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Community resilience and sustainable economic development in the northern Savannas

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‘Northern hub’ projects at CDU: Building community resilience in northern Australia

- 1. Assessing Indigenous perspectives – ARPNet**
- 2. A desktop assessment of resilient concept –
NAILSMA**
- 3. Developing economic resilience (economic
opportunities) – DCBR**

Economic opportunities

- Payments (\$) for land and fire management
 - What are the benefits and costs?
 - How can we assess these benefits and costs?
 - Is it possible to develop new PES related economic enterprises?



Care for \$\$...not for non-\$ benefits





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Intangible (non-\$) benefits of fire management





- Human capital
- Social capital
- Built capital, and
- Natural capital



SAVANNAS: AN OVERVIEW

- Tropical climate
- Fires are an integral part of the landscape
- Lack of human resources (~1.3 million people)
- ~19% Indigenous population, mostly living on outstations (~500 outstations in the NT alone)
- Most of the land under pastoral lease or Aboriginal land use (~19% of total savanna area; 36% in the NT)

SAVANNA OUTBACK

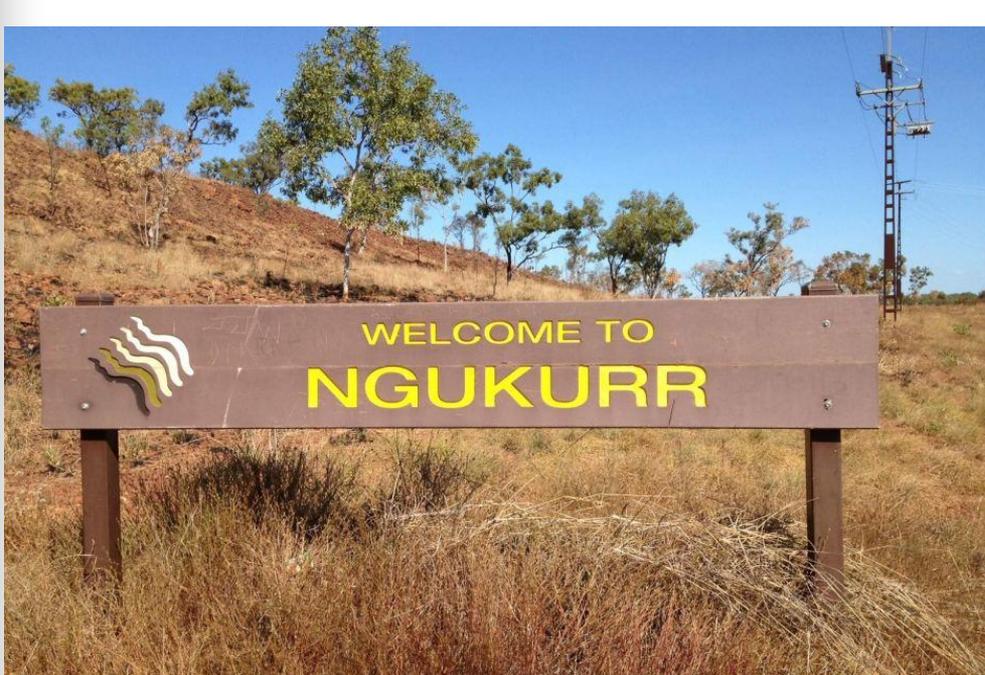


Remoteness

**'land-rich' but
'financially
marginal people'**

CASE STUDIES:

**NGUKURR (NT): ~700 km from Darwin,
often flooded in the wet season**







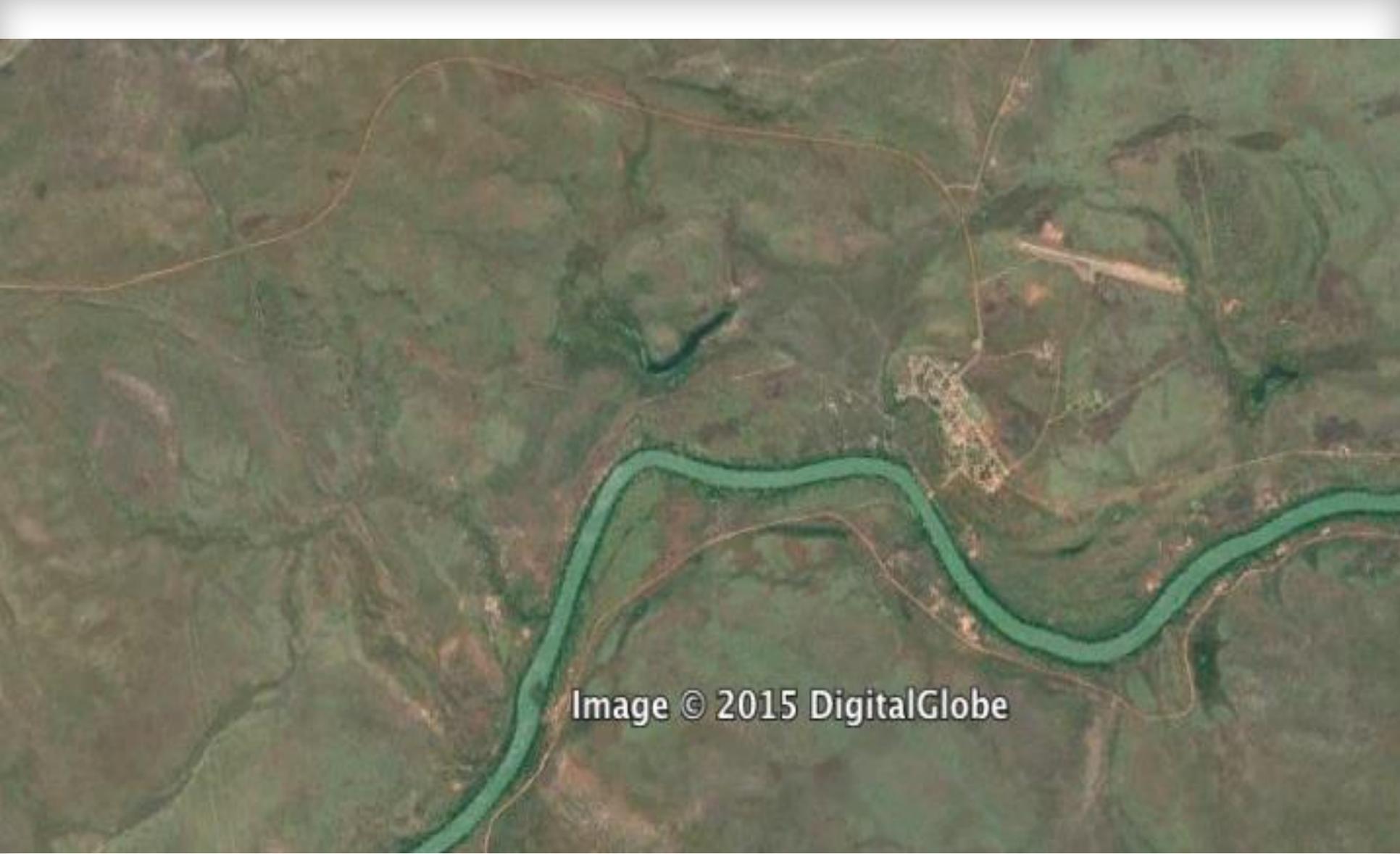
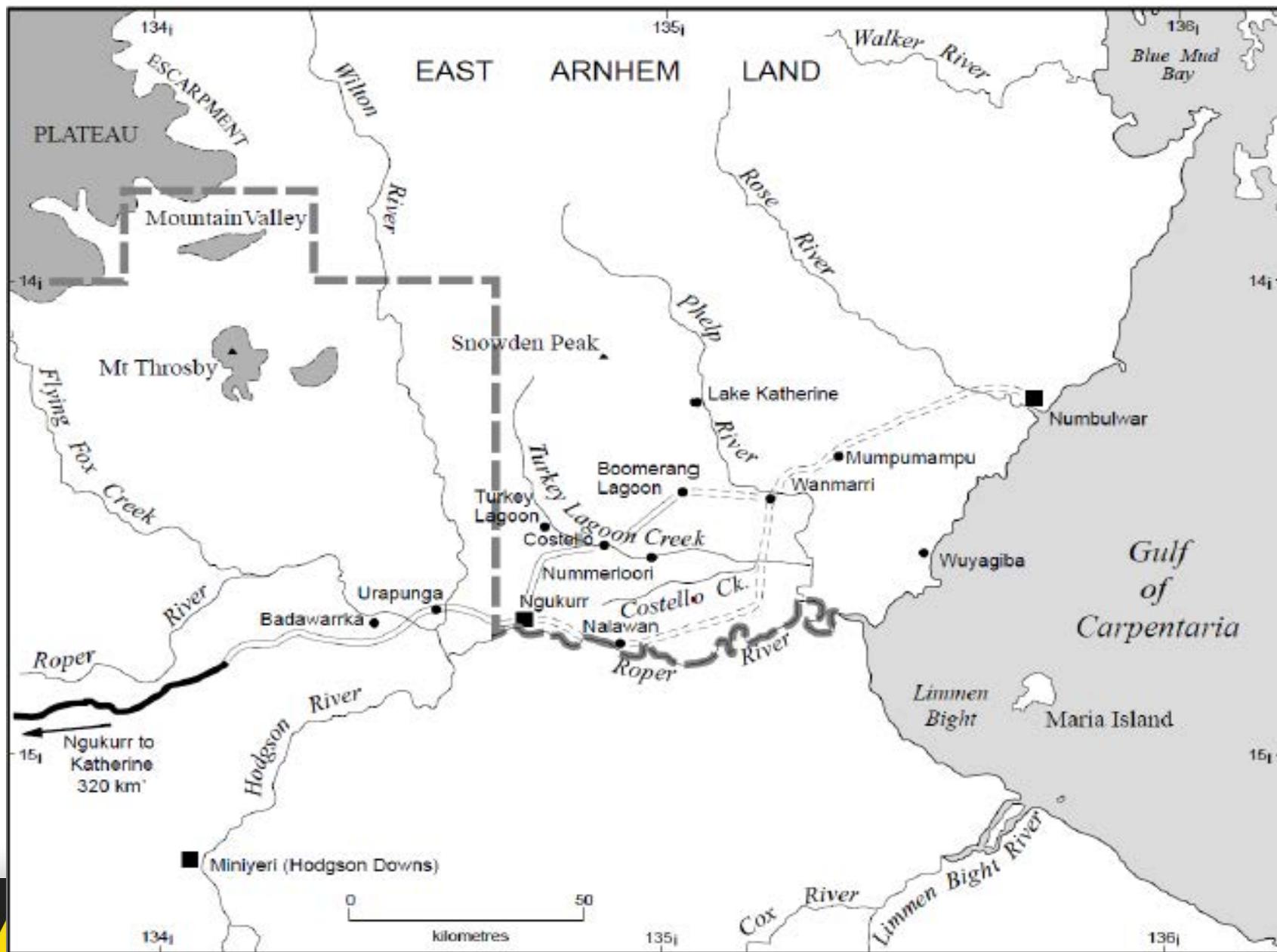


