural areas), and millions of other people work in food-related jobs.
- The global food system also has **a large environmental footprint**.

Risks of current Australian policy vacuum

- **International obligations**: sustainable agriculture
- **Philanthropists & investment banks**: sustainable agriculture
- Growth of socially responsible investing with **the Environmental-Social-Governance (ESG) issues** potentially reshaping and reinventing business models
- AMP Capital flagged **‘climate change’** as the top ESG issue globally for 2019
- The State of Sustainable Markets (2018) global report found the **ongoing trend of sustainable agricultural products are growing** at a pace that exceeds markets for conventional products.
- Recognition of the role **of Voluntary Sustainability Standards (VSS)** in bringing positive outcomes (UNFSS)
- In Australia the **responsible investment market continues to grow** with ESG the dominant responsible investment strategy
- **Consumer preferences** are also aligning with the rise of socially responsible investment globally and domestically
- Market value chains requirements are driven by **ESG, Corporate Social Responsibility CSR) and international obligation commitments** of corporations, organisations and governments

Australian agriculture is vulnerable…..

Australia's clean and green reputation is considered a vulnerable brand as it is not unique, is poorly differentiated and not something that businesses can afford to be overly reliant on (CSIRO 2017).

"***We (Australia) produce the most environmentally and ethically sustainable food and fibre in the world"*** (Minister for Agriculture May 2019)

AAP FactCheck (2019) concluded that the Minister's claim that Australia has the world's most environmentally sustainable food and fibre was false based on international metrics of:

- Food Sustainability Index
- Environmental Performance Index
- The Coller FAIRR Protein Producer Index

Are these the metrics Australia should rely upon for recognition of sustainable agriculture?

Global definition?

To date, there is still no international benchmark defining what “sustainable production” actually entails.

There is no universally accepted set of indicators to measure sustainability performance of agriculture.

(FAO 2011, 2017)

Australian definition

16 Meaning of *sustainable agriculture*

(1) For the purposes of this Act, ***sustainable agriculture*** means the use of agricultural practices and systems that maintain or improve the following:

(a) the economic viability of agricultural production;

(b) the social viability and well-being of rural communities

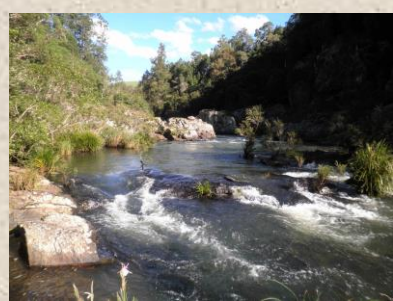
(c) the ecologically sustainable use of Australia's biodiversity;

(d) the natural resource base

(e) ecosystems that are influenced by agricultural activities.

(2) To avoid doubt, for the purposes of this Act, property management planning in relation to the farm unit is taken to be sustainable agriculture.

Natural Heritage Trust Act 1997 (Cth)



Sustainable Agriculture Indicators

Long-term real net farm income	• Real net farm income • Total factor productivity • Farmer's terms of trade • Average real net farm income • Debt servicing ratio
Natural resource condition	• Phosphate and potassium balance • Soil condition: acidity and sodicity • Rangeland condition and trend • Diversity of agricultural plant species • Water use by vegetation
Off-site environmental impacts	• Chemical residues in products • Salinity in streams • Dust storm index • Impact of agriculture on native vegetation
Managerial skills	• Level of farmer education • Extent of participation in training and Landcare • Implementation of sustainable practices
Socioeconomic impacts	• Age structure of the agricultural workforce • Access to key services

Standing Committee on Agriculture and Resource Management 1998

Sustaining the environment

Australians aspire to manage the environment sustainably for future generations

Overall progress? | Resources | Land use | Water use | Waste | Technology and Strategies | Climate

A data gap currently exists for sustainable land use

In MAP there are several types of data gaps where:
1. the concept is not yet developed enough to measure;
2. the concept is important for progress but may not lend itself to meaningful measurement;
3. there is no data of sufficient quality to inform on progress; or
4. there is only one data point, so a progress assessment cannot be made.

In order to capture the spirit of this idea in a measure, further development will need to be undertaken. We will continue to explore options for a suitable indicator in the future.

Sustaining the environment

Australians aspire to manage the environment sustainably for future generations

Overall progress? | Resources | Land use | Water use | Waste | Technology and Strategies | Climate

Managing the environment sustainably in Australia has regressed over the last decade

Indicator: Australia's net greenhouse gas emissions

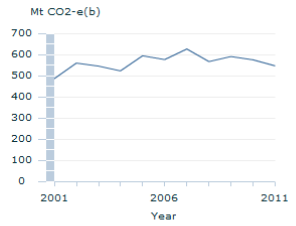
Why is this theme important?

Australians told us that acting to sustain the natural environment and its resources for the long term was important to business, government, communities and society. People felt that how we use the environment's resources affects our present wellbeing and the wellbeing of future generations. In relation to this, people told us about the importance of environmental resources that provide the basis for food and industrial production. Australians supported the development of adaptive technologies and strategies to enable environmental sustainability. Many thought it was important to be aware of the impact of human activities or lifestyles on the environment, particularly those that either moderate resource depletion or threaten long term

Please install or enable flash on you browser.

Get ADOBE FLASH PLAYER

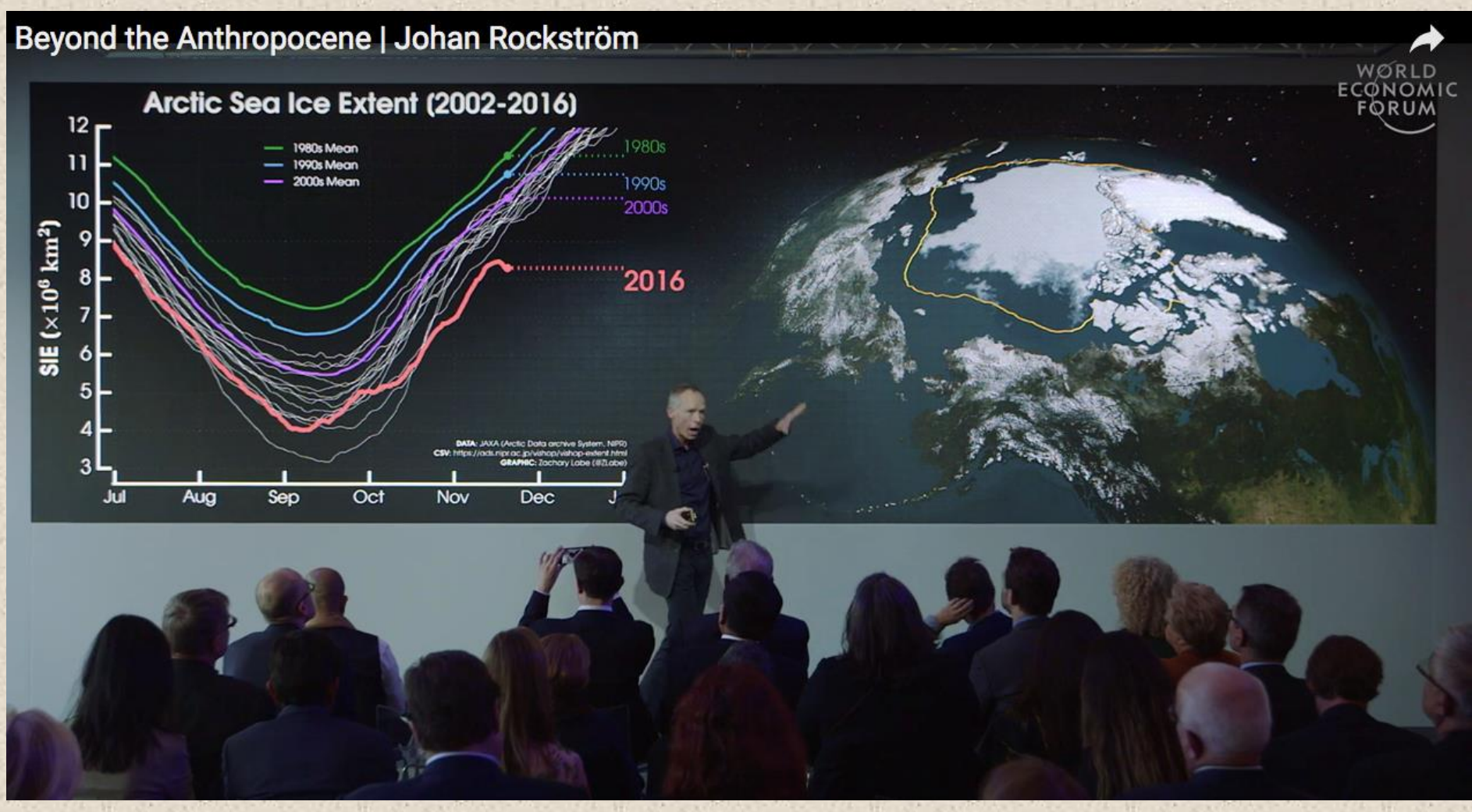
Australia's net greenhouse gas emissions(a), excluding wildfires



Headline progress indicator

Global context

The Anthropocene defines Earth's most recent geologic time period as being human-influenced, or anthropogenic, based on overwhelming global evidence that atmospheric, geologic, hydrologic, biospheric and other earth system processes are now altered by humans.


