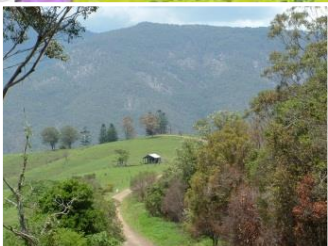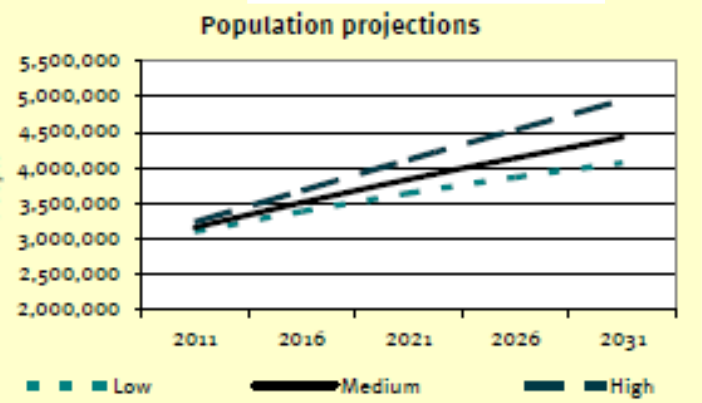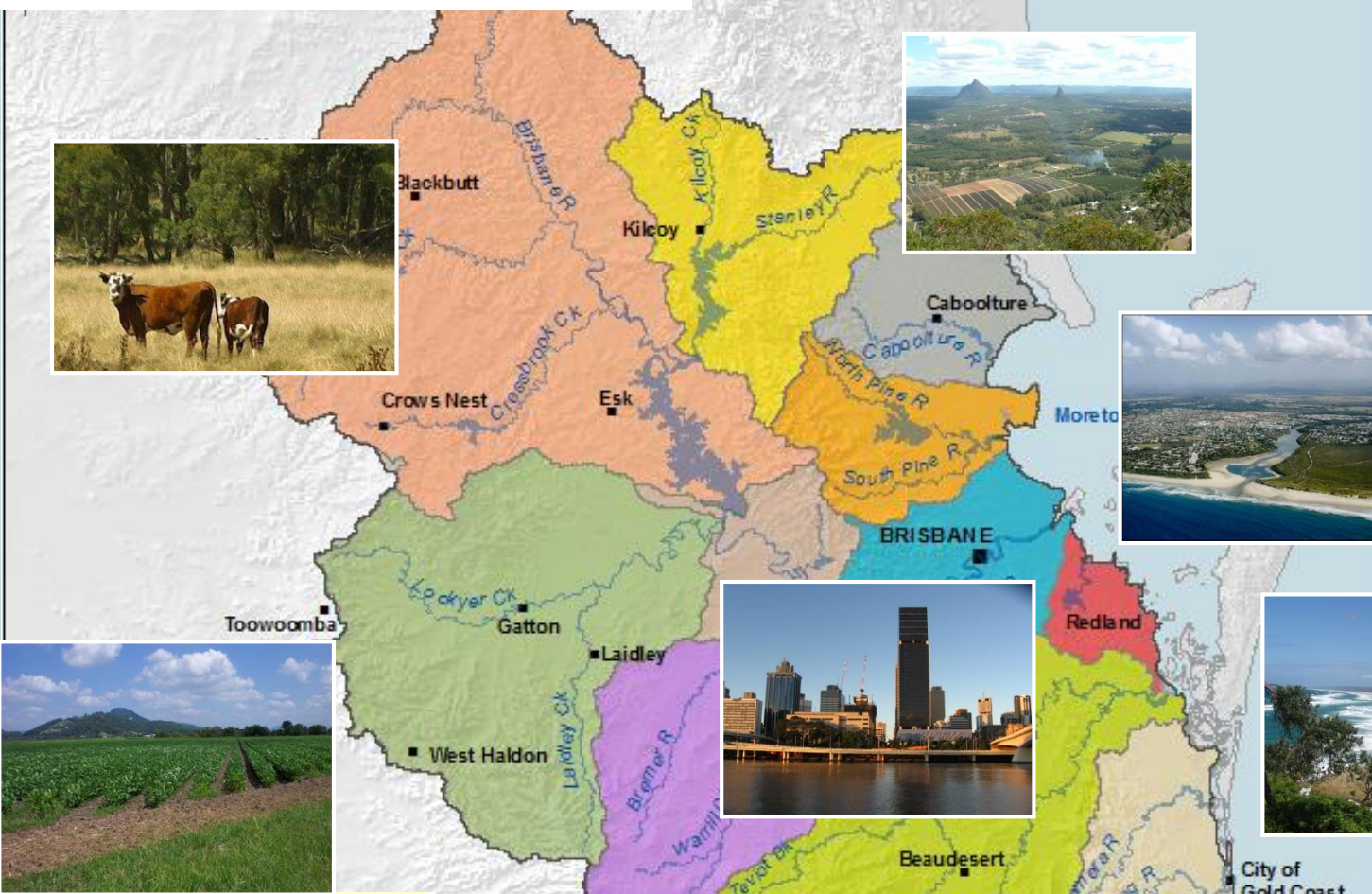# **The SEQ Ecosystem Services Project:**
an experience of (identifying, measuring,) mapping (and valuing) ecosystem services at the (multi-)catchment scale.