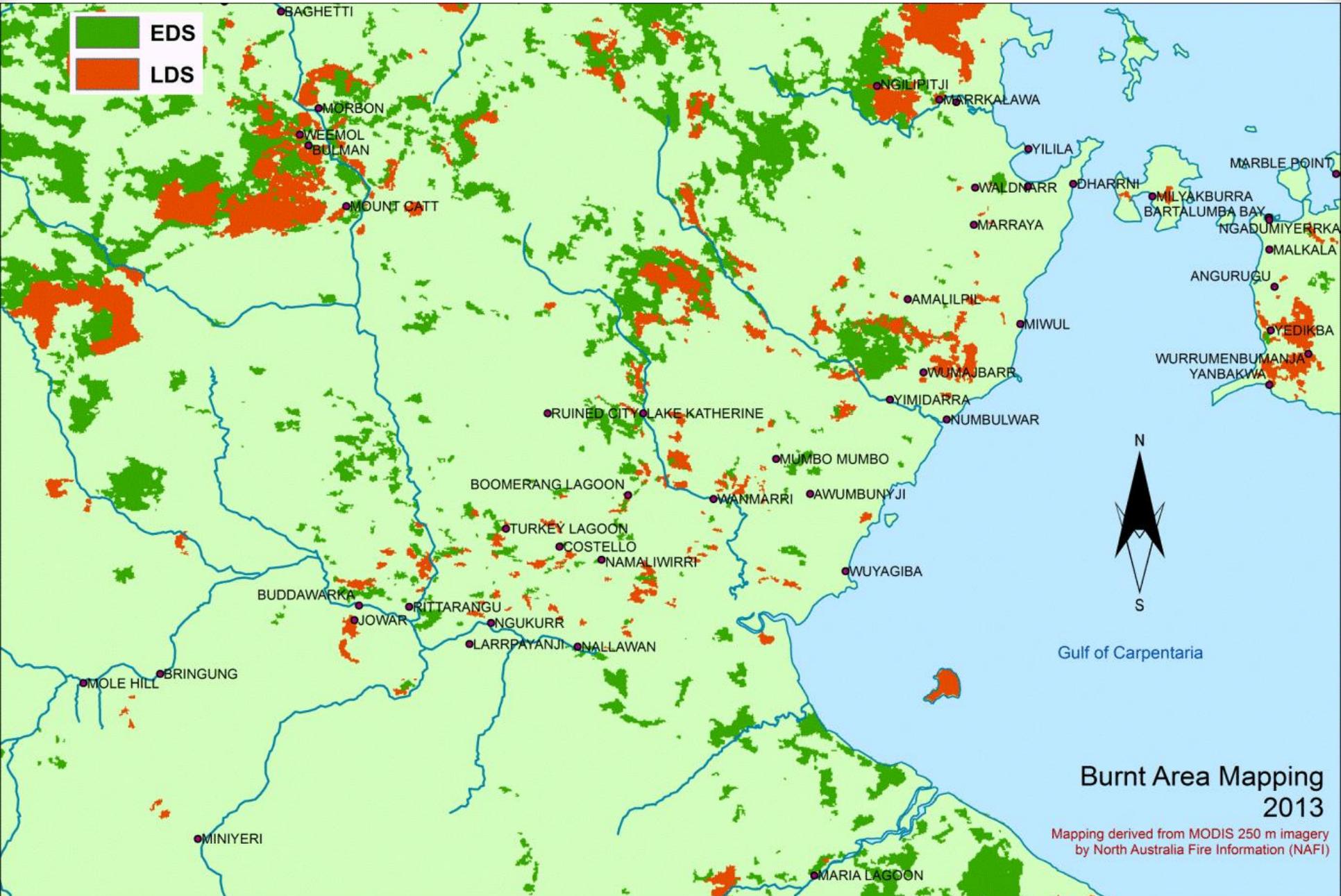
Image © 2015 DigitalGlobe



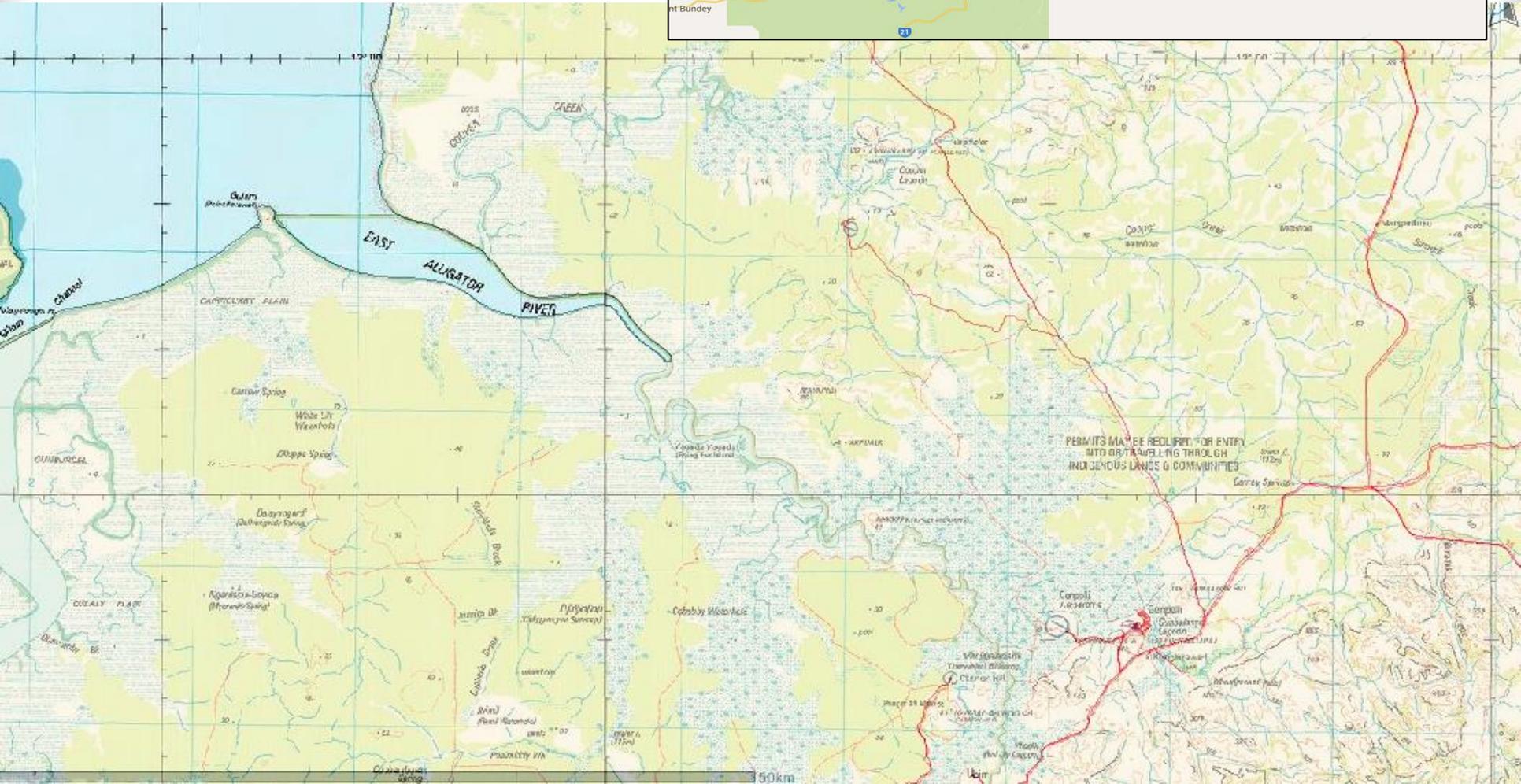
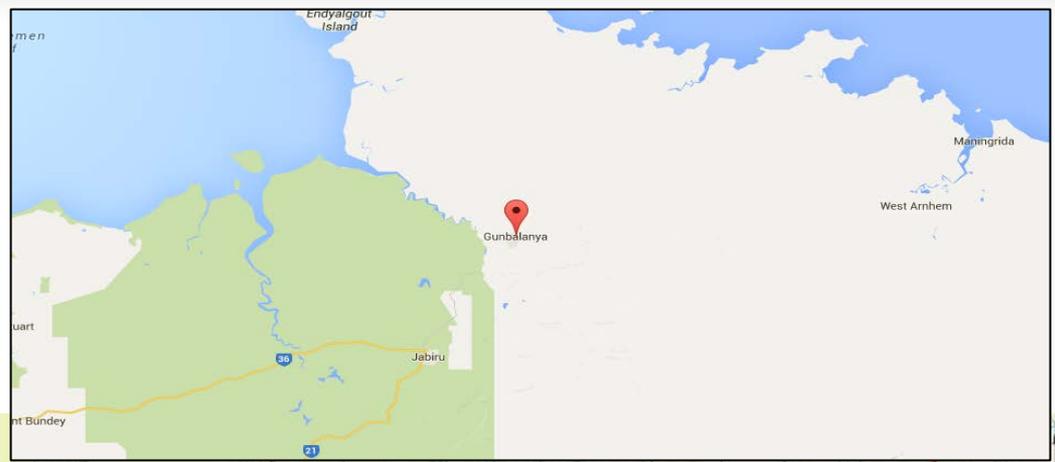
Ngukurr outstations (NAILSMA 2014)



