



**Global perspectives on the future:  
What matters for the Torres Strait?**

[www.csiro.au](http://www.csiro.au)

**Erin Bohensky, CSIRO Ecosystem Sciences, Townsville, Australia  
Torres Strait Futures Workshop 22-23 October 2012**



# Navigating a complex future

- Uncertainty and limited ability to predict
- History doesn't always repeat
- Future is shaped by different perceptions, values, beliefs and behaviours
- ‘Reflexivity’ - expectations change everything
- ‘Short-termism’ - we can’t see the years for the days

# Megatrends

## More from less

### Great expectations

Consumer and societal expectations for services, experiences and social interaction

### ... going, going ... gone?

A window of opportunity to protect habitats, biodiversity and the global climate

### Virtually Here

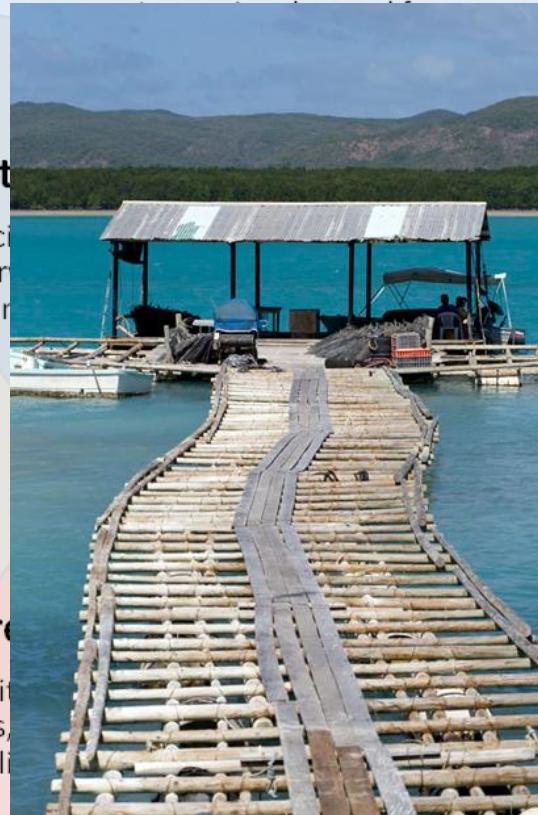
Increased connectivity impacting shops, offices, governance models and life

### The silk highway

Rapid economic growth in Asia and the developing world

### Forever young

An ageing population, rising healthcare expenditure and changed retirement models



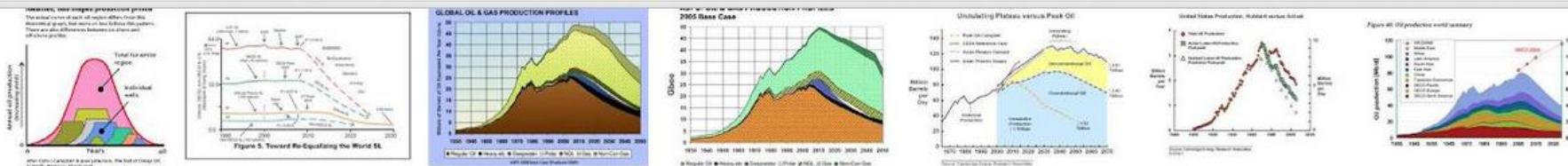
# “More from Less”



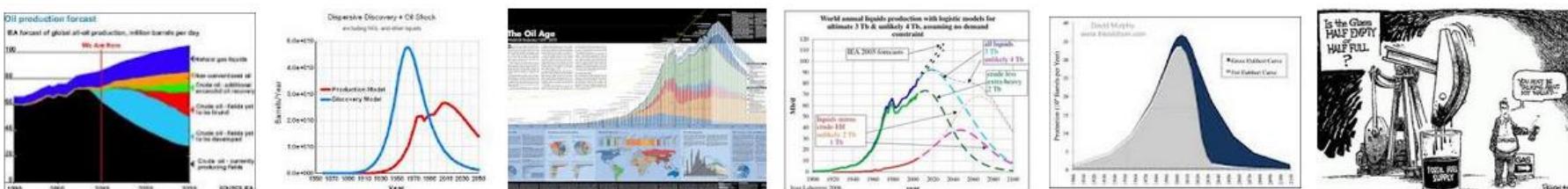
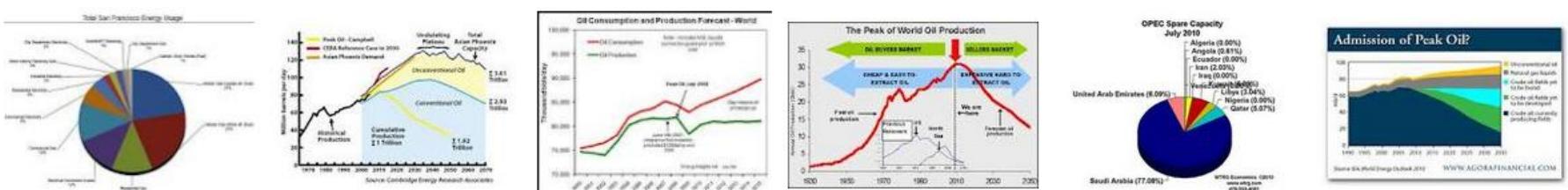
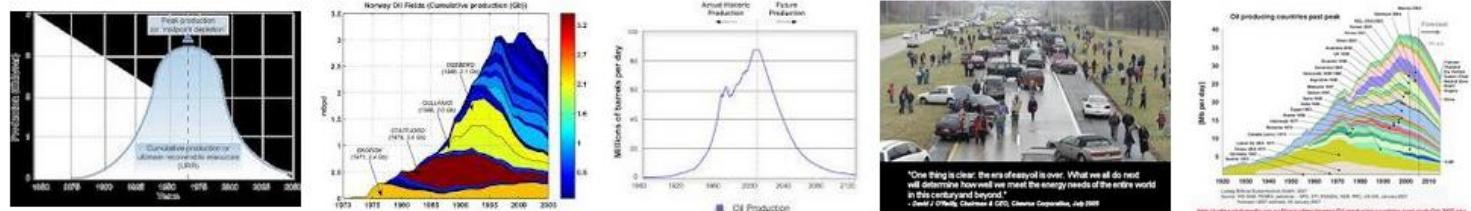
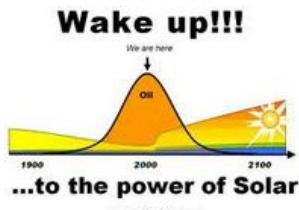
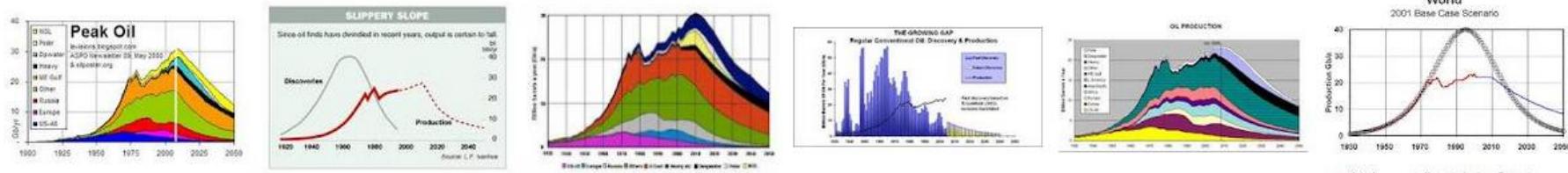
**"One thing is clear: the era of easy oil is over. What we all do next will determine how well we meet the energy needs of the entire world in this century and beyond."**