Beyond the Anthropocene | Johan Rockström
WORLD ECONOMIC FORUM
Arctic Sea Ice Extent (2002-2016)
1980s Mean
1990s Mean
2000s Mean
1980s
1990s
2000s
2016
SIE (×10⁶ km²)
12
11
10
9
8
7
6
5
4
3
Jul
Aug
Sep
Oct
Nov
Dec
DATA: JAXA (Arctic Data archive System, NIPR)
CSV: https://ads.nipr.ac.jp/vishop/vishop-extent.html
GRAPHIC: Zachary Labe (@ZLabe)

The need for Planetary Stewardship

- In 50 years we tipped from 10,000 year Holocene to the Anthropocene.
- What we do in the next 50 years will determine the outcome for the next 10,000 years.
- We are the generation at that tipping point. We were alive during that exponential journey that took us here, we will probably be alive during the journey that will decide the outcome for the next 10,000 years.
- Emphasizes that **sustainable agriculture** and sustainable forestry are fundamental pre-requisites to succeed in remaining in the Holocene….. **to lead us towards a transformation to sustainability.**

International Obligations

Sustainable Development Goals

'*Sustainable agriculture*' is crucial in the delivery of outcomes within at least 6 of the 17 SDGs including: no poverty; zero hunger; responsible consumption and production; climate action; life below water; and life on land.

Aichi Targets for Biodiversity (CBD)

Sustainable use is one of the three main objectives of the Convention on Biological Diversity and underpins the Aichi Biodiversity Targets in particular Target 7: that by 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity. Recognizing the broad nature of Target 7, progress towards its fulfillment will contribute to several other targets, in particular targets 4, 5, 6, 8, 13 and 15.

Convention on Biological Diversity

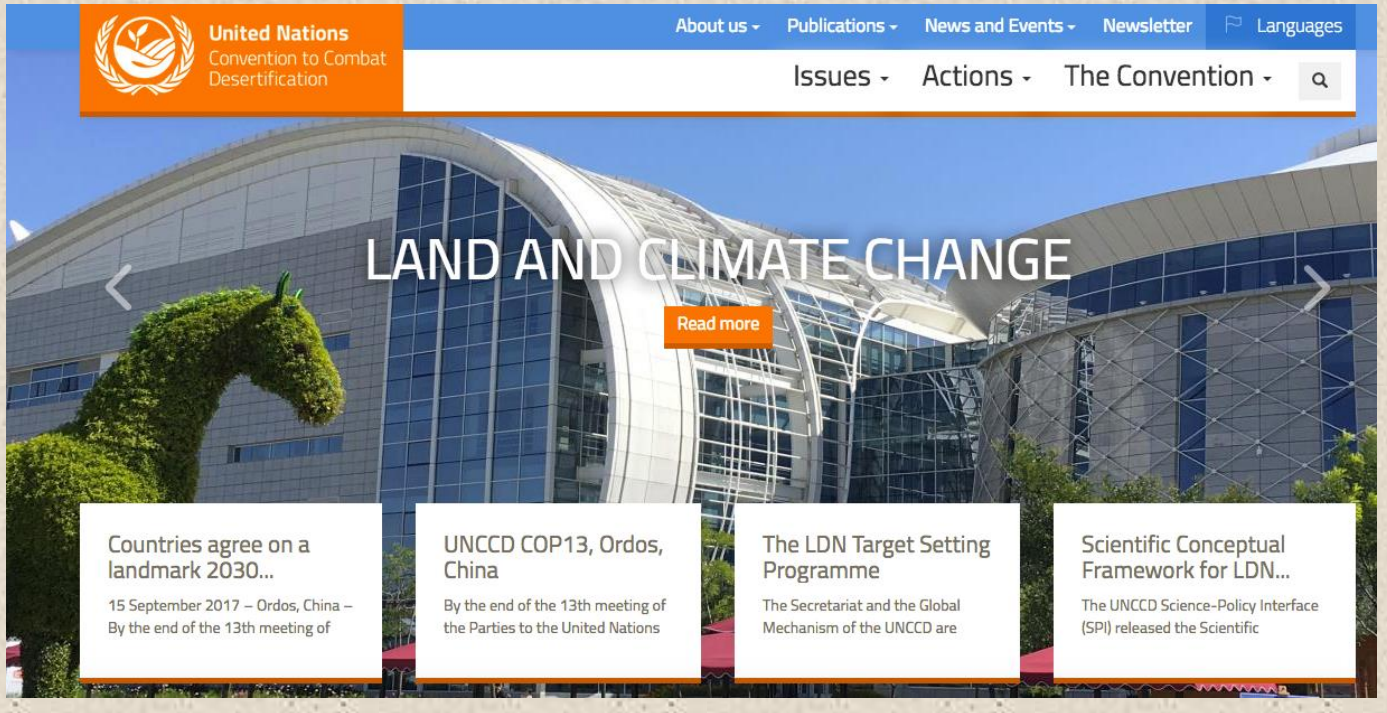
International Treaty on Plant Genetic Resources for Food and Agriculture

The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) also relies on '*sustainable agriculture*' to demonstrate outcomes in particular compliance with Article 6, which proposes a series of measures to promote the sustainable use of Plant Genetic Resources for Food and Agriculture (PGRFA) and calls upon Contracting Parties to develop and maintain appropriate policy and legal measures to that end.

Paris Agreement

The role of agriculture in the Intended Nationally Determined Contributions (INDCs) of ratified countries including mitigation targets, adaptation priorities and greenhouse gas reduction and the need for *'sustainable agriculture'* as a more climate friendly system.