Bushfires (NAILSMA 2014)



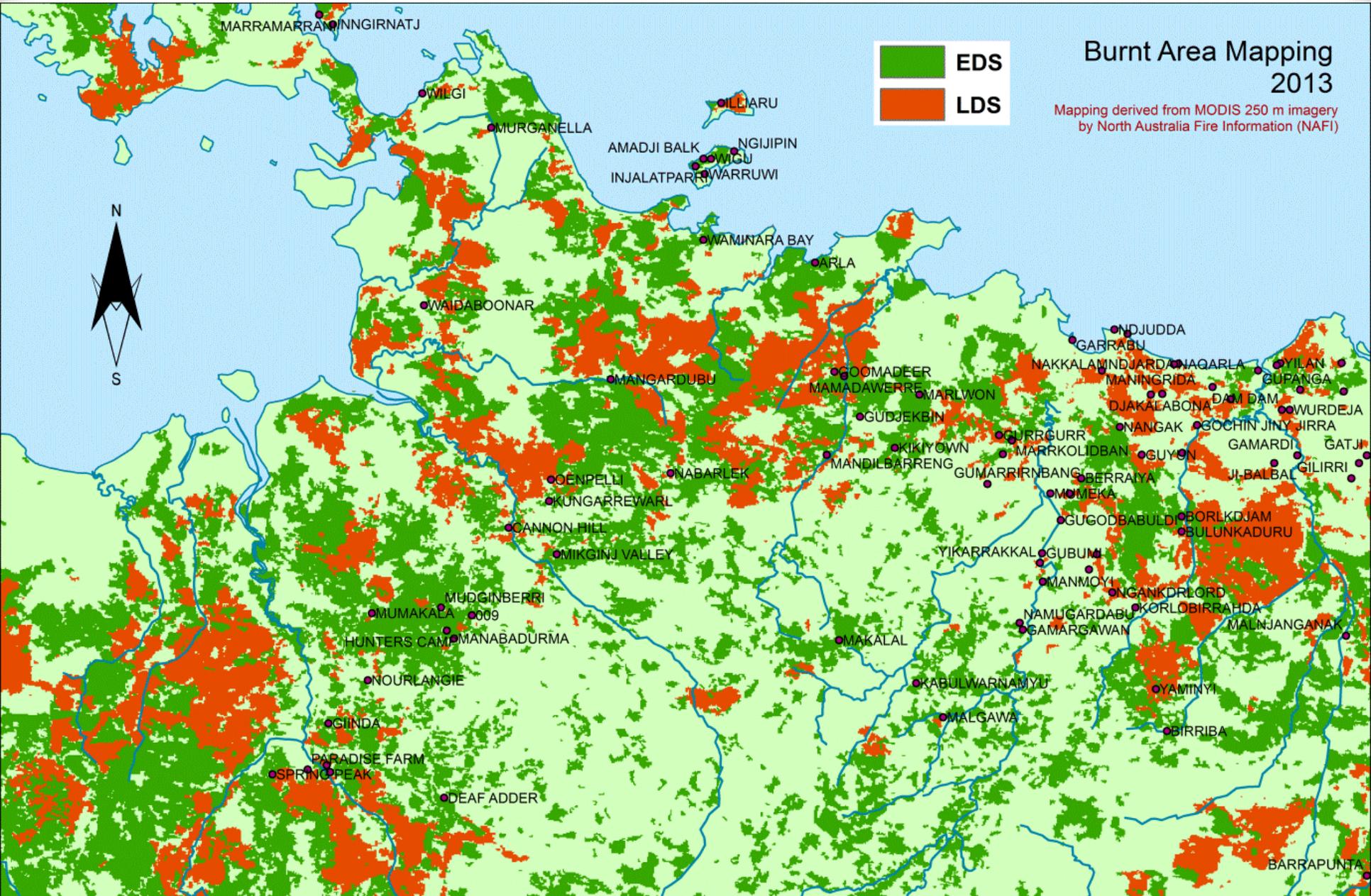
GUNBALANYA



GUNBALANYA



Bushfires (NAILSMA 2014)



Socio-economics issues

Income: mostly welfare payments

Housing: poor, box like structures, often crowded - leading to domestic issues

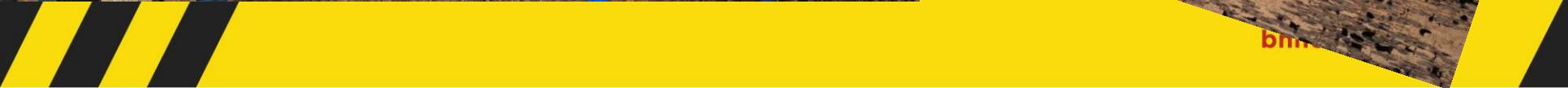


Socio-economics perspectives

School: up to year 10, with little inclusion of Indigenous knowledge

Government institutions: poor performance, enforcement of govt. policies (top to bottom approach)

Local capacity: local knowledge but with little integration into current policies