*- David J O'Reilly, Chairman & CEO, Chevron Corporation, July 2005*

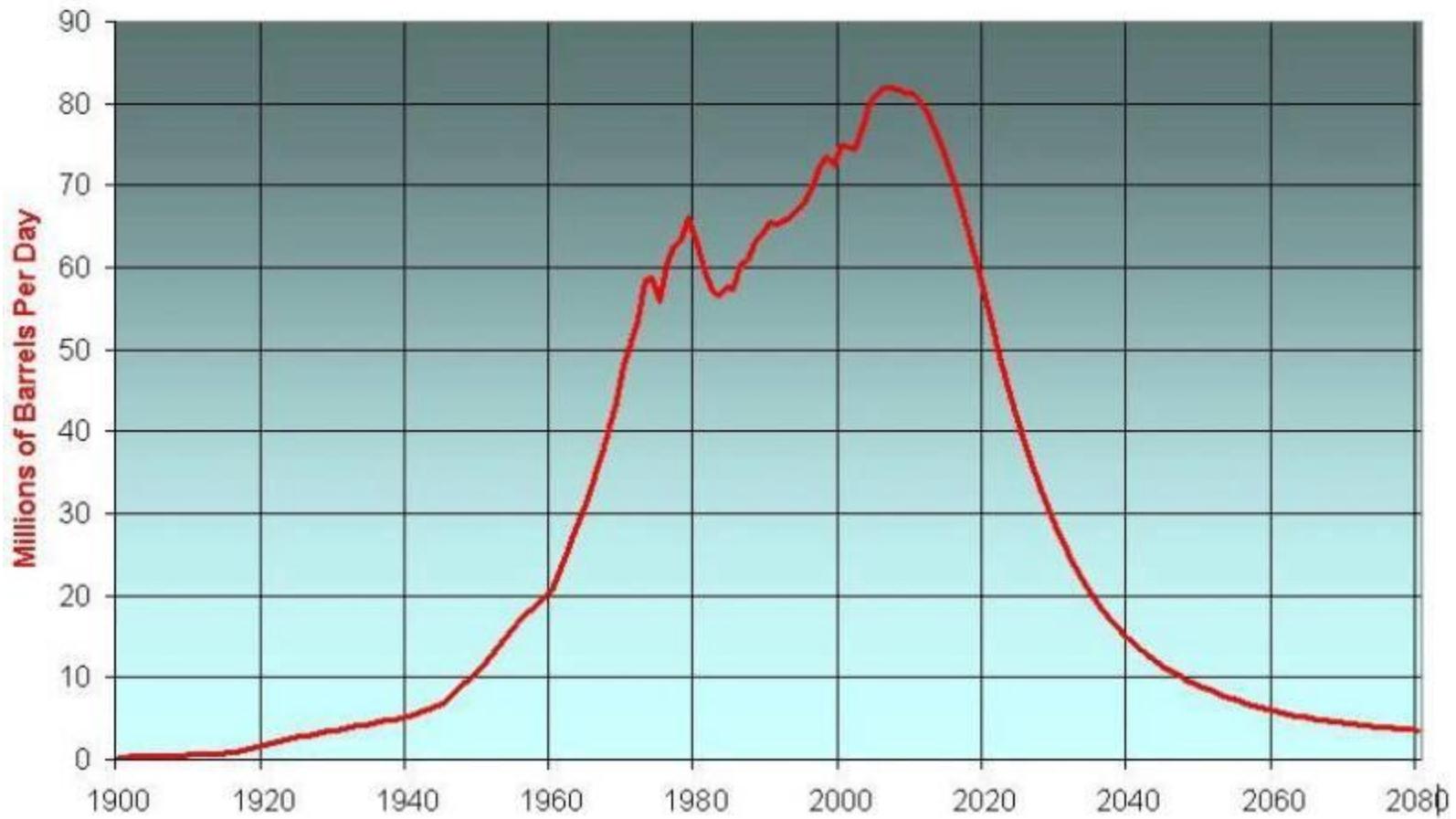
# Google image search “peak oil”



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## World Oil Production 1900-2080



# Renewable energy



Technical Brochure No. 121

Australia

**CADDET IEA  
renewable energy OECD**

**Wind Power for a Remote Island Community**

**Highlights**

- ▼ Reduces fossil fuel use by nearly 10%
- ▼ Reduces greenhouse gas emissions by about 1,385 tonnes/year
- ▼ Saved A\$ 303,500 in fuel costs in the first year

**Summary**

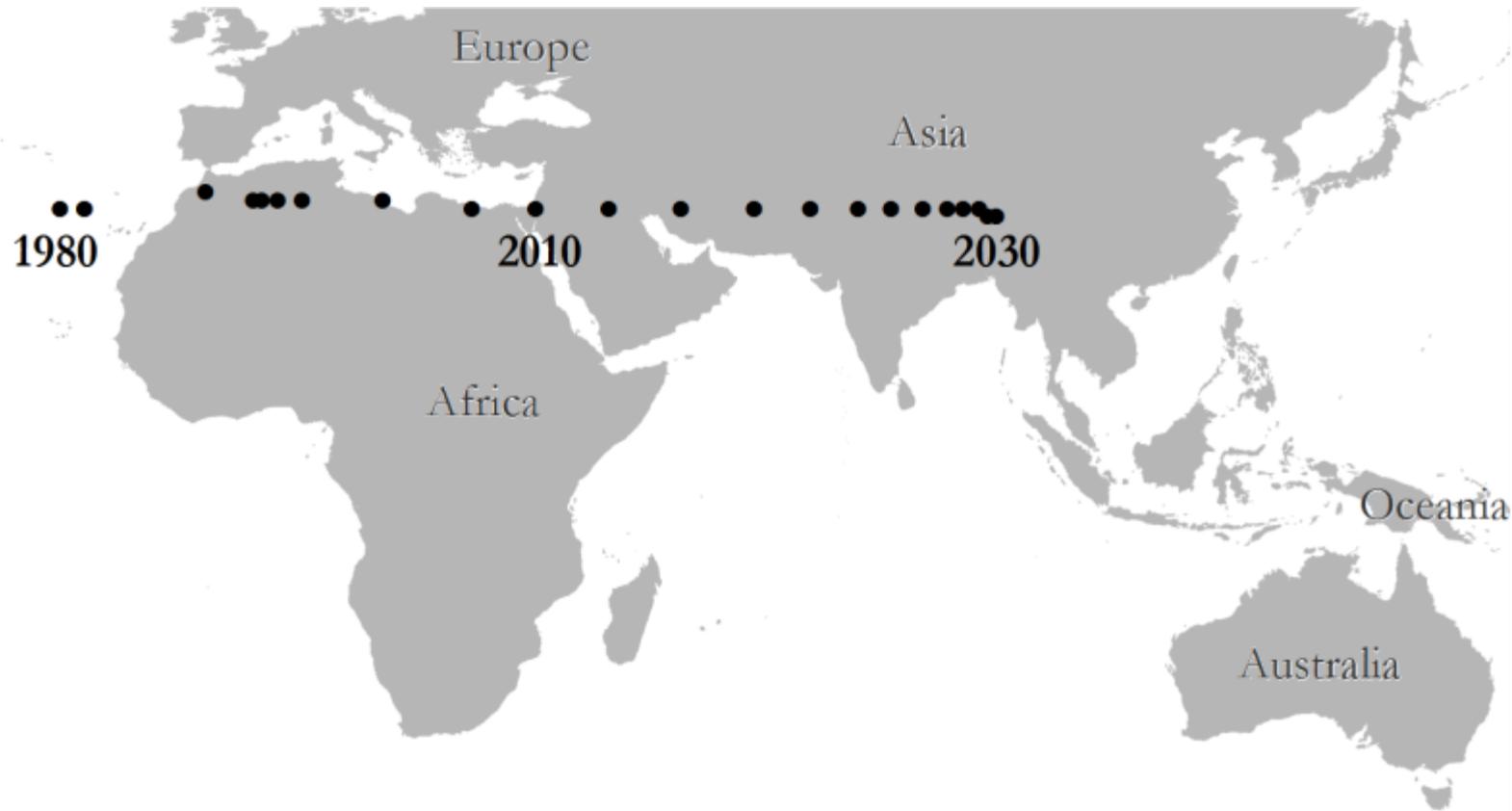
Two wind turbines meet almost 10% of the electricity needs of Thursday Island. This remote community is located in the Torres Strait, 800 km north of Cairns between mainland Australia and Papua New Guinea. Previously, it had relied solely on diesel power generation, consuming 3.6 million litres/year of diesel. The wind turbines produced 1,682 MWh of electricity in the first year of operation, which exceeded expectations. If the turbines continue to perform at this level, the project payback period could be seven years – two years less than originally expected. Community acceptance of the turbines is very high, demonstrating the benefits of keeping the public informed throughout the planning and construction of this type of project.