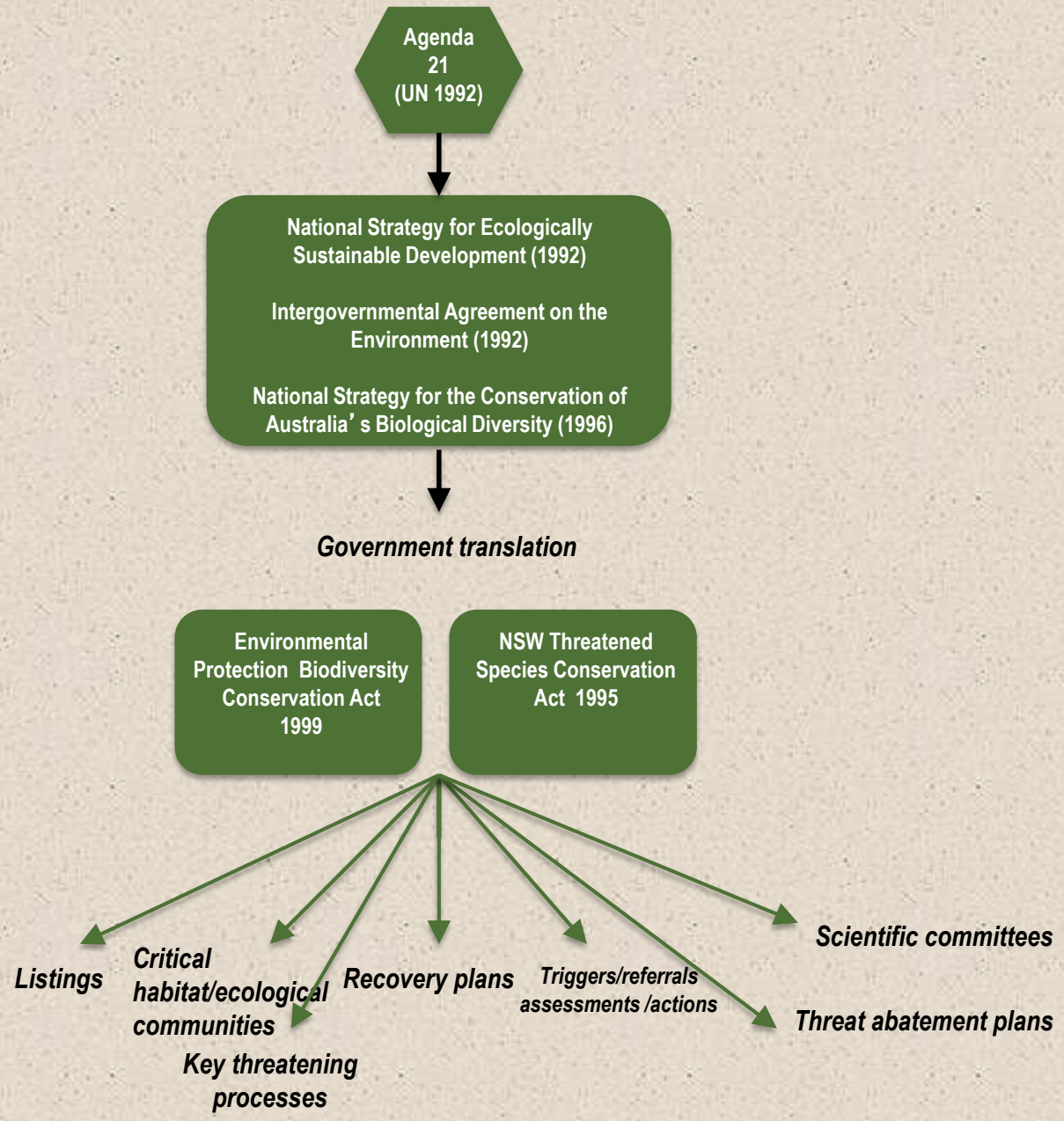
UN Convention to Combat Desertification



Relies on '*sustainable agriculture'* to achieve Land Degradation Neutrality (LDN) and Sustainable Land Management (SLM) objectives and outcomes

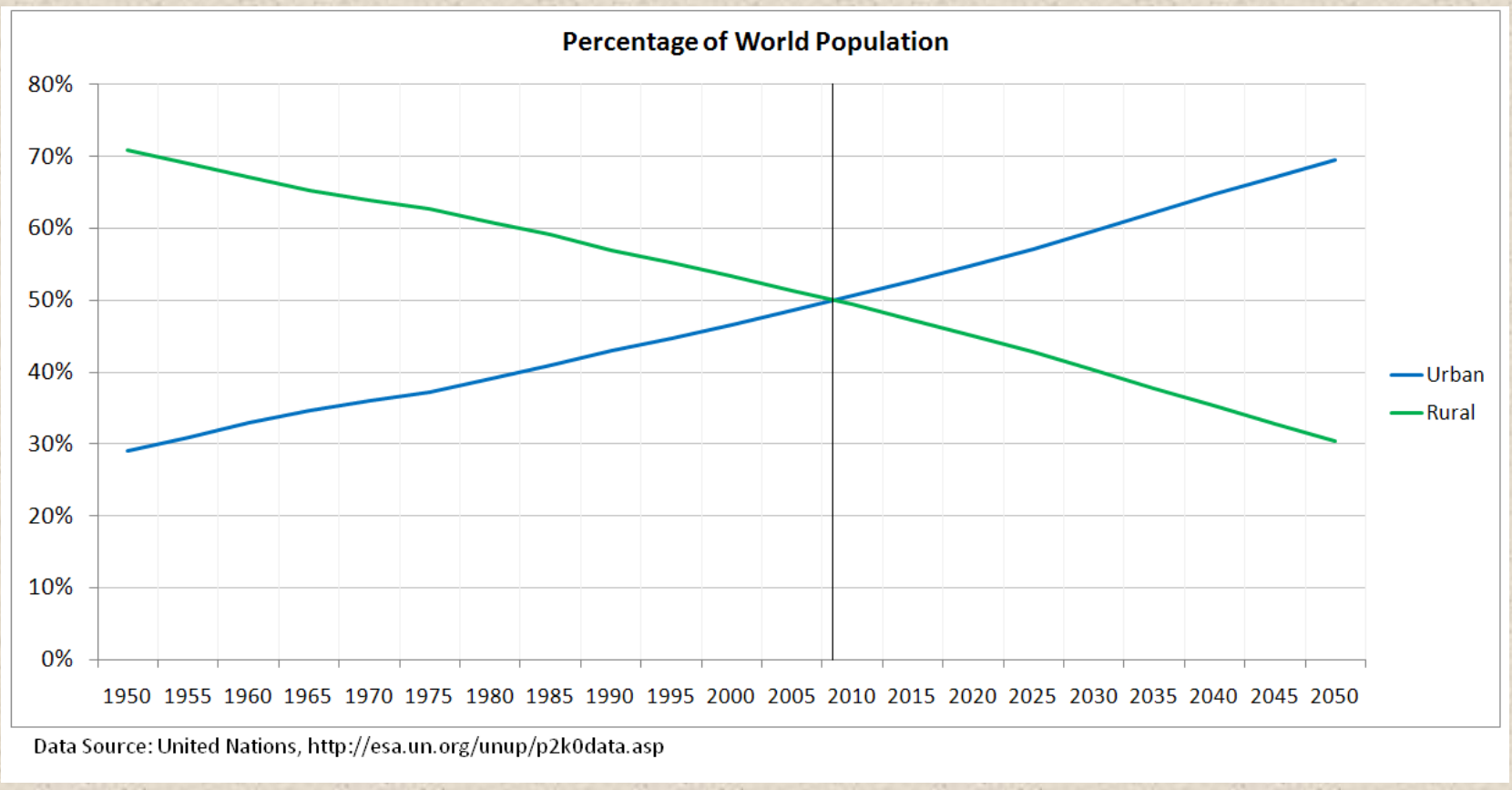
As '*sustainable agriculture'* cross cuts numerous Sustainable Development Goals (SDGs), the FAO has been given the responsibility for the important **SDG indicator 2.4.1** defined as the '*percentage of agricultural area under productive and sustainable agriculture'*.

The FAO is developing a methodology inclusive of the economic, social and environmental dimensions of sustainable production, with the measurement instrument to be farm surveys (to be pilot tested in selected countries in selected regions) with the intention that countries will have the flexibility to identify priorities and challenges within the three dimensions of sustainability. Sustainable farms would be identified as those that satisfy the indicators selected across all three dimensions.


Agenda 21 (UN 1992)
National Strategy for Ecologically Sustainable Development (1992)
Intergovernmental Agreement on the Environment (1992)
National Strategy for the Conservation of Australia's Biological Diversity (1996)
Government translation
Environmental Protection Biodiversity Conservation Act 1999
NSW Threatened Species Conservation Act 1995
Listings
Critical habitat/ecological communities
Key threatening processes
Recovery plans
Triggers/referrals assessments /actions
Threat abatement plans
Scientific committees

Who are the Planetary stewards?

Global migration trends….urban vs rural



World population projected to reach 9.8 billion in 2050, and 11.2 billion in 2100 – says UN

Global picture…..