Dr Simone Maynard
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South East Queensland (SEQ)

Population projections

People

5,500,000
5,000,000
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000

2011   2016   2021   2026   2031

- - - Low   Medium   High

Blackbutt

Kilcoy

Caboolture

Crows Nest   Esk

Moreto

BRISBANE

Toowoomba   Gatton

Laidley

Redland

West Haldon

Beaudesert

City of
Gold Coast

Kooralbyn

0   20   40   60   80

The SEQ Ecosystem Services Project

Aim:

- To identify, measure and value the ecosystem services provided by the SEQ region;

   the SEQ Ecosystem Services Framework

- To provide the tools for a 'consistent 'approach to assessing ecosystem services in SEQ; and

- Incorporating ecosystem services into natural resource decision making (mainstreaming).

Participatory Approach

- Over 190 professionals involved in developing the Framework – Steering Group, Expert Panels, Think Tanks, Website Authors (and Community Workshops)

- Trans-disciplinary

- Trans-sectoral

- Those most likely to apply the Framework develop the Framework (their own tools)

- Those most likely to be affected by the application of the Framework are involved in the valuation and prioritisation of ecosystem services

- Non-monetary valuation – value in terms of well-being

The SEQ Ecosystem Services Framework

Three main elements:

1/ Lists and descriptions of four 'Components for Assessment':

     i. Ecosystem Reporting Categories (ERCs)
     ii. Ecosystem Functions
     iii. Ecosystem Services
     iv. Human Well-being

2/ Descriptions of the relationships between these components in the form of scores in matrices; and

3/ A series of maps identifying where ecosystem services are being derived from in SEQ.

Ecosystem Reporting Category	Ecosystem Function	Ecosystem Service	Constituents of Well-being
Deep Ocean	Gas Regulation	Food	Breathing
Open Water - Pelagic	Climate Regulation	Water for Consumption	Drinking
Open Water - Benthic	Disturbance Regulation	Building and Fibre	Nutrition
Coral Reefs	Water Regulation	Fuel	Shelter
Seagrass	Soil Retention	Genetic Resources	Mental health
Rocky Shores	Nutrient Regulation	Biochemicals, medicines and pharmaceuticals	Physical Health
Beaches	Waste Treatment and Assimilation	Ornamental Resources	Secure and Continuous Supply of Services
Dunes	Pollination	Transport Infrastructure	Secure Access to Services
Coastal Zone Wetlands	Biological Control	Air Quality	Security of Person
Palustrine Wetlands	Barrier Effect of Vegetation	Habitable Climate	Security of Health
Lacustrine Wetlands	Supporting Habitats	Water Quality	Security of Property
Riverine Wetlands	Soil Formation	Arable Land	Family Cohesion
Rainforests	Food	Buffering Against Extremes	Community and Social Cohesion
Schlerophyll Forests	Raw Materials	Pollination	Social and Economic Freedom
Native Plantations	Water Supply	Reduce Pests and Diseases	Self - Actualisation
Exotic Plantations	Genetic Resources	Productive Soils	
Regrowth	Provision of Shade and Shelter	Noise Abatement	
Native and Improved Grasslands	Pharmacological Resources	Iconic Species	
Shrublands/ Woodlands	Landscape Opportunity	Cultural Diversity	
Moreton Island		Spiritual and Religious Values	
Bribie Island		Knowledge Systems	
North Stradbroke Island		Inspiration	
South Stradbroke and other Bay Islands		Aesthetic Values	
Montane		Affect on Social Interactions	
Sugar Cane		Sense of Place	
Horticulture - small crops		Iconic Landscapes	
Horticulture - tree crops		Recreational Opportunities	
Other Irrigated Crops		Therapeutic Landscapes	
Dams			
Hard Surfaces			
Parks and Gardens			
Residential Gardens			