EXISTING ECONOMIC OPPORTUNITIES

...little

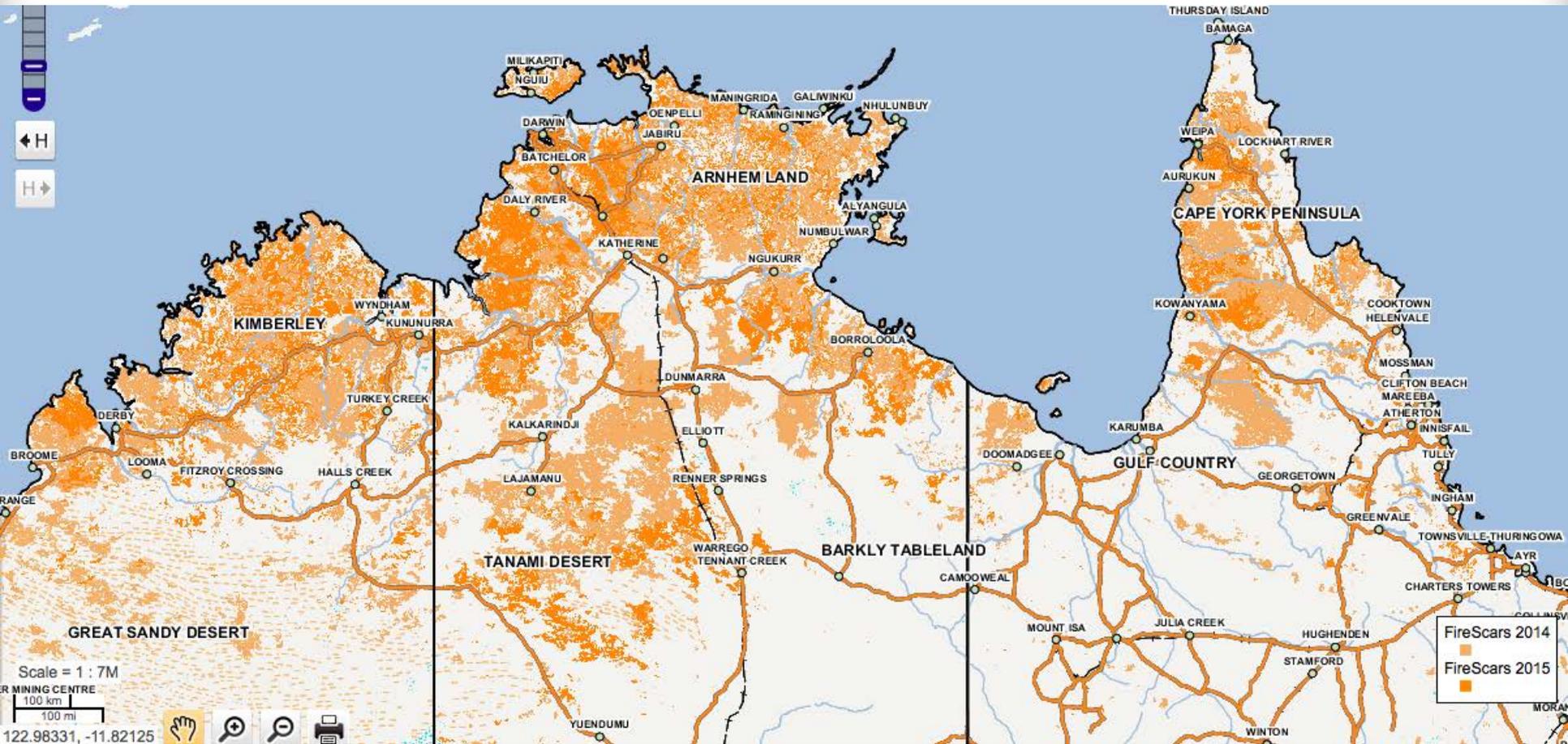
Given the remoteness,
vastness, lack of human
resources (1 person/7 Km²),
infrastructure, fire, floods, etc.

Potential for economic enterprises (PES)

- HIGH
- Indigenous capabilities

How?

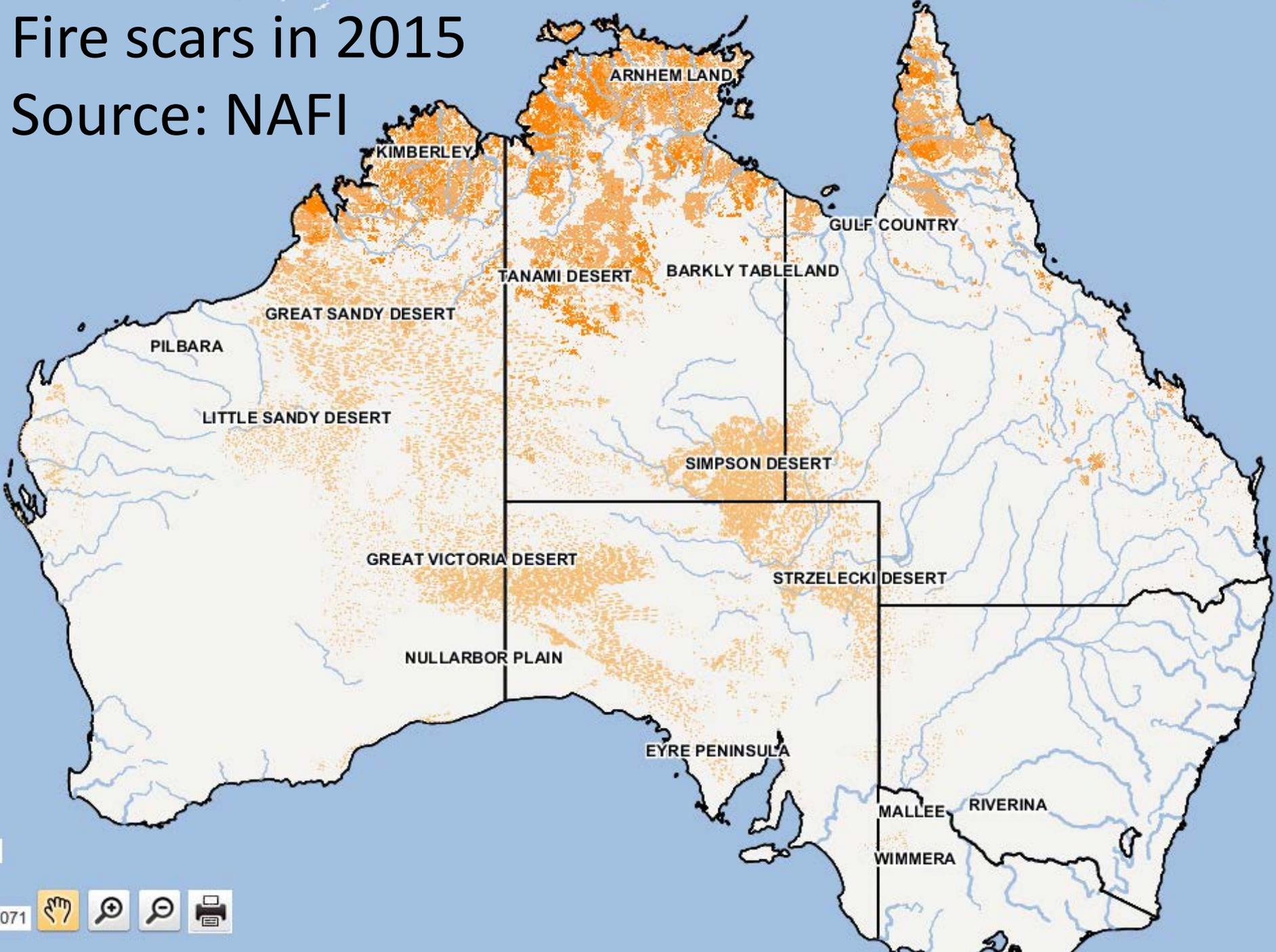
- Vast landscape, highly prone to fire
- High costs associated with fire, if not managed!