- **There are more than 570 million farms worldwide,** most of which are small and family-operated. Small farms (less than 2 ha) operate about 12% and family farms about 75% of the world's agricultural land. **Family farming is the predominant form of food and agricultural production in both developed and developing countries, producing over 80 percent of the world's food in value terms** (FAO 2016, 2019)
- **370 million Indigenous people** live in more than 70 states throughout the world constituting 5% of the global population. 80% of all biodiversity on the planet thrives in the 22% of global territories home to Indigenous peoples. The same forces that threaten biodiversity also threaten Indigenous peoples relationships with country, their health and wellbeing (Corntassel & Bryce 2012)
- **25% of world's land surface managed or under tenure of Indigenous Peoples** (Garnett et al 2018)

Australia

25 million

3 people per sq km

3% First Nations Peoples

URBAN:
90% live in
3% of
landscape

RURAL:
10% live in
90% of
landscape

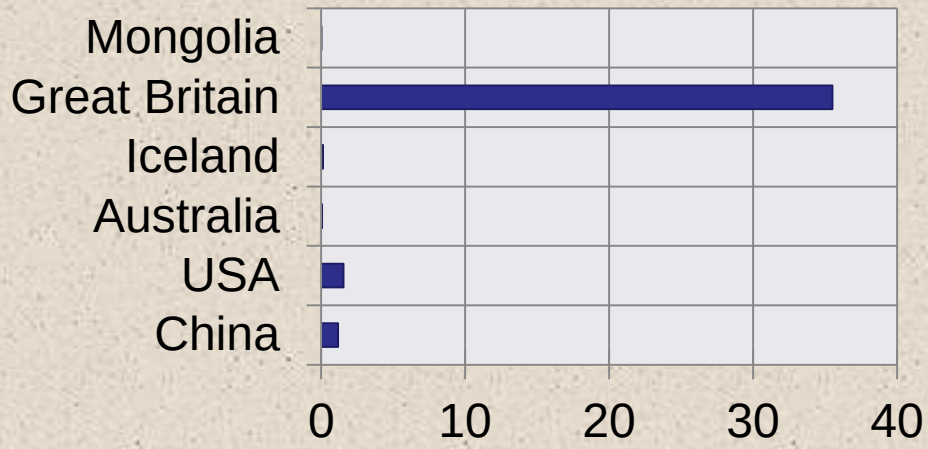
Farmers and
ATSI
manage
most of the
landscape
Farm ~ 50%
ATSI. ~ 40%

85,000 farms
Predominantly family farms.

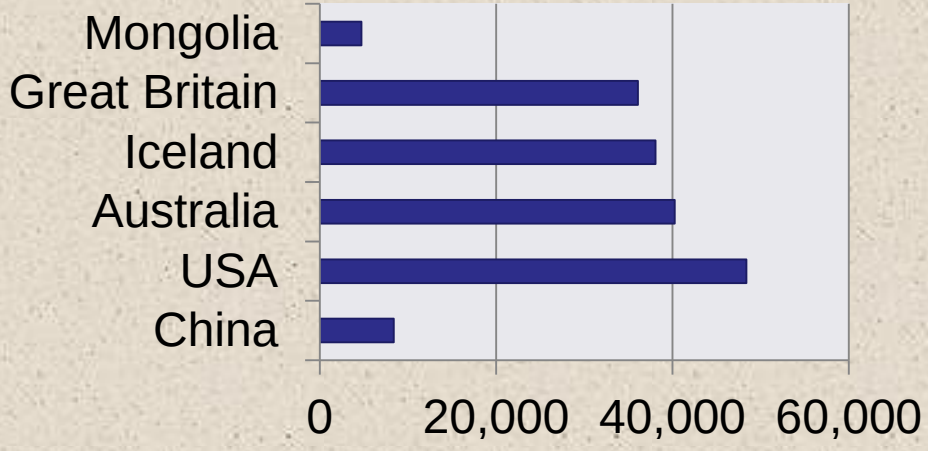
Least farmer support in OECD.

Large area, small population = ?