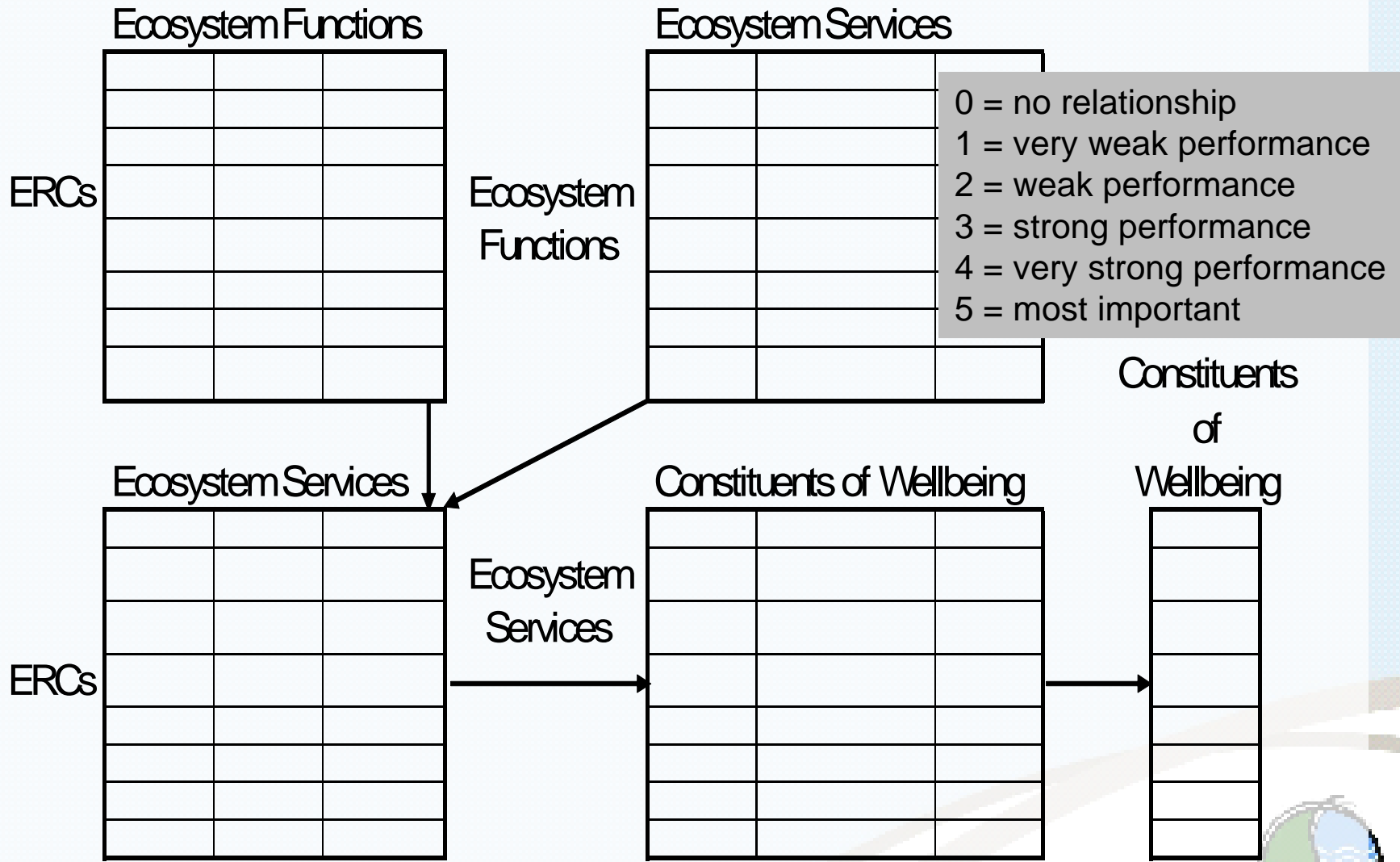# The SEQ Ecosystem Services Framework

Three main elements:

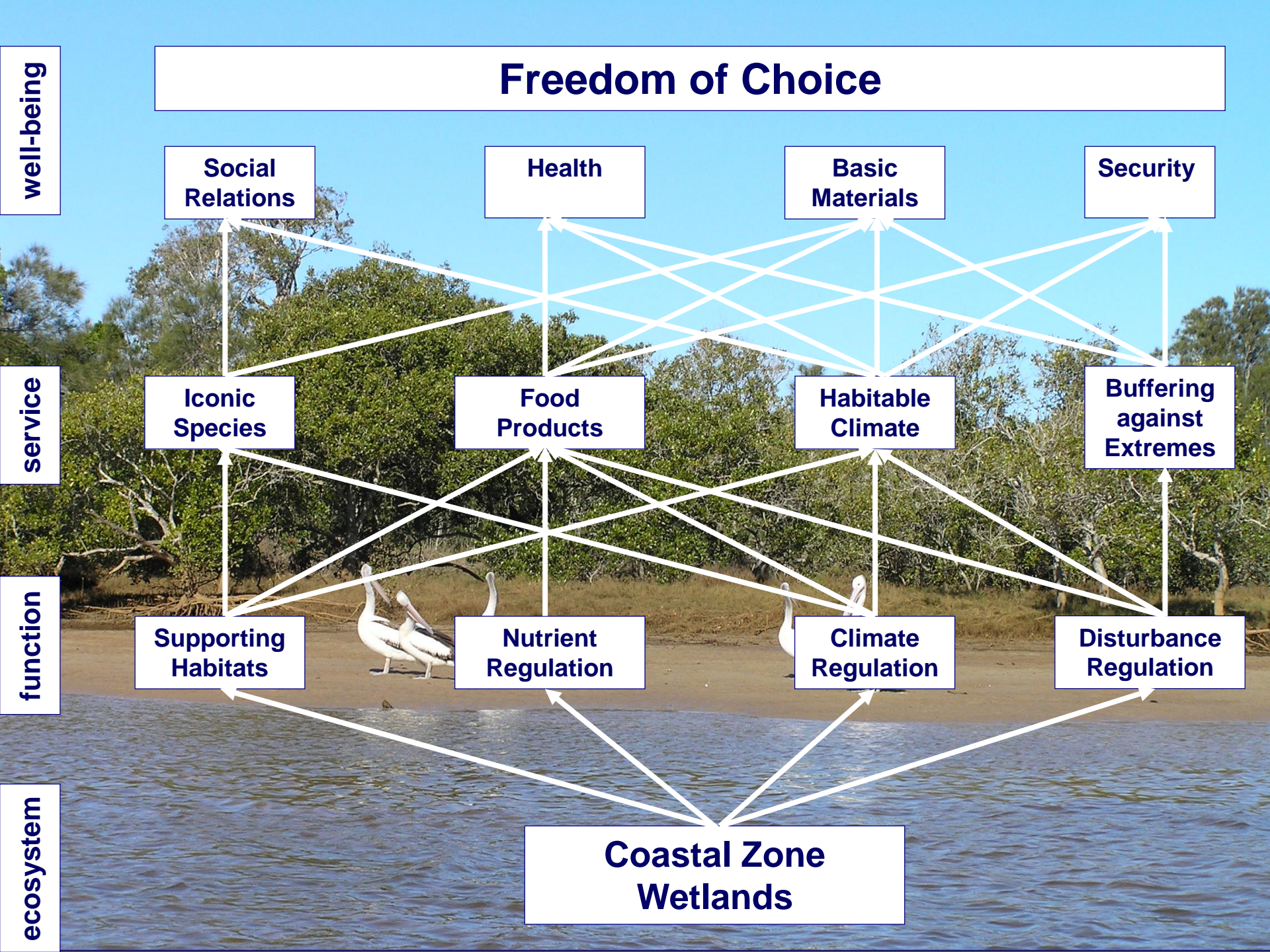1/ Lists and descriptions of four components for assessment:
   i. Ecosystem Reporting Categories (ERCs)
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SEQ ECOSYSTEM SERVICES FRAMEWORK

Ecosystem Functions

Ecosystem Services

ERCs

Ecosystem Functions

0 = no relationship
1 = very weak performance
2 = weak performance
3 = strong performance
4 = very strong performance
5 = most important