FIRE SCARS 2014 AND 2015 (NAFI)

Fire scars in 2015

Source: NAFI



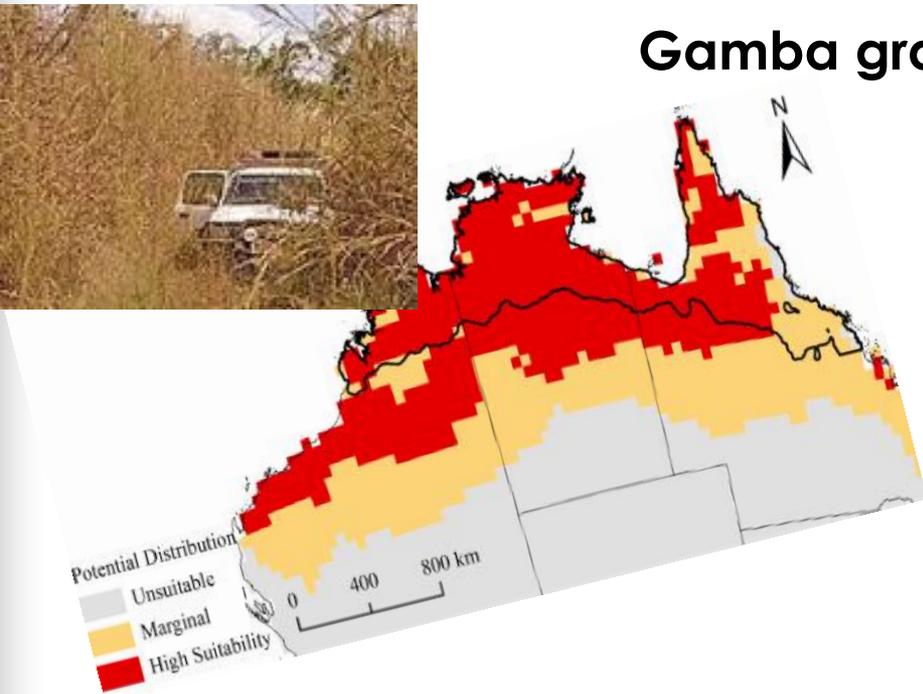
Costs for not managing fire in the savannas

- Loss of community resilience
- Loss of man-made assets (\$)
- Loss of natural assets – ecological diversity, functions and processes
- Community health and safety issues

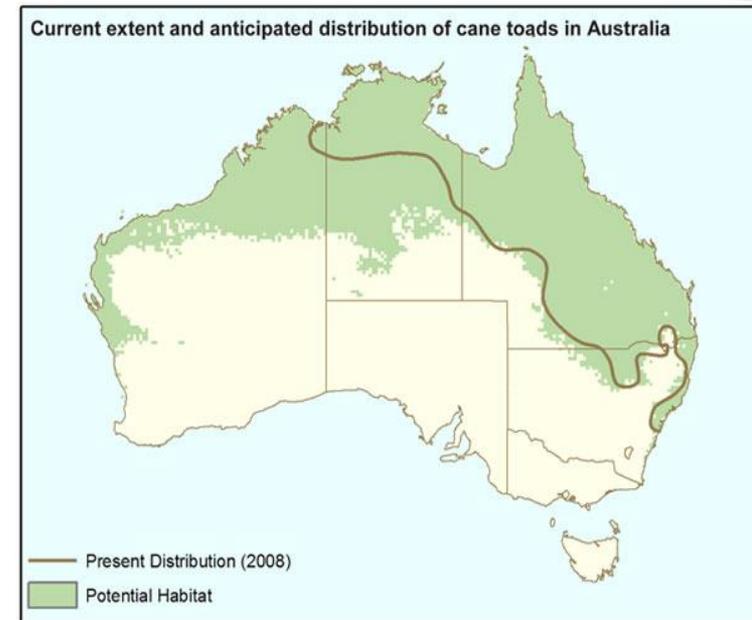
Socio-economic and ecological losses for all of us!

SPREAD OF WEEDS AND PESTS

Gamba grass



Cane toads



Source: Department of the Environment,
Australian Government

A rough estimate for the costs of land/fire mis-management

Total weed and pest costs for savanna region: \$27.74 billion per year

Weed spread (\$100/ha)

Pest spread (\$46/ha)

(source: Natural Resources Division, Department of Natural Resources, Environment, the Arts and Sport, 2010), Murray et al. 2013 & Riggs 2015)

Indigenous welfare costs

- \$43,449/head/year (\$22,500 more than for that non-Indigenous person)
- >50% of this expenditure for safe communities, health and economic participation