The wind turbines on Milman Hill, Thursday Island.

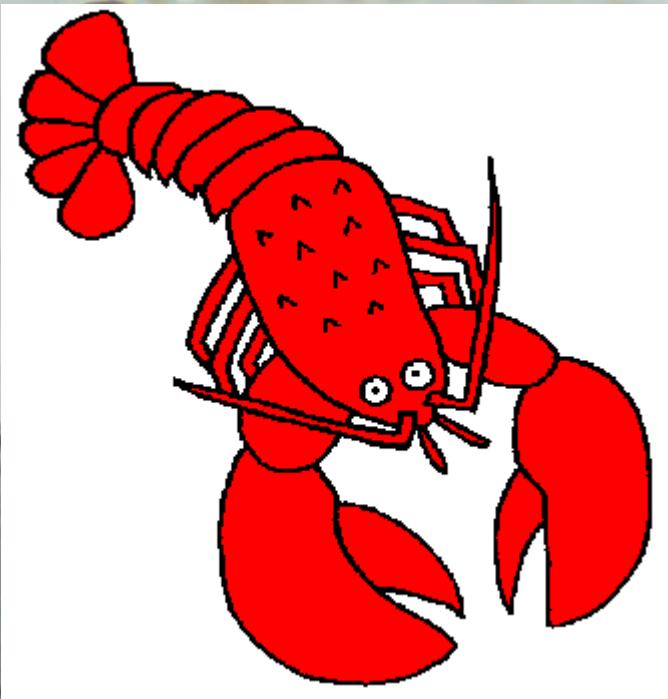
WIND ENERGY

# “Silk Highway”

The shifting hotspot of world economic activity



Source: Quah, 2011; Global Policy



# Change in China

From the early 1990s to the late 2000s China changed it's share of the world's ...

Champagne imports from 0.1% to 0.3%

Gross Domestic Product from 3.5% to 11.4%

Steel production from 12.4% to 38.8%

Poor people living on less than US\$1.25 per day from 37.6% to 15.1%

Trademarks (held by residents) from 5.9% to 31.7%



# Shipping

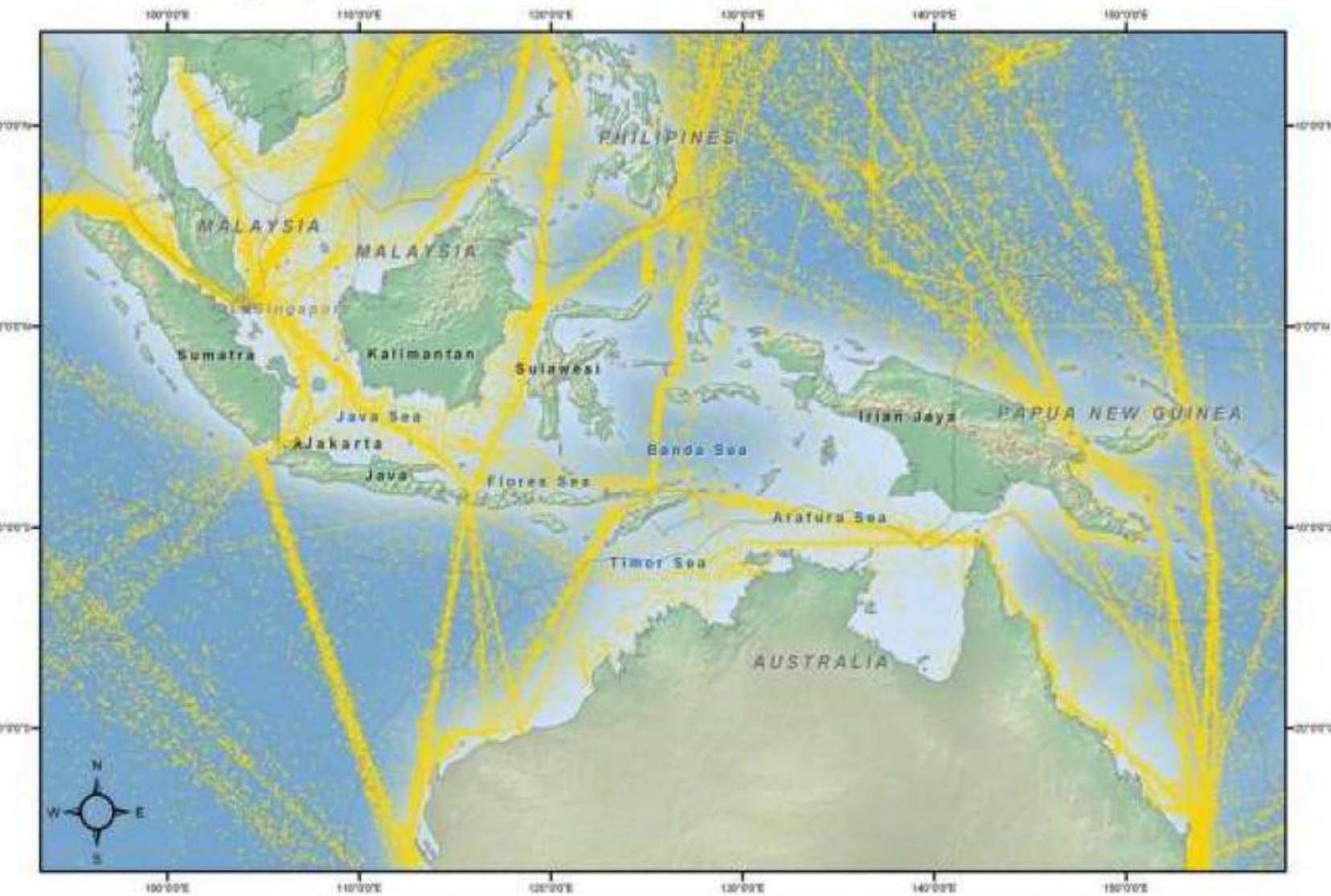
“Shipping growth in Australia is anticipated to be in the order of 80 per cent over the next decade.

For example, the Bureau of Resources and Energy Economics Gas Markets Report, forecasts national exports of LNG will more than triple to 63 million tonnes per annum by 2016-17.

All of this trade will be moved by ships.”

- Anthony Albanese MP, Minister for Infrastructure and Transport,  
NATSHIP Conference 2012

# Shipping Routes from Observed Ship Reported Positions 2010



Created in ArcGIS 9.2  
for EcoStrategic Consultants  
Coastal and Ocean Management  
December 2010