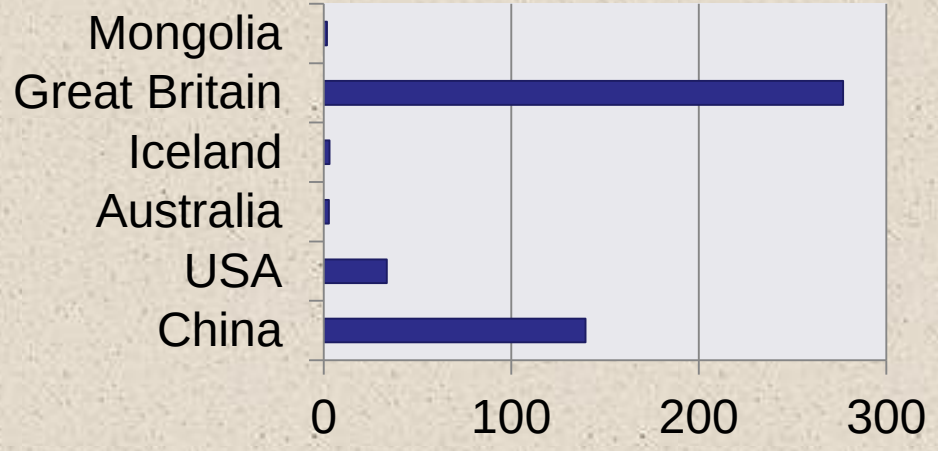
GDP/km2



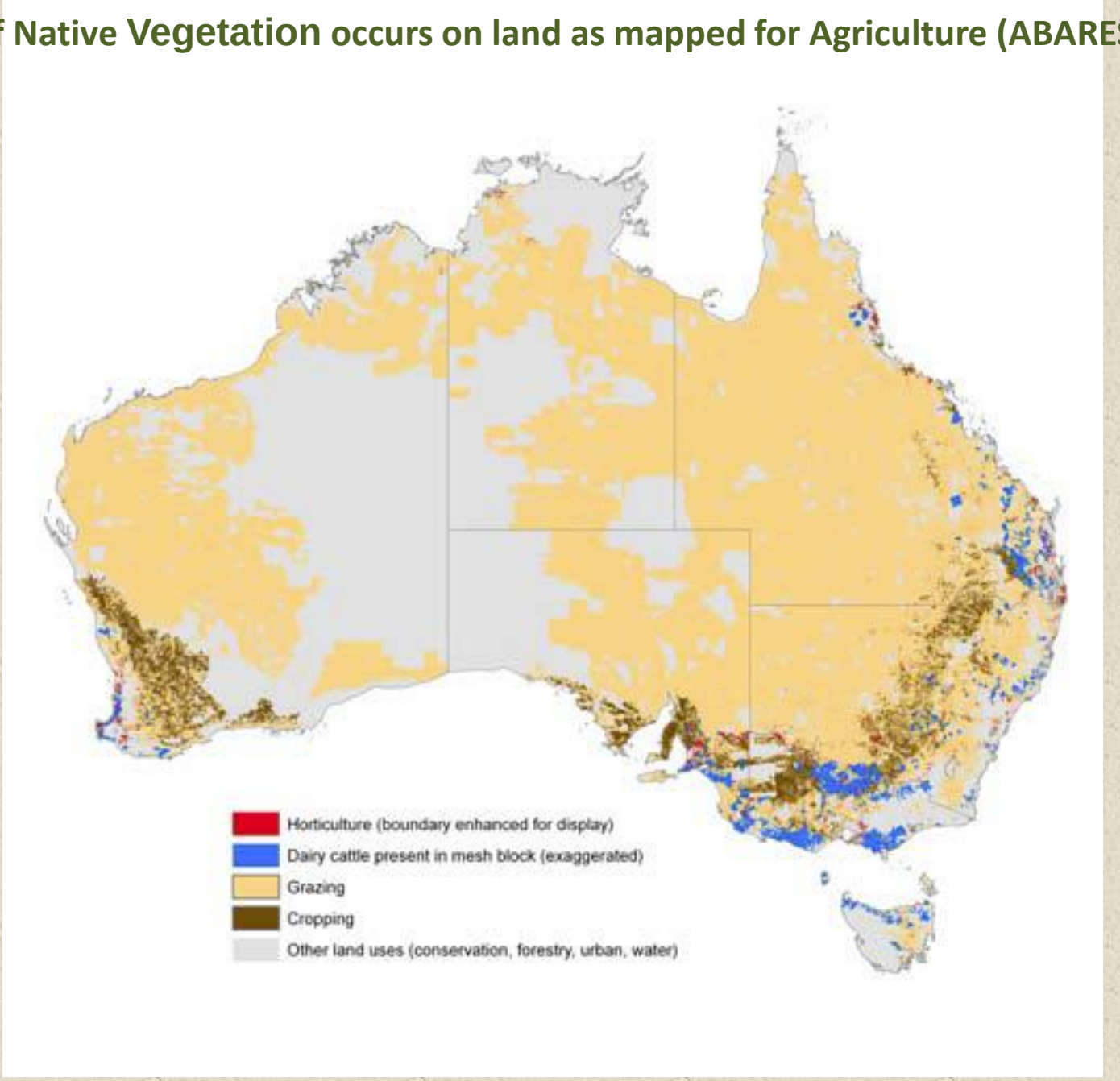
GDP/Capita



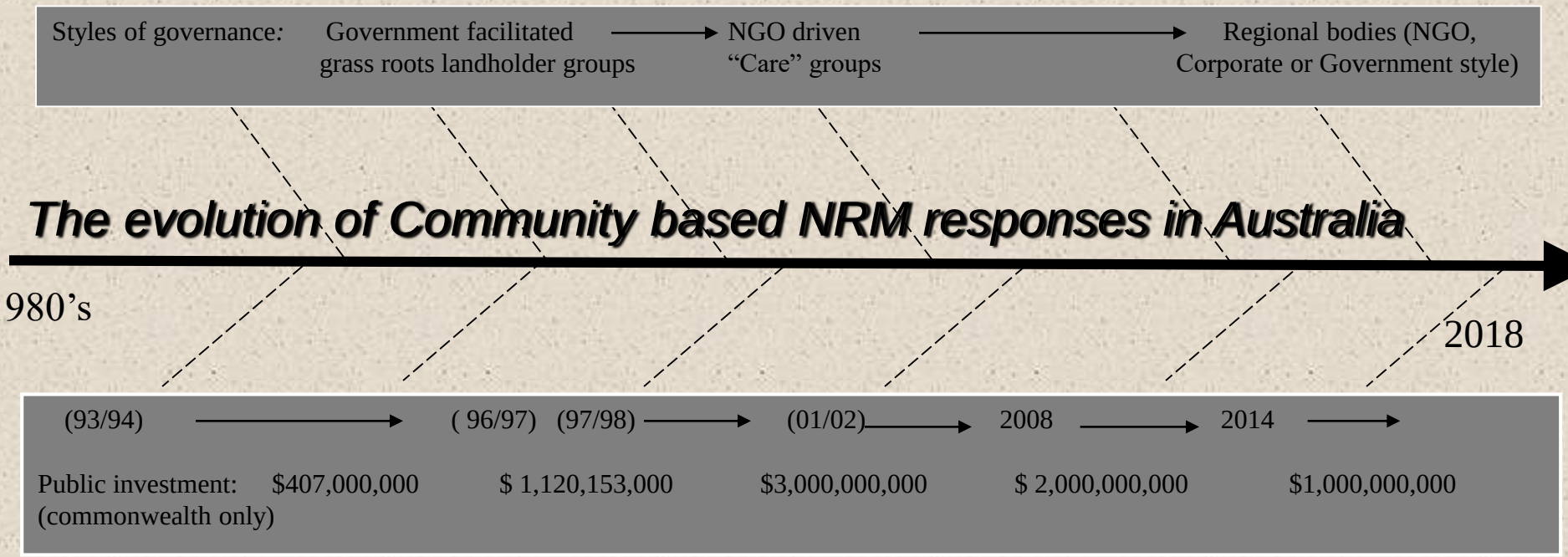
Population/km2



2/3rds of Native Vegetation occurs on land as mapped for Agriculture (ABARES 2012)



Paradoxes



Increased farmer stewardship ($3.7 billion per annum): not recognised

Increased Local Government stewardship ($1.9 billion per annum): not recognised

Indigenous custodianship (unknown per annum): not recognised

Decline in natural resource condition (measurement and lag problems)

The current sustainability dilemma……

Nutrient balance

Water balance

Public good

Offsets

Carbon balance

Duty of care

Property Mgt Vegetation Plan
Land & Water Plan
Biodiversity Plan
Soil Conservation Plan
Pest & Weed Mgt Plans

Rural Adjustment Property Plans
ATO Land Mgt Plans
Nature conservation Mgt Plans
Environmental Mgt Plans
Local Govt Property Plans
Leasehold Property Plans

Community NRM PMP
Land for Wildlife
Land for Forests

Quality Assurance schemes

Environmental Assurance schemes
Codes of Practice
WHS
Quarantine
Biosecurity
Chemcert
Labeling
Value chains

Opportunities to trade ecosystem services

Natural Capital

Recent research shows the value of Australian natural assets has risen to **$6,562 billion (6.5 trillion)** as at at 30 June 2018 (ABS 2018).

In 2017-18, **land accounted for 90 per cent** of the total value of Australia's environmental assets at **$5,921 billion (almost 6 trillion**).

The land value alone would equate to $246,708 for every person in Australia, based on a population of 24 million.

Given the highly urbanized nature of Australia's population this equates to **$ 5.31 billion** of the land value estimated for the **collective urban population** and **$0.6 billion** of the land value for the **collective rural/remote population**, and yet the responsibility for caring for almost 90% of the land mass rests with these agricultural and Indigenous rural/remote communities with little if any cost sharing from the urban communities**.**

Sustaining the environment

Australians aspire to manage the environment sustainably for future generations

Overall progress? | Resources | Land use | Water use | Waste | Technology and Strategies | Climate

A data gap currently exists for sustainable land use

In MAP there are several types of data gaps where:
1. the concept is not yet developed enough to measure;
2. the concept is important for progress but may not lend itself to meaningful measurement;
3. there is no data of sufficient quality to inform on progress; or
4. there is only one data point, so a progress assessment cannot be made.

In order to capture the spirit of this idea in a measure, further development will need to be undertaken. We will continue to explore options for a suitable indicator in the future.

Sustaining the environment

Australians aspire to manage the environment sustainably for future generations

Overall progress? | Resources | Land use | Water use | Waste | Technology and Strategies | Climate

Managing the environment sustainably in Australia has regressed over the last decade

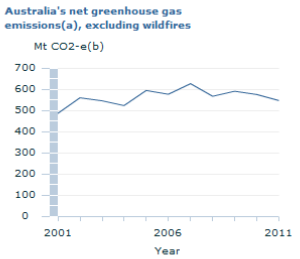
Please install or enable flash on you browser.

Get ADOBE FLASH PLAYER

Indicator: Australia's net greenhouse gas emissions

Why is this theme important?