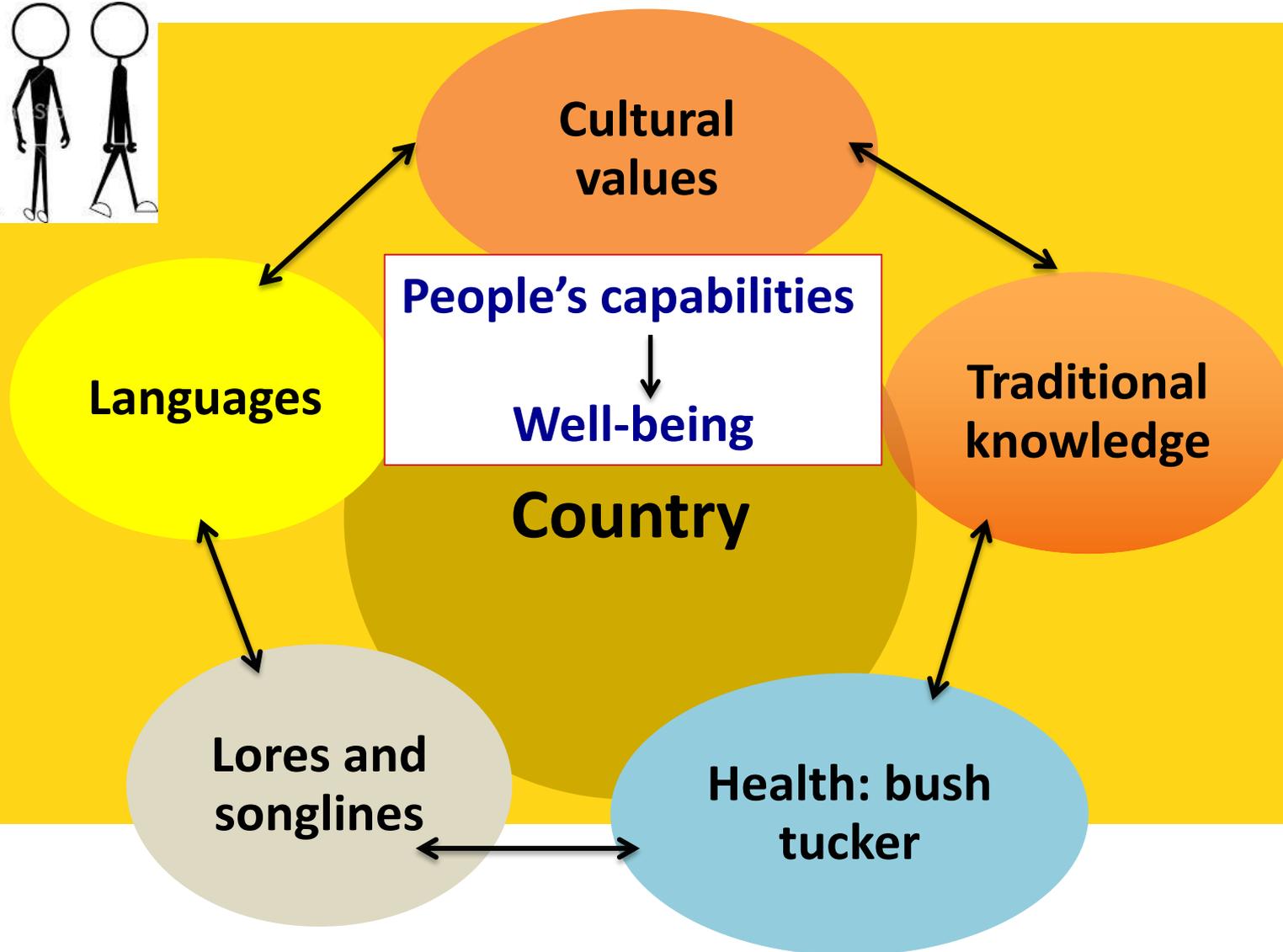
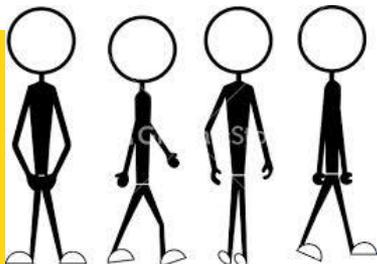
Total welfare costs for Indigenous people living in the savannas: \$4.275 billion/yr

Potential benefits of Indigenous land and fire management:

Multiple benefits!



Country - people

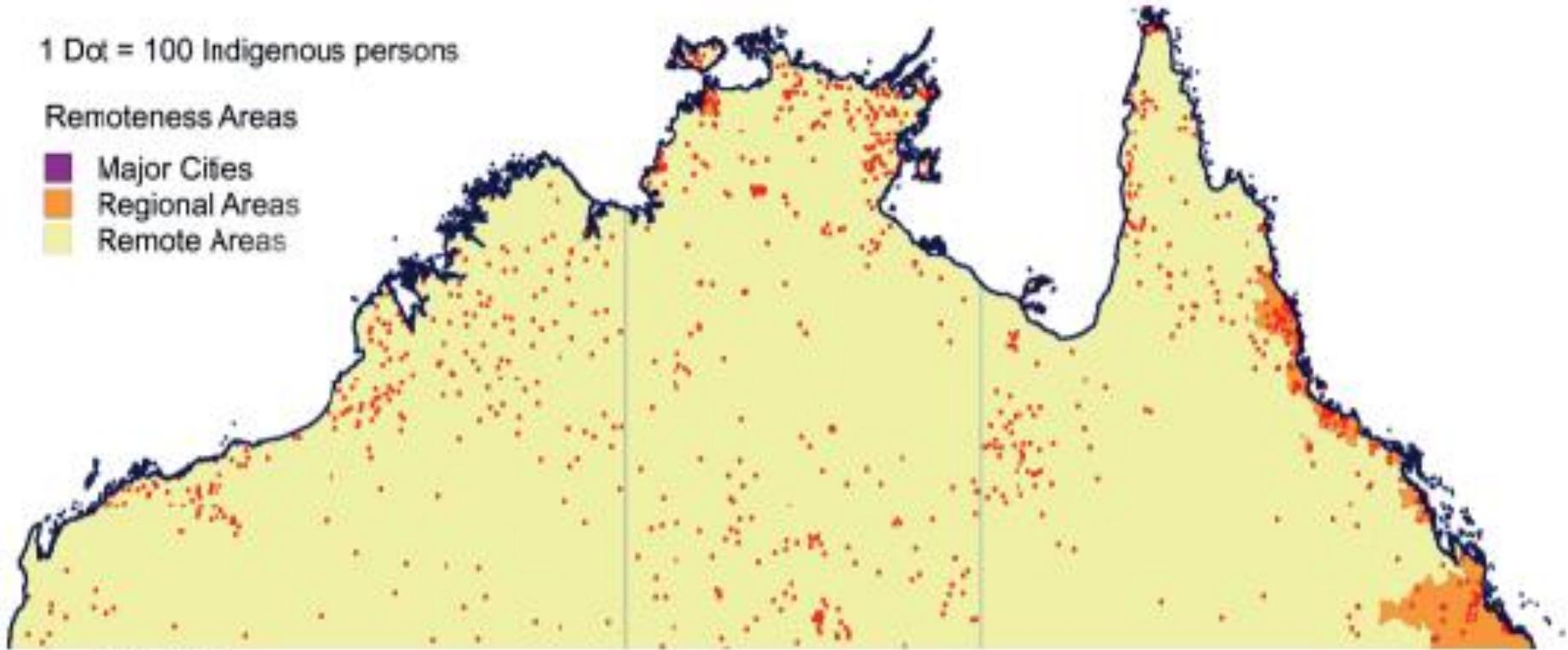


Indigenous population in northern Australia

1 Dot = 100 Indigenous persons

Remoteness Areas

- Major Cities
- Regional Areas
- Remote Areas



Source: ABS, 2010

Benefits of Indigenous fire management

Reducing costs for-

- Environmental management (e.g. soil and water conservation; weed and pest management)
- Indigenous welfare
- Fire management, and
- Saving the costs of human and natural assets – costs of risk management (insurance etc.)