## Legend

■ Vessel Positions      □ EEZ Limits

0 125 250 500 750  
Nautical Miles

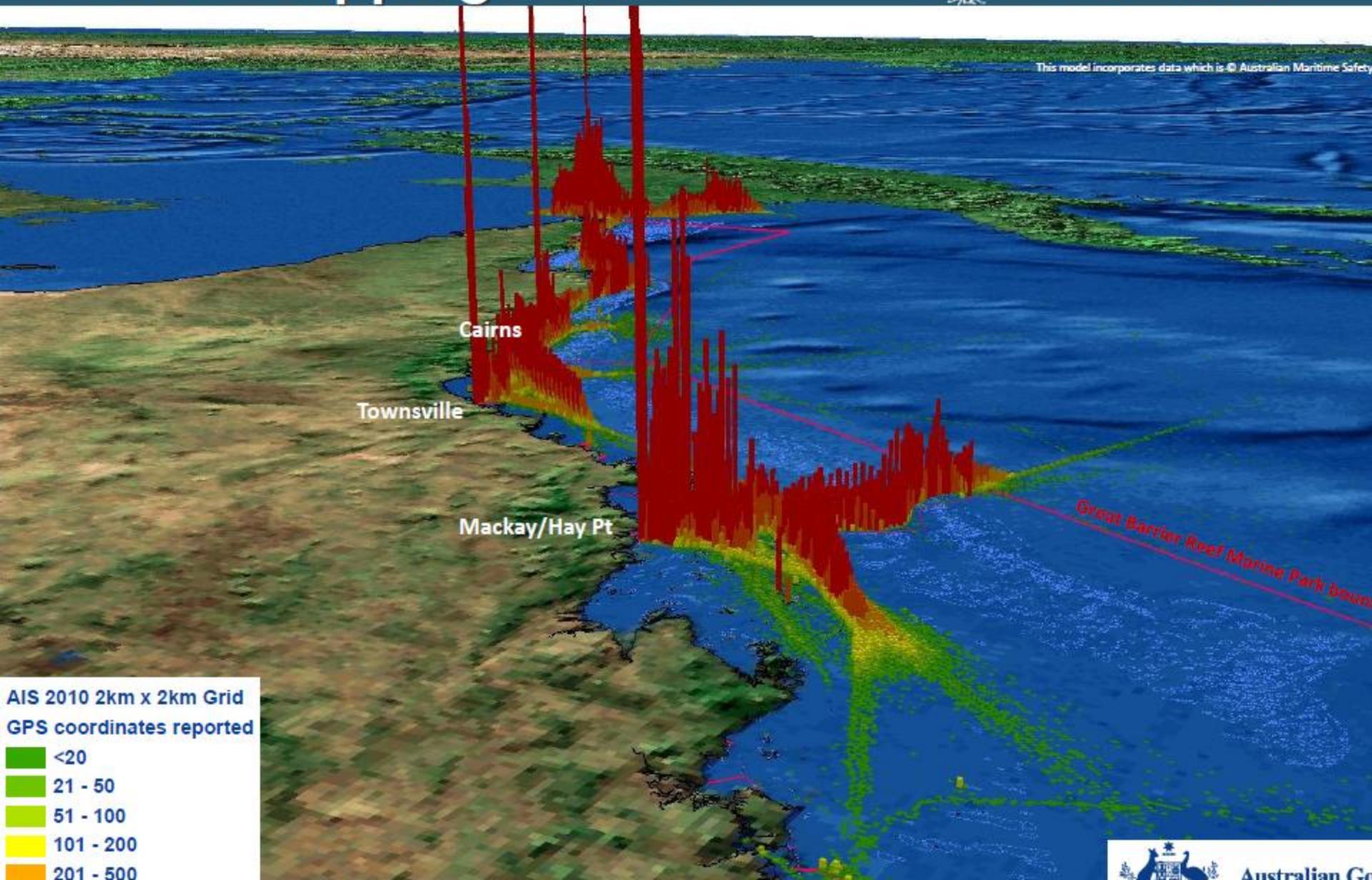


# Expected trend using a trebling of reports for future shipping volumes



Australian Government  
Great Barrier Reef

This model incorporates data which is © Australian Maritime Safety Authority



Australian Go

# “Virtually Here”

## Internet

The 2011 ABS Census showed that 62 per cent (131,345) of Aboriginal and Torres Strait Islander households have an internet connection, the vast majority of those connections being broadband.



# “Virtually Here”

## Social media

Thursday, 9 August 2012

### Indigenous media strengthens identity

Indigenous media is critical to demystifying Indigenous culture and strengthening our identity, Aboriginal and Torres Strait Islander Social Justice Commissioner Mick Gooda said today.

Marking International Day of the World's Indigenous Peoples and the 2012 theme of *Indigenous Media, Empowering Voices*, Commissioner Gooda said Australia's Indigenous media outlets played a valuable role in challenging stereotypes.

"It's often complex for mainstream media to portray Indigenous issues accurately and realistically, and sometimes, despite good intentions, this portrayal reinforces damaging stereotypes," Commissioner Gooda said.

"Australia's Indigenous media outlets have a vision and breadth which gives Aboriginal and Torres Strait Islander peoples the information we need on the things we're interested in, through an Indigenous lens.

"The UN Secretary General Ban Ki-Moon has called on nations around the world to create and maintain opportunities for Indigenous peoples to articulate their perspectives, priorities and aspirations," he said.

"I call today on Australian governments to support these efforts by fully implementing the Declaration."

Commissioner Gooda said the Declaration, which provided a blueprint for *Indigenous peoples and governments around the world to respect the rights and roles of Indigenous peoples, would be the main focus of the newly created Aboriginal and Torres Strait Islander Strategic Dialogue Group*.

"I welcome the establishment of the Aboriginal and Torres Strait Islander Strategic Dialogue Group (ATSISDG). It is an important development in the protection and promotion of Aboriginal and



## All Results

**Torres Strait Islander Dancing and Singing**

Organization · 1,080 likes

Like

**Torres Strait Islanders**

Interest · Community Page · 461 likes

Like

**Torres Strait**

Interest · Community Page · 123 likes

Like

**I'M PROUD TO BE A TORRES STRAIT ISLANDER**

Public Figure · 2,598 likes

Like

**Torres Strait Island Media Association**

Non-Profit Organization · 294 likes

Like

**Torres Strait Islanders On-line Television**

TV Network · 248 likes

Like

**Rhubee Neale**

Worked at Aboriginal and Torres Strait Islander Grapevine

Studied at The Eora Centre for Indigenous and Performing Arts

Lives in Alice Springs, Northern Territory

2 mutual friends · Send message

**The Torres Strait Islander Flag**

Public Figure · 261 likes

Like

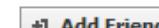
**Barbara Dawn Leftwich**

Worked at Aboriginal Hostels Limited Townsville (Assistant Manager)

Studied at Cairns State High School

Lives in Townsville, Queensland

1 mutual friend · Send message

**Torres Strait Islanders Land and Sea Rights**

Sydney, Australia · Non-Governmental Organization (NGO) · 975 likes

Like



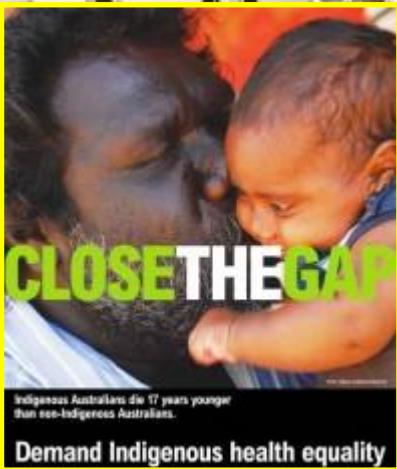
# “Virtually Here”

GPS Technology



# “Great Expectations”

## Basic expectations



24% < US\$1.25/day (47% in 1990)