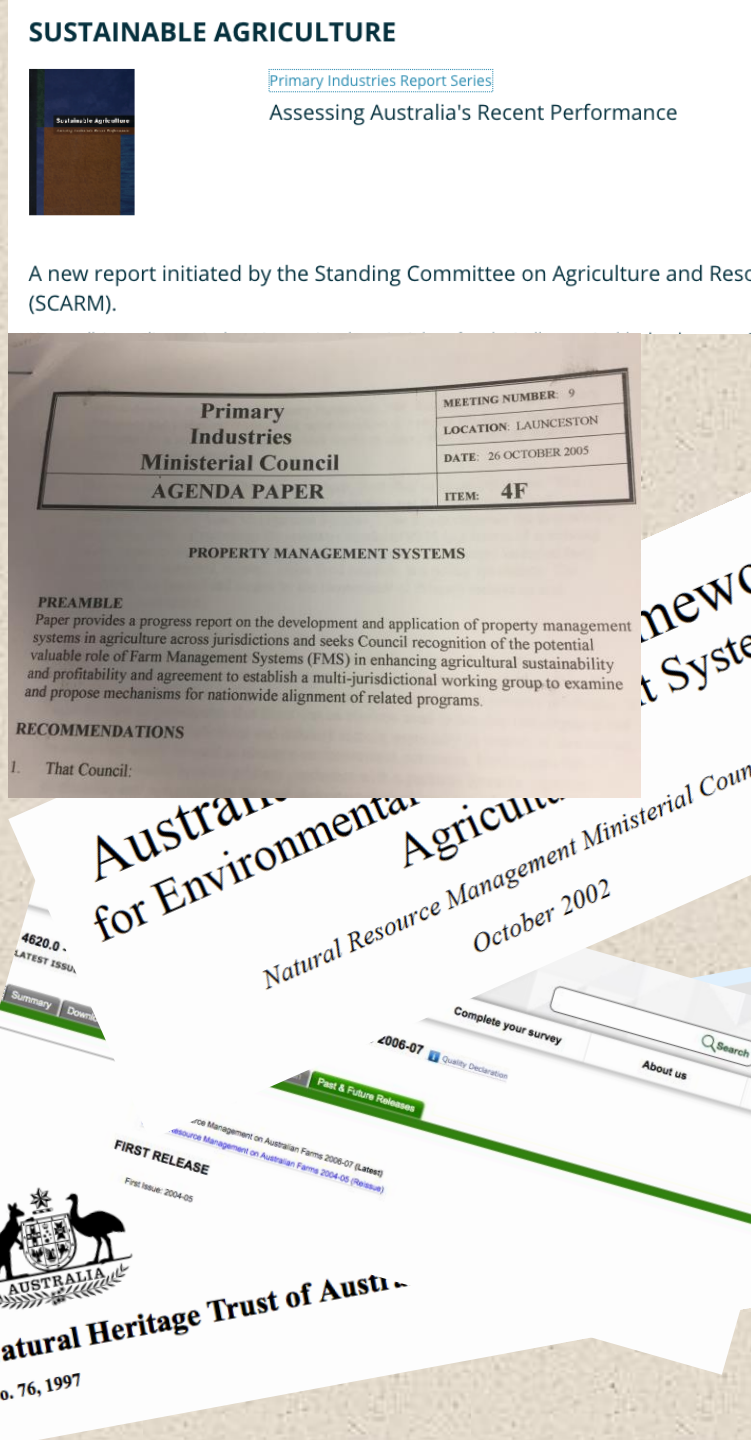
Australians told us that acting to sustain the natural environment and its resources for the long term was important to business, government, communities and society. People felt that how we use the environment's resources affects our present wellbeing and the wellbeing of future generations. In relation to this, people told us about the importance of environmental resources that provide the basis for food and industrial production. Australians supported the development of adaptive technologies and strategies to enable environmental sustainability. Many thought it was important to be aware of the impact of human activities or lifestyles on the environment, particularly those that either moderate resource depletion or threaten long term



Headline progress indicator

Progress????

- ABS 1996 Report *'Sustainable Agriculture in Australia'*
- *Natural Heritage Trust Act 1997*: definition of sustainable agriculture
- SCARM 1998: indicators for sustainable agriculture
- EMS in Agriculture 2002 – 2006
  - National Framework
  - National pilots
- NRM on Farms 2004-05 and 2005-06 (ABS data)
- Property Management Systems 2005-2006
  - National approach across jurisdictions
  - Ministerial councils (PI and NRM) CoAG
- National Framework for Property Management Systems (shelved from 2007)
- Sustainable Agriculture Policy development (shelved from 2007)
- Sustainable agriculture grants (Landcare)



SAI PLATFORM AUSTRALIA

LEGUMES FOR SUSTAINABLE AGRICULTURE

Australian Beef Sustainability Framework

REEF SAFE SUGAR

LAND to MARKET™ AUSTRALIA

ALMG® Australian Land Management Group

Improving environmental and animal welfare management

HOME | WHO WE ARE | EVENTS | CERTIFIED LAND MANAGEMENT | GETTING INVOLVED | ACHIEVEMENTS | LIBRARY | NEWS | CONTACT

Certified Land Management
- What is Certified Land Management?
- Certification process
- CLM Categories
- CLM Features

CLM categories

There are three categories of CLM:

- Eucalyptus
- Banksia
- Grevillea.

These are not hierarchical categories rather each has been designed to meet varying landholder requirements. Each category is designed to meet different needs and landholders don't have to progress between categories unless they think the benefits warrant the additional costs.

Landholders in each category must implement a continuous improvement cycle. Categories differ mainly on who does the auditing and the frequency of auditing.

EUCALYPTUS CATEGORY

Eucalyptus landholders have had their ALM plan certified by an ALM Group accredited auditor and have paid their ALM Group certification fee.

Farming | News | We Are Community | Certified Growers | Community Grants | Contact Us

ASPCERTIFIED

CERTIFIED GROWERS | NEWS | WHAT IS SUSTAINABLE FARMING | WE ARE COMMUNITY

SustainaWOOL™ INTEGRITY SCHEME

compliant with the Unilever Muddy Boots program

Kagome Australia have been certified a 'Sustainable Supplier' in accordance with the Unilever Sustainable Agriculture Code and Scheme Rules.

BMP COTTON BEST MANAGEMENT PRACTICES

BMP Certified Cotton

BMP is the Australian cotton industry's guide for growing cotton in harmony with our natural environment.

The Australian BMP Cotton trademark is a consumer guarantee that the branded textile product they are buying is made of Australian cotton grown under Best Management Practices by growers who care for our environment.

AUSTRALIAN CERTIFIED ORGANIC

OGA Certified Organic

TRUE AUSSIE BEEF&LAMB

REEF SAFE BEEF

NASAA CERTIFIED ORGANIC

O.F.C.

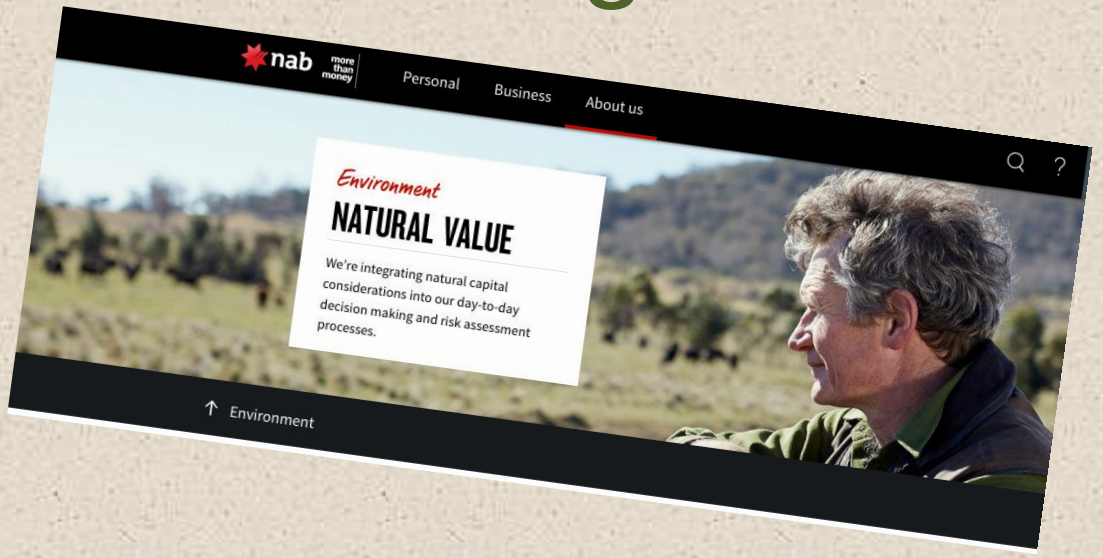
Sustainable AUSTRALIA WINEGROWING MCLAREN VALE

I AM A LANDCARE DEFENDER OF THE EARTH

Landcare Australia

ENVIRONMENTAL MANAGEMENT SYSTEM ISO 14001

Banking & multi-nationals



THE ENVIRONMENT REPORT

New index highlights sustainability risks of meat, fish and dairy industries

June 1, 2018

A new index analysing 60 global intensive farming companies on health, environmental and social issues has found that the large majority of meat, fish and dairy suppliers are failing to manage critical business risks such as greenhouse gas emissions and antibiotics risk.

The Coller FAIRR Protein Producer Index is the world's first comprehensive assessment of how some of the world's biggest, listed suppliers of meat and fish are managing critical sustainability risks from pollution to the Paris Agreement, food safety to worker safety.