Benefits of Indigenous fire management

- Enhancing community cultural identity, wellbeing and self-esteem



- Community resilience
- Resilience of social and natural systems in the era of climate change

Indigenous fire management can provide many direct and indirect benefits: \$ and non-\$ values



Fire management- C benefits: Ngukurr

C abatement (t/year)

EDS LDS	20%	30%	40%
0%	69,290.80	50,040.67	30,790.54
10%	33,573.47	14,323.34	NA

Value of C: ~ \$500,000 per year (@c price 13.95/t)

Gunbalanya

Price* (\$/t of abatement)	Fire management			
	EDS → LDS ↓	20%	30%	40%
\$10/t	0%	692,908	500,407	307,905
	10%	335,735	143,233	NA
\$15/t	0%	1,039,362	750,610	461,858
	10%	503,602	214,850	NA
\$20/t	0%	1,385,816	1,000,813	615,811
	10%	671,469	286,467	NA

Value of C: ~ \$500,000 – \$1 million per year

Other benefits

- C sequestration can add significant value to abatement figures

Example:

WALFA: C abatement ~140,000 t CO₂-e/yr

Total including C sequestration: 1.227 m t CO₂-e/yr

- Biodiversity credits

Economic opportunities

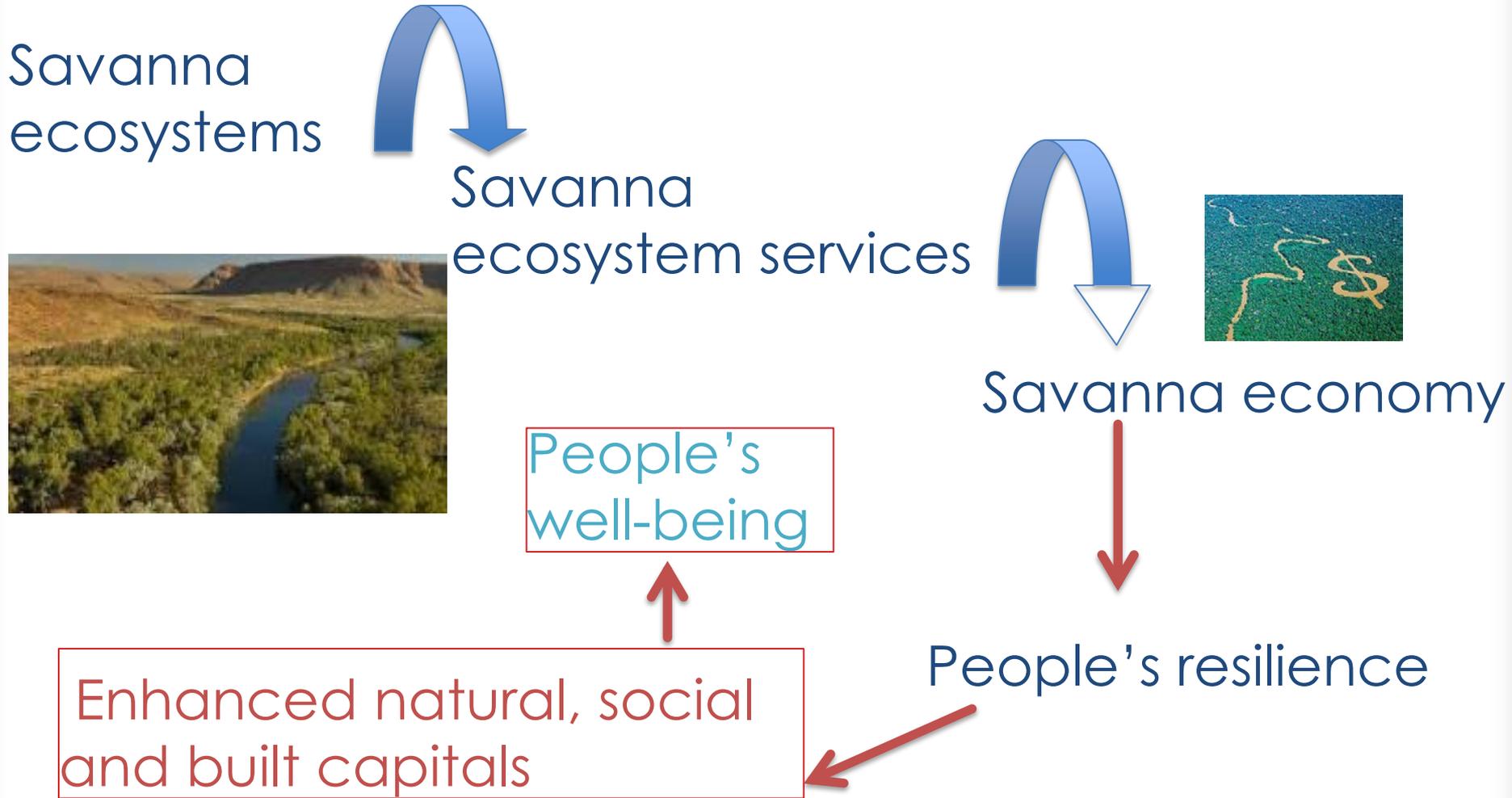
Need to account for all the co-benefits of fire management: on-site as well as off-site



Major non-\$ benefits of fire management

- Well-being of people living on land, and also
- Well-being of people living away from land

Savanna economy



PES: Payments for ecosystem services (ES)

Organizations



\$\$\$\$



People on country



Land and fire management

Australian public



Valuation, policy framework and regulations



Benefits



Payments for maintaining country

- Responsibility
- Strong commitment



PES



PES can deliver culturally appropriate opportunities for providing ongoing support for local communities to be resilient in the event of severe incidents.

**A win-win situation for the
Government, Australian public
and for the Indigenous people!**



Northern Development

Future directions

Preliminary meetings to seek community views on PES – Ngukurr, Borroloola and Robinson river

To do....

- Conduct focus group meetings with several communities in the region
- Conduct valuation studies
- Develop a PES policy framework – a book to be compiled by mid-2017
- Incorporate pasture production systems for ‘diversification’ – developing complementary economies
- Collaborate with Northern Development CRC

THANKS