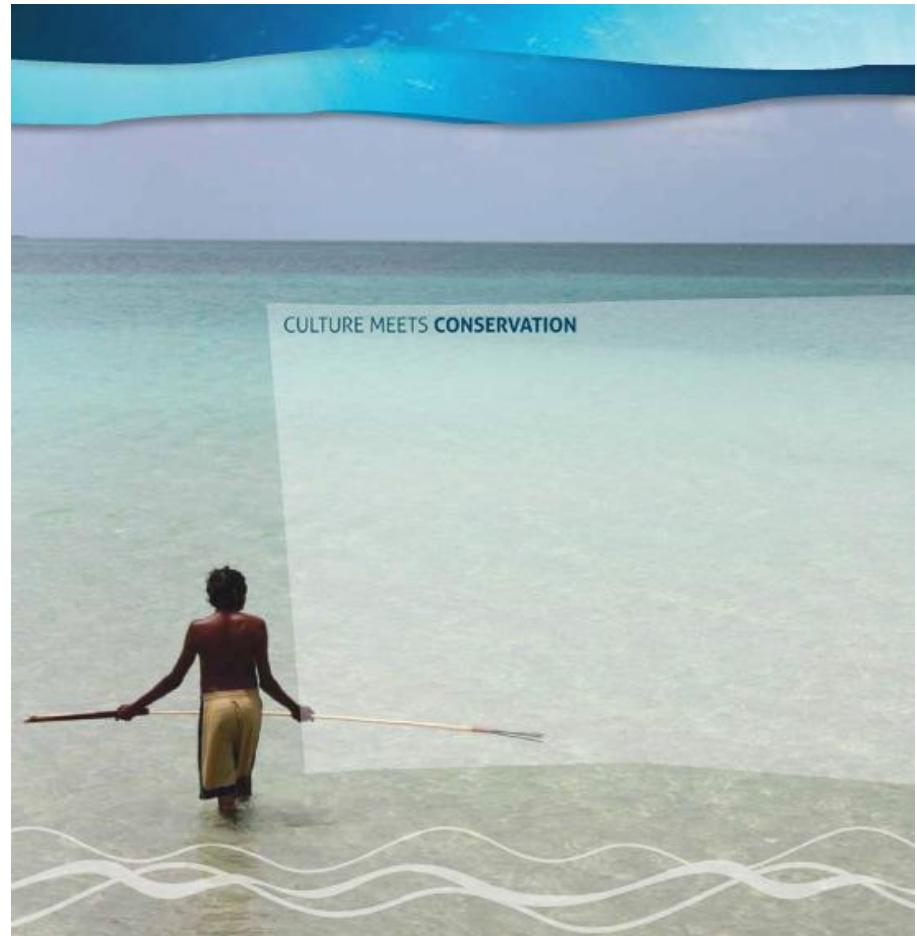
33% of people in urban slums

15.5 percent of the world's population (1 billion) hungry

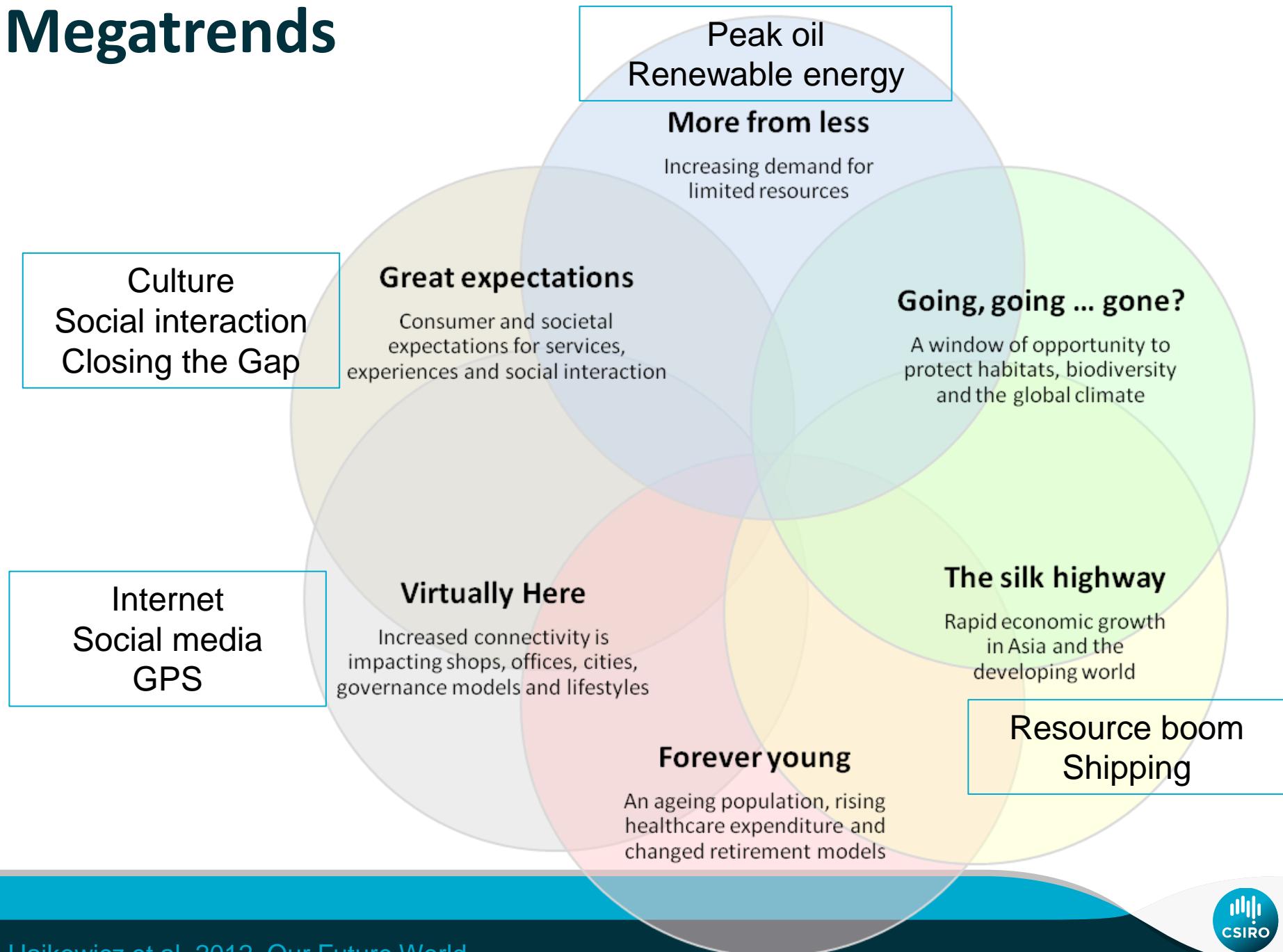
United Nations, 2012

# “Great Expectations”

Culture  
Social interaction



# Megatrends



# Wild Cards and Big Surprises



Who could have predicted?...

## September 11 terrorist attacks



## The Asian tsunami





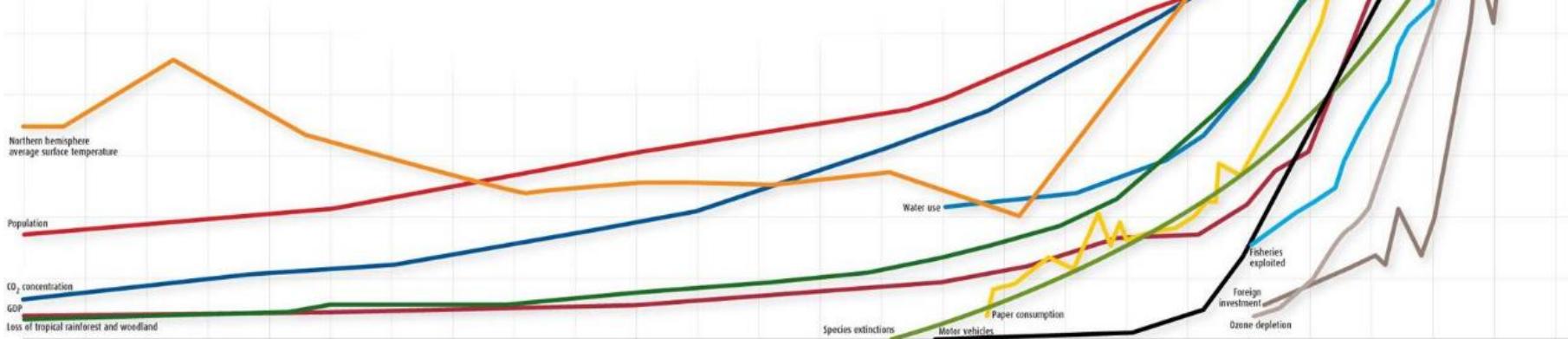
The global financial crisis

# International health epidemics



"The greatest shortfall of the human race is our inability to understand the exponential function"