The Index is produced by the $5.9 trillion investor network FAIRR which has large investors such as Aviva Investors, Schroders and US fund University of California Office of the Chief Investment Officer of the Regents among its members. The Index aims to improve corporate disclosure on sustainability issues by all major livestock and fisheries companies and bridge the knowledge gap for investors on this sector.

02 END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

"While agriculture has been a consistently strong performer, there are five key areas we can't ignore. They are the competitiveness race, Asia's re-emergence, evolving consumer preferences, resource scarcity and climate variability and change. Each of the five bring both opportunities and threats, disrupting the status quo. How we respond to these challenges and opportunities will shape the future of Australian agriculture."

Dr Steve Hatfield-Dodds, Executive Director, Australian Bureau of Agriculture and Resource Economics and Sciences, Outlook 2018

Agriculture plays a central role in the Australian identity and is an important pillar of the Australian economy. Agriculture relies on a clean, healthy, productive environment – underpinned by a range of the SDGs – and has a particular link to Australians' health and wellbeing, or SDG3. Australia produces enough food to feed around 60 million people annually, so Australian agriculture contributes to both domestic and global food supply, with over two-thirds of Australian agricultural produce exported.

Australia is a strong advocate for open markets and free trade, and for the reduction of market-distorting agricultural support. Substantial reforms in the 1980s and 1990s saw innovation and productivity growth increase across the agriculture value chain with benefits to consumers and creating economic and employment opportunities in rural Australia.

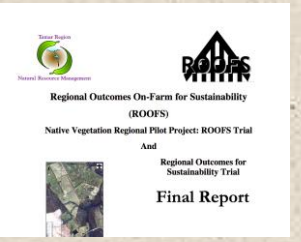
Our food system is underpinned by high levels of food safety, a reliable food supply and competitive and efficient markets. Through the Australian Centre for International Agricultural Research (ACIAR), we share our expertise with developing countries to promote more productive and sustainable agricultural systems and practices, supporting nutrition and economic growth.

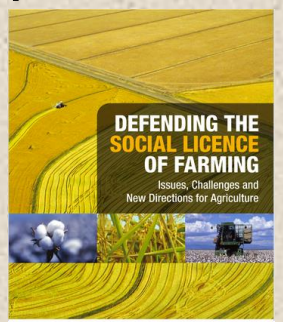
Given agriculture's dependence on natural resources, the sector must adapt to the potential impacts of climate change, but can also contribute to its mitigation through emissions reduction. Australian governments support the agriculture sector to build adaptive capacity, preparedness, sustainability and risk management capability, to better enable primary producers to manage the effects of climate change.

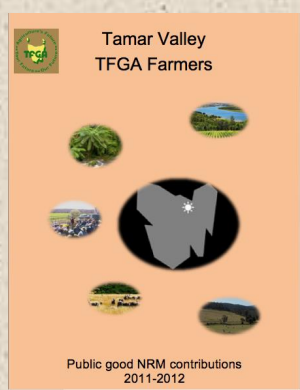
Sustainable agriculture framework

To demonstrate and trade sustainable agriculture (food, fibre & ecosystem services) **consistent with state, national and international standards/metrics/obligations** through:

- Property management planning systems
  - Legally and scientifically valid
  - Governance systems of integrity
  - Harmonization
  - Government recognition/verification
  - Least transaction costs





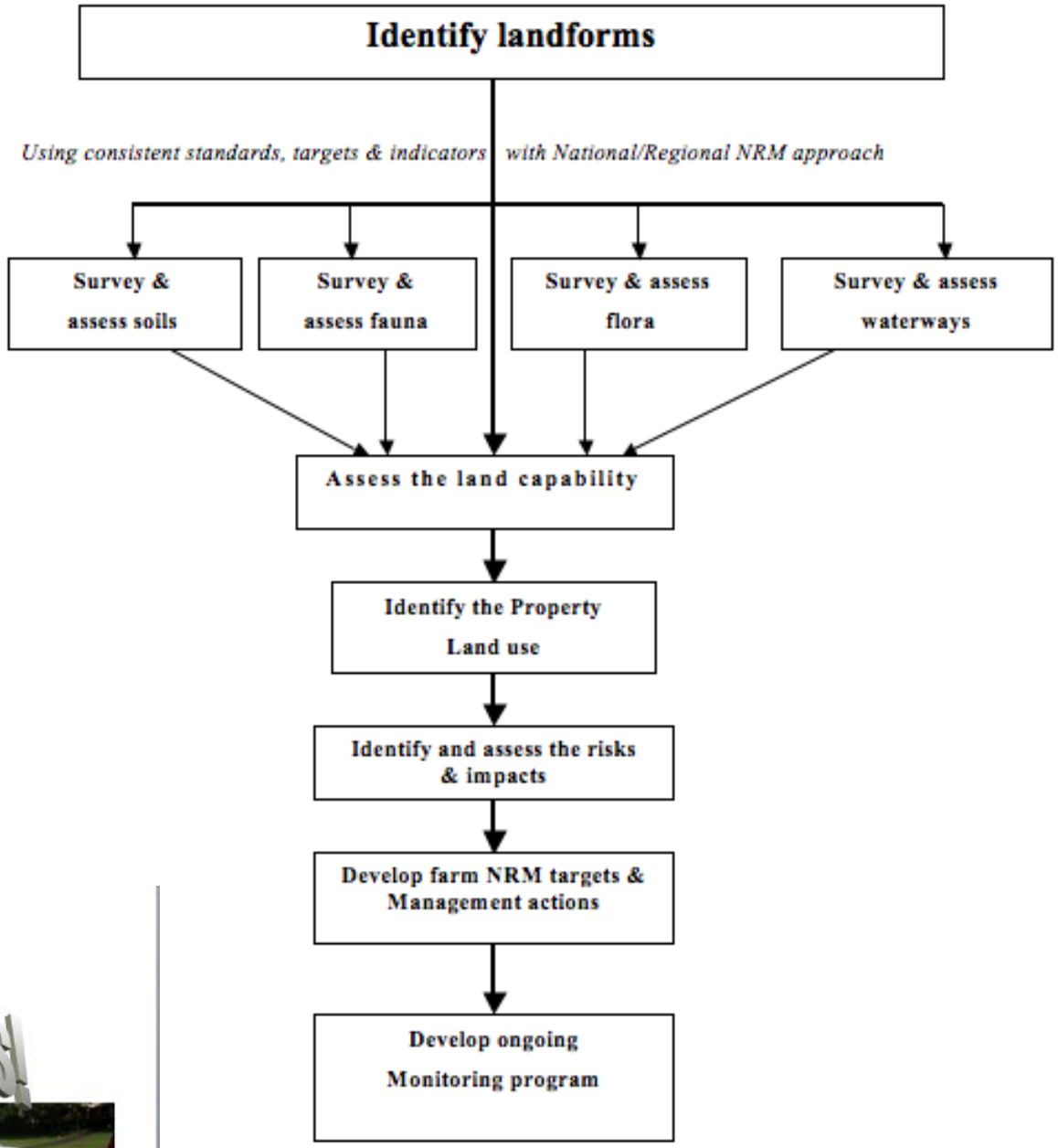


Harmonization is crucial

While the number of Voluntary Sustainability Schemes (VSS) has greatly increased globally, the significant variation in the number of active VSS across different country-product-markets suggests that problems with duplication and overlap between standards (and the increased compliance costs on suppliers) are likely to differ across markets (UNFSS 2018).