Prof Albert Bartlett  
Emeritus Professor Physics, Uni. of Colorado



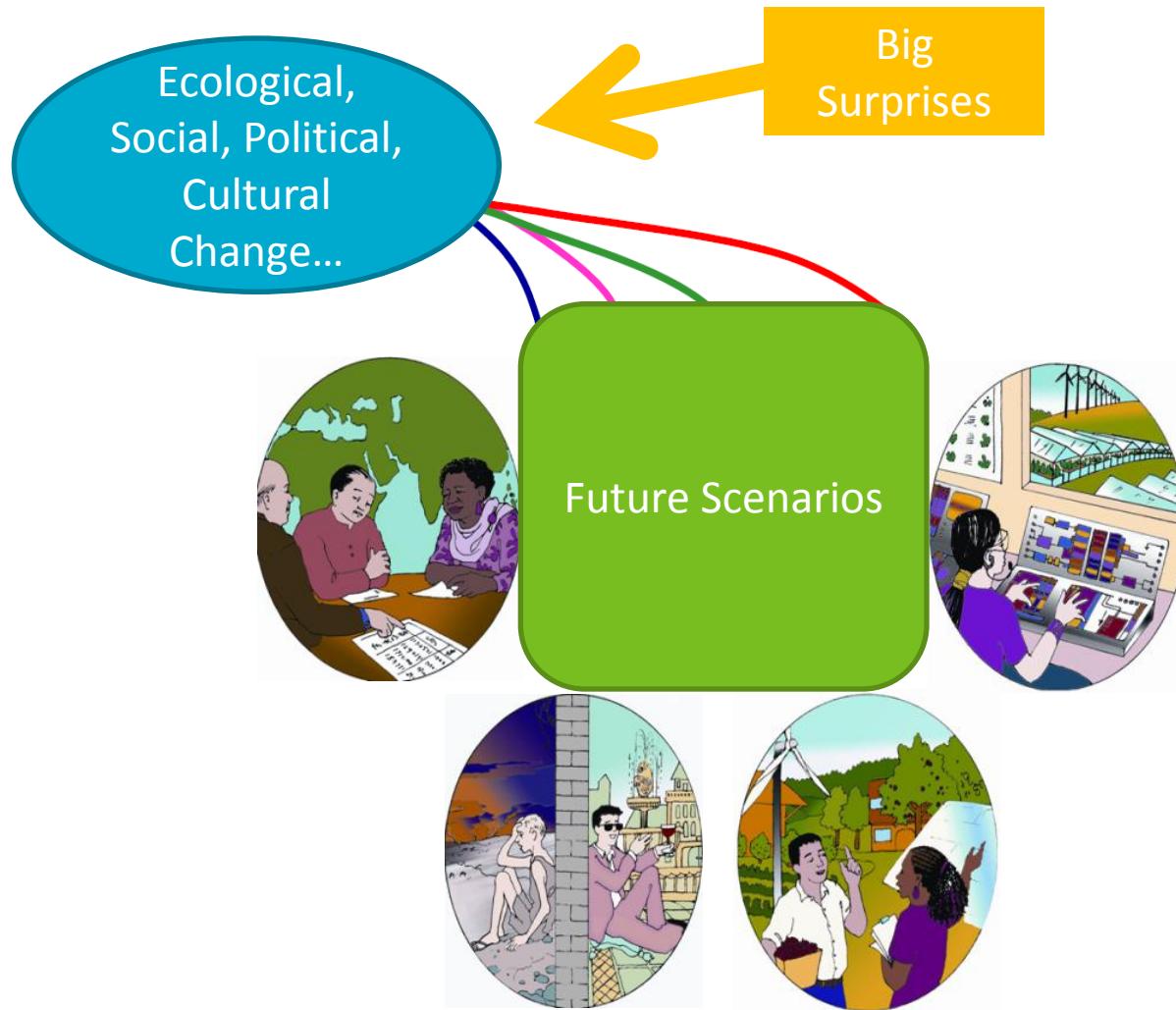
# Facing up to the challenge of the future

- While we can't predict the future, we can better **anticipate and prepare for** shocks
- Futures thinking approaches are designed to think about major ***trends*** (what we know)
  - and how they might combine with major future ***uncertainties*** (what we don't know)
  - from global to local



Saibai Island, Torres Strait, January 2006. Photo: Torres Strait Regional Authority.

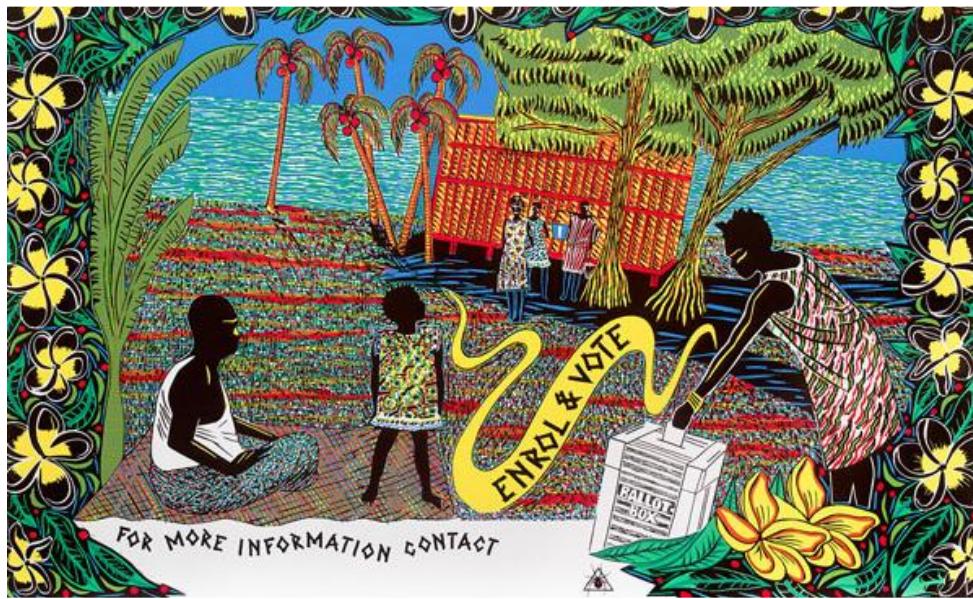
# Making sense of complex change



# Why do global future perspectives matter for the Torres Strait?

- Change happening at multiple scales in time and space
- Decision-thinking around adaptation needs to go beyond short-term
- Important to start a conversation about local responses to global future issues





## CSIRO Ecosystem Sciences

Dr Erin Bohensky

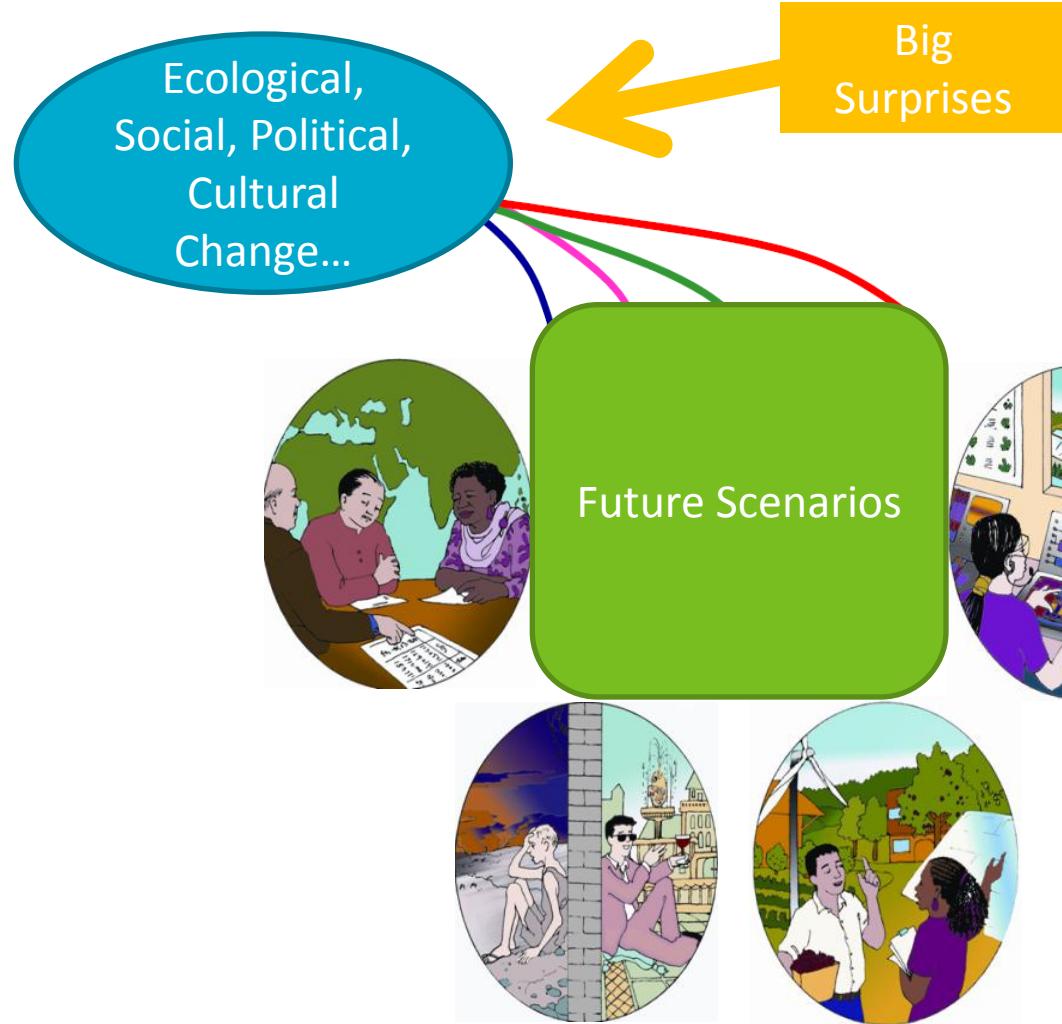
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# Thank you



# Millennium Ecosystem Assessment Global Scenarios



- **Global Orchestration**

Globally connected society that focuses on global trade and economic liberalization and takes a reactive approach to ecosystem problems but that also takes strong steps to reduce poverty and inequality and to invest in public goods such as infrastructure and education.