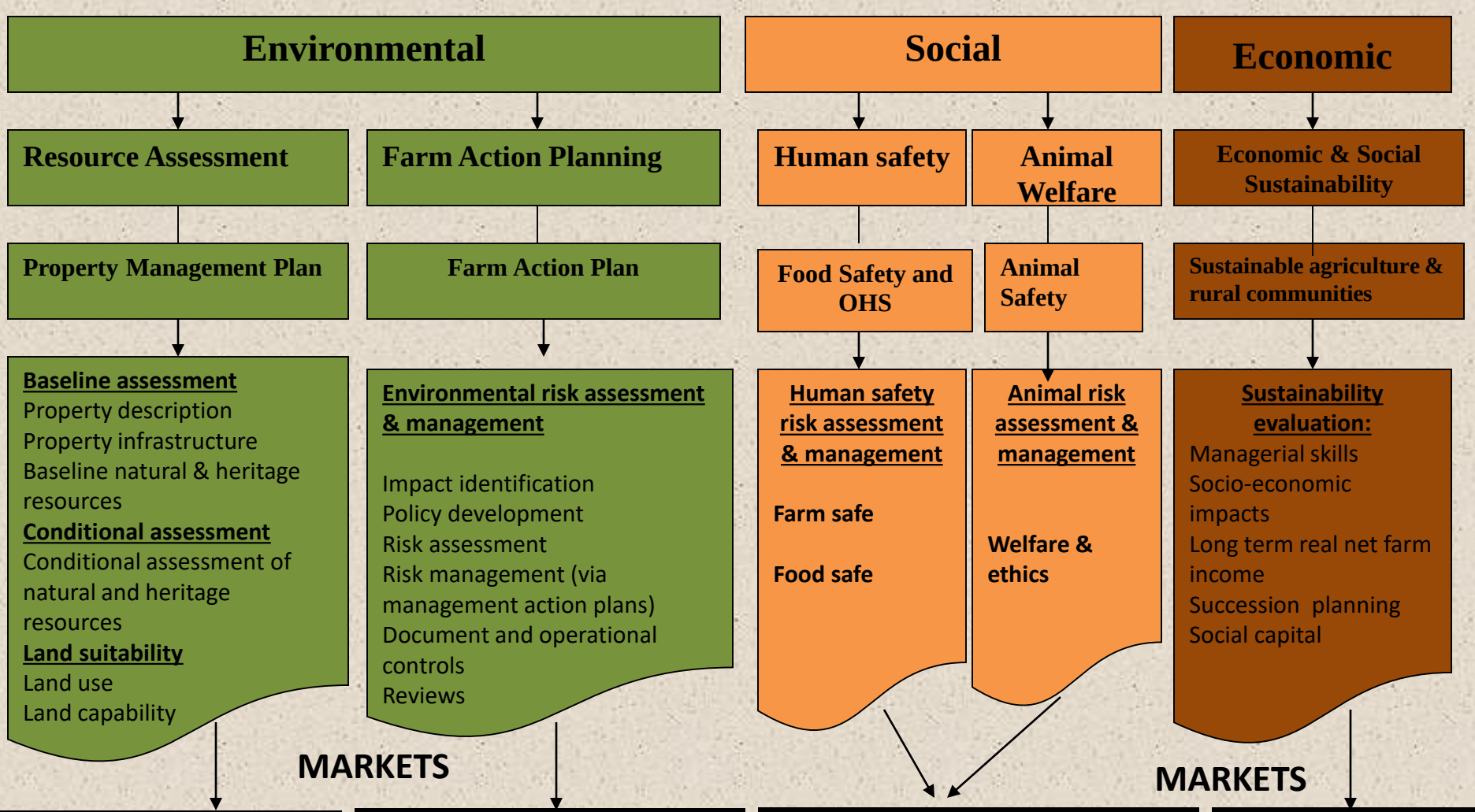
Traditional Ecological Knowledge Systems & Citizen Science

Translation, Equivalence, Recognition


Identify landforms
Using consistent standards, targets & indicators
with National/Regional NRM approach
Survey & assess soils
Survey & assess fauna
Survey & assess flora
Survey & assess waterways
Assess the land capability
Identify the Property Land use
Identify and assess the risks & impacts
Develop farm NRM targets & Management actions
Develop ongoing Monitoring program


Land Plus
Doing the eco-audits
Developing the eco-assets
Delivering the eco-services

PROPERTY MANAGEMENT SYSTEM COMPONENTS



Tamar Valley TFGA Farmers

Public good NRM contributions 2011-2012

Farmers' $8m land care lauded

By MICHELLE WISBEY

A NEW report has put an $8 million price tag on the environmental contribution that Tamar Valley farmers make to their land.

Produced in collaboration with the Tamar Valley branch of the Tasmanian Farmers and Graziers Association and Tamar Natural Resource Management, the independent report looked into the environmental and economic benefits of work that was performed by landowners.

Tamar Valley branch chairman Ian Sauer said the report was about recognising the financial contribution farmers made through weed management, fencing, re-vegetation and other farming practices.

"By doing a sample of 6 per cent of the farmers in the Tamar Valley, they contribute $500,000 a year of their own money to natural resource management outcomes," Mr Sauer said.

"If you extrapolate that out to 100 per cent of the farmers, which we didn't survey, it's $8 million.

"It was amazing when the Tamar Valley branch started getting these figures — even the farmers were amazed."

Mr Sauer said the report, undertaken by Dr Jacky Williams, of the Australian Centre for Agriculture and Law, found that these investments remained almost invisible to governments and members of the community.

"It's about all the work that farmers do on their farms, like landcare work, that goes completely unrecognised," he said.

"There's a public benefit to it, it's preserving patches of bush, it's fencing off streams to get better water quality and increasing biodiversity.

"This is what farmers want to do — they don't have to do it but they do."

Mr Sauer said that there was a need for policy reforms to support the rural communities who were managing the Australian landscape.

Table 4: NRM activities of Tamar Valley farmer survey participants

Activities	Hours	Kilometres	Communication
Community meetings	553	11329	$ 119
Industry meetings	496	9536	$ 126
Government meetings	809	8232	$ 63
Workshops	468	5045	0
Training and field days	529	5738	$ 30
Submissions	398	1178	$1248
TOTAL	**3253 hours**	**41088 kms**	**$1586**

Table 5: Environmental Services of Tamar Valley farmer survey participants

Environmental Service	Area Hectares	Hours	Materials $	Equipment $	Contractors $	Travel Kms
Game Management	3590	685	6330	1200	0	225
Fencing of streams	53.8	268	13770	1950	1000	15
Native habitat maintenance	267.37	88	0	50	3600	0
Shelter belts	71	102	2265	200	2000	20
Weed control	1234	1025	10141	1000	2800	1000
Responsible fertiliser use	653	2	29300	0	0	1500
Willow removal	46.5	249	1200	6560	4000	112.5
Productive pasture	1179	254	20000	3000	2000	0
Recreation	2715	323	220	0	0	0
Tree planting	0.4	16	0	0	0	0
Bush regeneration (fencing & weeds)	4	5	10	0	0	0
Built heritage	1.2	82	0	0	0	0
Visual amenity	1.2	8	0	0	176	0
Hazard reduction burning	360	124	114	400	500	217.5
Other:	700	20	0	0	0	0

Sustainable Agriculture Recognition Systems

Delivering planetary stewardship from the farm gate

- **Farmer led '*sustainable agriculture*' system**
  - Definition
  - Practice
  - Governance
  - Verified by Government
  - Equivalence recognition
  - Harmonization
- **Value chains:**
  - Regional sustainable agriculture:
    - Sustainable food and fibre
    - Ecosystem services

Opportunities

- **Community defined '*sustainable agriculture*'**
  - Definition
  - Practice
  - Delivering planetary stewardship from the farm gate
- **Value chains:**
  - Local-regional
- **Group Certification/Participatory Guarantee Systems (PGS):**

  Locally focused quality assurance systems that certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange. PGS represent an alternative to third party certification, especially adapted to local markets and short supply chains.
  - Cooperative/collective?

Potential Outcomes

- Provide a community-led farm survey system that complies with international obligations for demonstrating sustainable agriculture.
  - Legally and scientifically valid

- Provide a community-led farm survey system that can demonstrate sustainability to the government, the market and the community.

- Provide a system for farmers to establish the baseline of natural resource condition of the farm for future monitoring.

- Provide a system for farmers to demonstrate maintenance and enhancement of natural capital on the farm for financial institutions.

- Provide a system for farmers to demonstrate their environmental stewardship individually and collectively.

THANK YOU

Jacqueline.Williams@une.edu.au

Ecosystem Management
Environmental and Rural Science
University of New England, Australia

Australia urgently needs real sustainable agriculture policy
http://theconversation.com/australia-urgently-needs-real-sustainable-agriculture-policy-120597

Harmonization of On-farm Metrics for Sustainability Assessment of Australian Agricultural Industries
Williams et al 2019 forthcoming AFI journal (spring)