- **Order from Strength**

Regionalized and fragmented world, concerned with security and protection, emphasizing primarily regional markets, paying little attention to public goods, and taking a reactive approach to ecosystem problems.

# Millennium Ecosystem Assessment Global Scenarios



- **Adapting Mosaic**

Regional watershed-scale ecosystems are the focus of political and economic activity. Local institutions are strengthened and local ecosystem management strategies are common; societies develop a strongly proactive approach to the management of ecosystems.

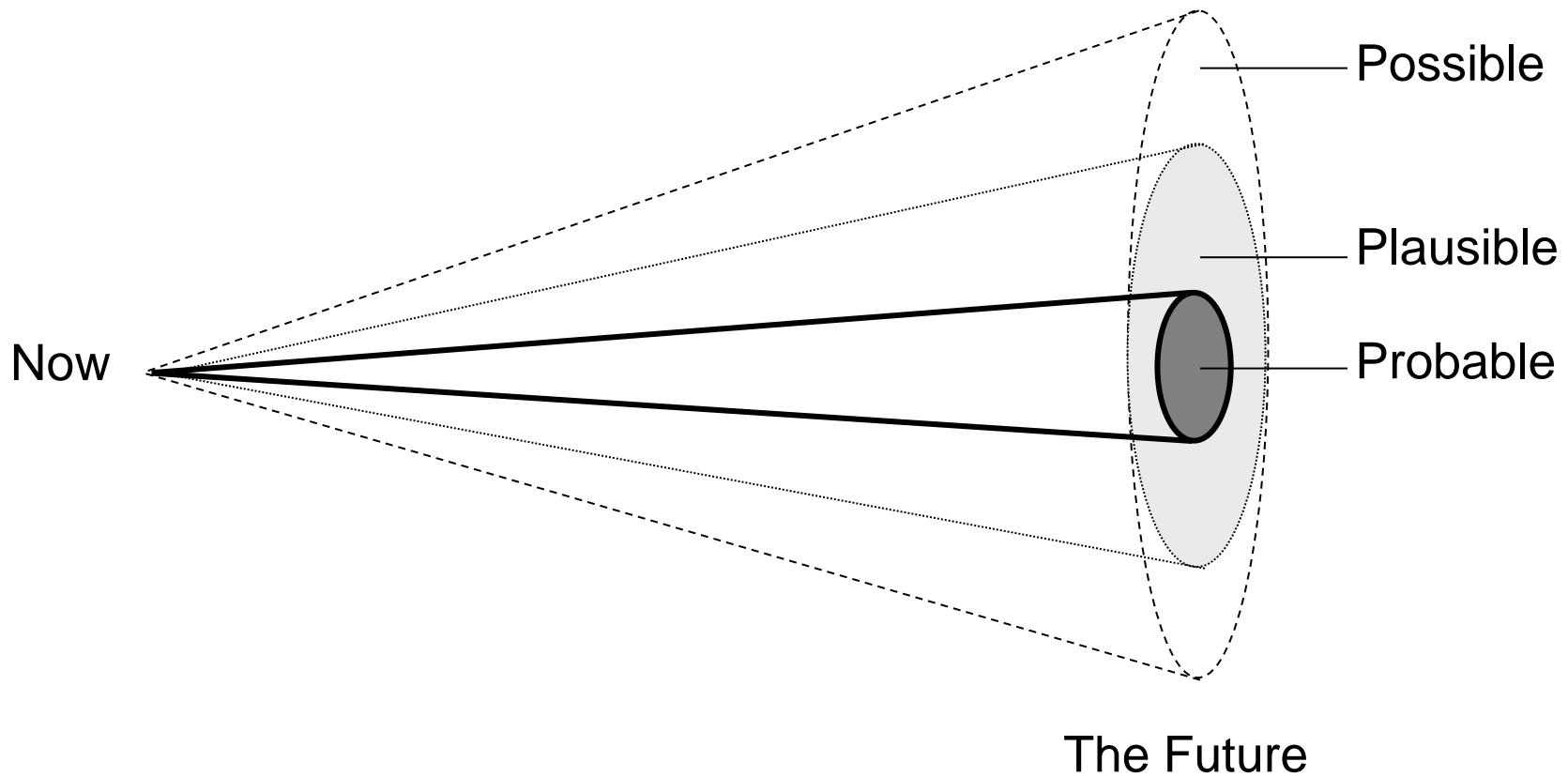


- **TechnoGarden**

Globally connected world relying strongly on environmentally sound technology, using highly managed, often engineered, ecosystems to deliver ecosystem services, and taking a proactive approach to the management of ecosystems in an effort to avoid problems.

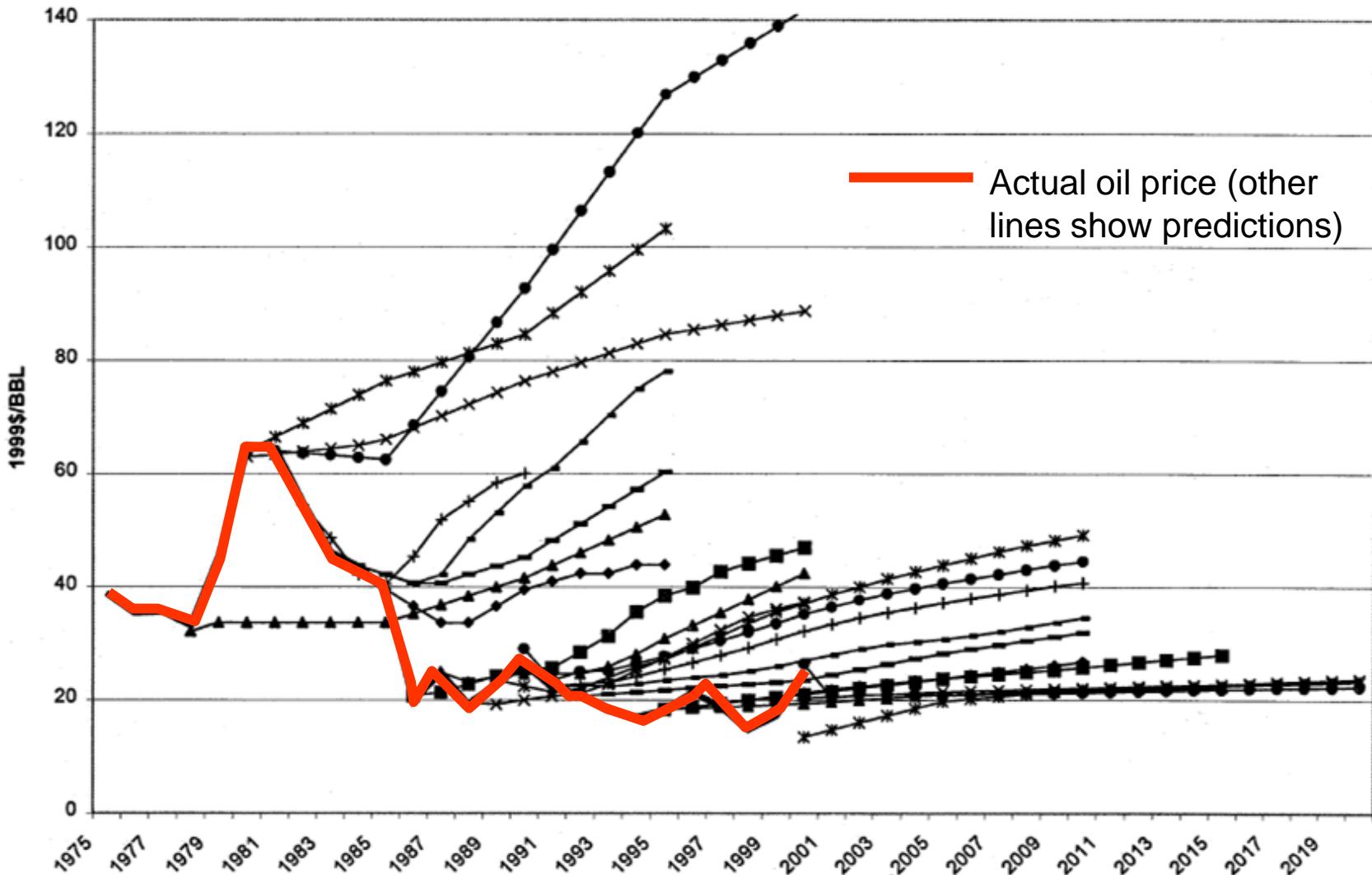


# Different Types of Futures

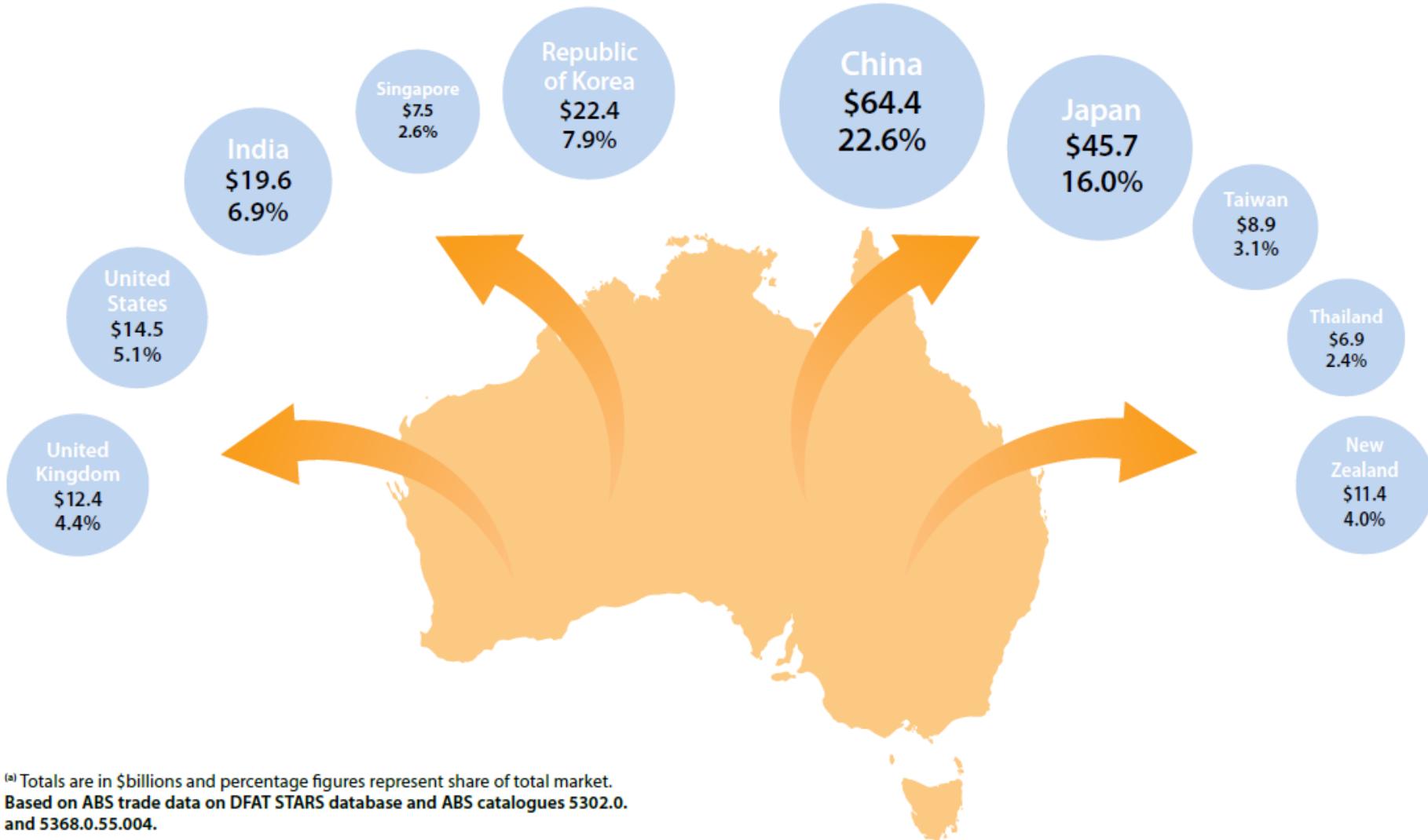


Source: Voros (2003) adapted this diagram from Hancock and Bezold (1994) in the Healthcare Forum Journal

# More Than Forecasting



# Australia's top 10 export markets 2010 (\$ billion)<sup>(a)</sup>



<sup>(a)</sup> Totals are in \$billions and percentage figures represent share of total market.  
Based on ABS trade data on DFAT STARS database and ABS catalogues 5302.0.  
and 5368.0.55.004.

## Australia's top 10 two-way trading partners 2010 (\$ billion)

	Goods <sup>(a)</sup>	Services <sup>(b)(c)</sup>	Total <sup>(c)(d)</sup>	% share
1 China	97.7	7.6	105.3	19.1
2 Japan	61.8	4.3	66.1	12.0
3 United States <sup>(e)</sup>	34.6	15.1	49.8	9.0
4 Republic of Korea	27.6	2.5	30.1	5.4
5 United Kingdom	14.1	8.5	22.6	4.1
6 India	18.4	3.8	22.2	4.0
7 Singapore	15.5	6.1	21.6	3.9
8 New Zealand	15.2	6.1	21.3	3.9
9 Thailand	16.9	3.0	19.8	3.6
10 Malaysia	12.7	2.8	15.6	2.8
<b>Total two-way trade <sup>(b)</sup></b>	<b>444.0</b>	<b>108.3</b>	<b>552.4</b>	<b>100.0</b>
<b>Of which:</b>				
APEC <sup>(e)</sup>	329.1	61.4	390.5	70.7
ASEAN10	62.5	18.0	80.5	14.6
EU27 <sup>(c)</sup>	57.0	21.0	78.0	14.1
OECD <sup>(e)</sup>	207.0	54.1	261.1	47.3

<sup>(a)</sup> Recorded trade basis. <sup>(b)</sup> Balance of payments basis. <sup>(c)</sup> Excludes imports of aircraft from regional import total from Sep-08 onwards (excl. the United States – see footnote (e)). This has a significant impact on import totals for France (EU27). <sup>(d)</sup> Total may not sum due to rounding. <sup>(e)</sup> Based on unpublished ABS data and includes confidential aircraft imports for the US only. Based on ABS trade data on DFAT STARS database, ABS catalogues 5302.0. & 5368.0.05.004 and ABS unpublished data.

## Australia's leading exports (goods and services) 2010 <sup>(a)</sup>

	(\$ billion)
Iron ore & concentrates	49.4
Coal	43.0
Education-related travel services	17.7
Gold <sup>(b)</sup>	15.0
Personal travel (excluding education) services	12.2
Crude petroleum	10.5
Natural gas	9.4
Aluminium ores & concentrates (including alumina)	5.3
Copper ores & concentrates	5.0
Aluminium	4.4
Beef	4.4
Wheat	4.2
Medicaments (including veterinary)	3.6
Technical & other business services	3.5
Copper	3.2
Professional services	3.1
Business travel services	3.0
Passenger transport services <sup>(d)</sup>	2.7
Refined petroleum	2.4
Meat (excluding beef)	2.3
<b>Total exports <sup>(d)</sup></b>	<b>284.6</b>

<sup>(a)</sup> Goods trade is on a recorded trade basis. Services trade is on a balance of payments basis.

<sup>(b)</sup> Balance of payments basis.

<sup>(c)</sup> Includes related agency fees and commissions.

<sup>(d)</sup> Total exports on a BOP basis.

Based on ABS trade data on DFAT STARS database and ABS catalogue 5302.0.

# “Going, going, gone?”

## Campaign aims to protect traditional hunting

Friday, 20 April 2012 09:38



*The large turnout at the meeting.*

REPRESENTATIVE bodies throughout the Torres Strait and Far North Queensland are being urged to support a Torres Strait Regional Authority (TSRA) initiated campaign to protect culturally appropriate management of natural resources including fisheries.



# “Great Expectations”

## Declining Material Consumption