Ecosystem Services

Constituents of Wellbeing

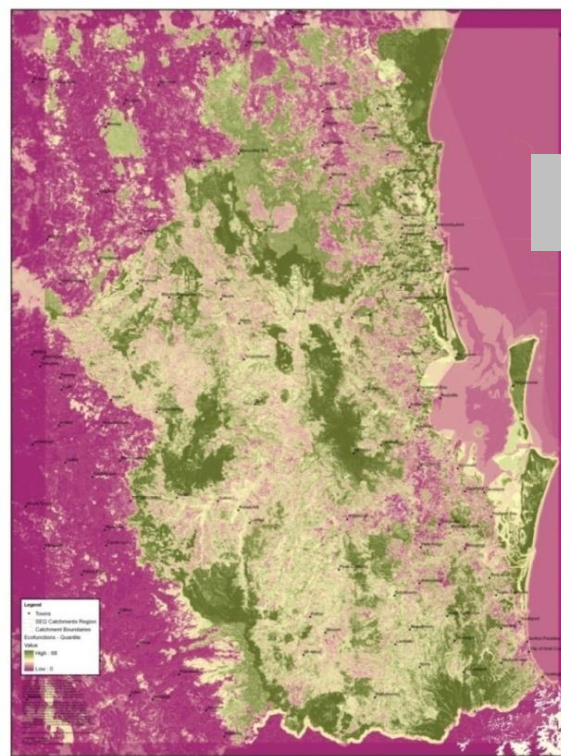Constituents of Wellbeing

ERCs

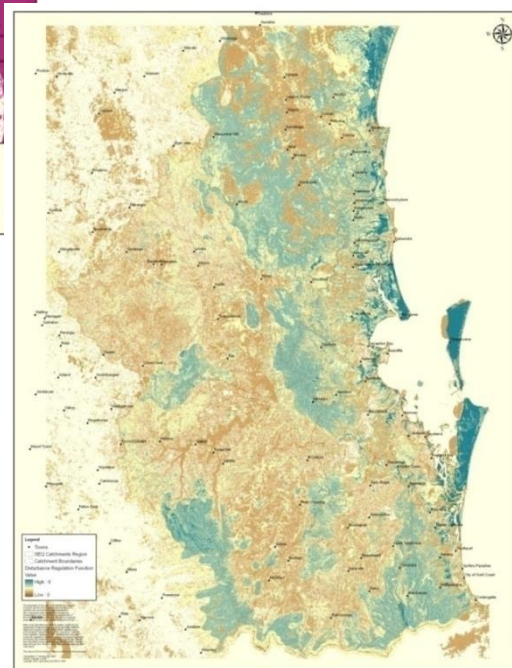Ecosystem Services

The SEQ Ecosystem Services Framework

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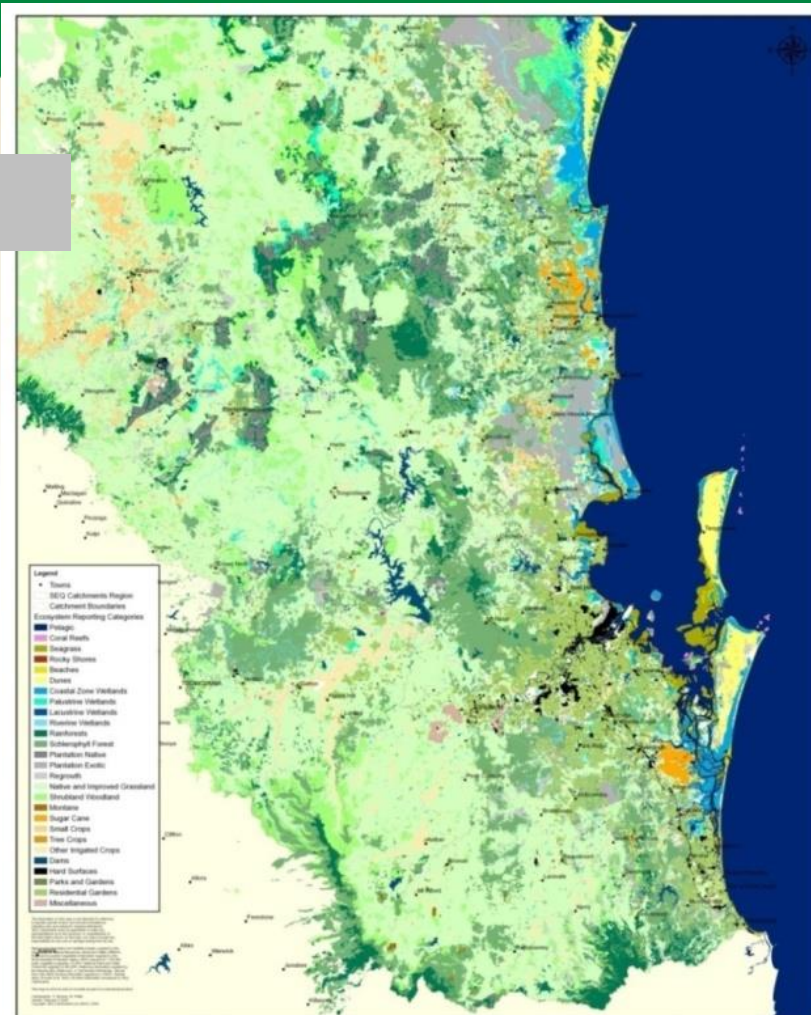
Maps

Ecosystem Services Project
Total of Ecosystem Functions Applying Quantiles
South East Queensland
1:750,000 printed A3
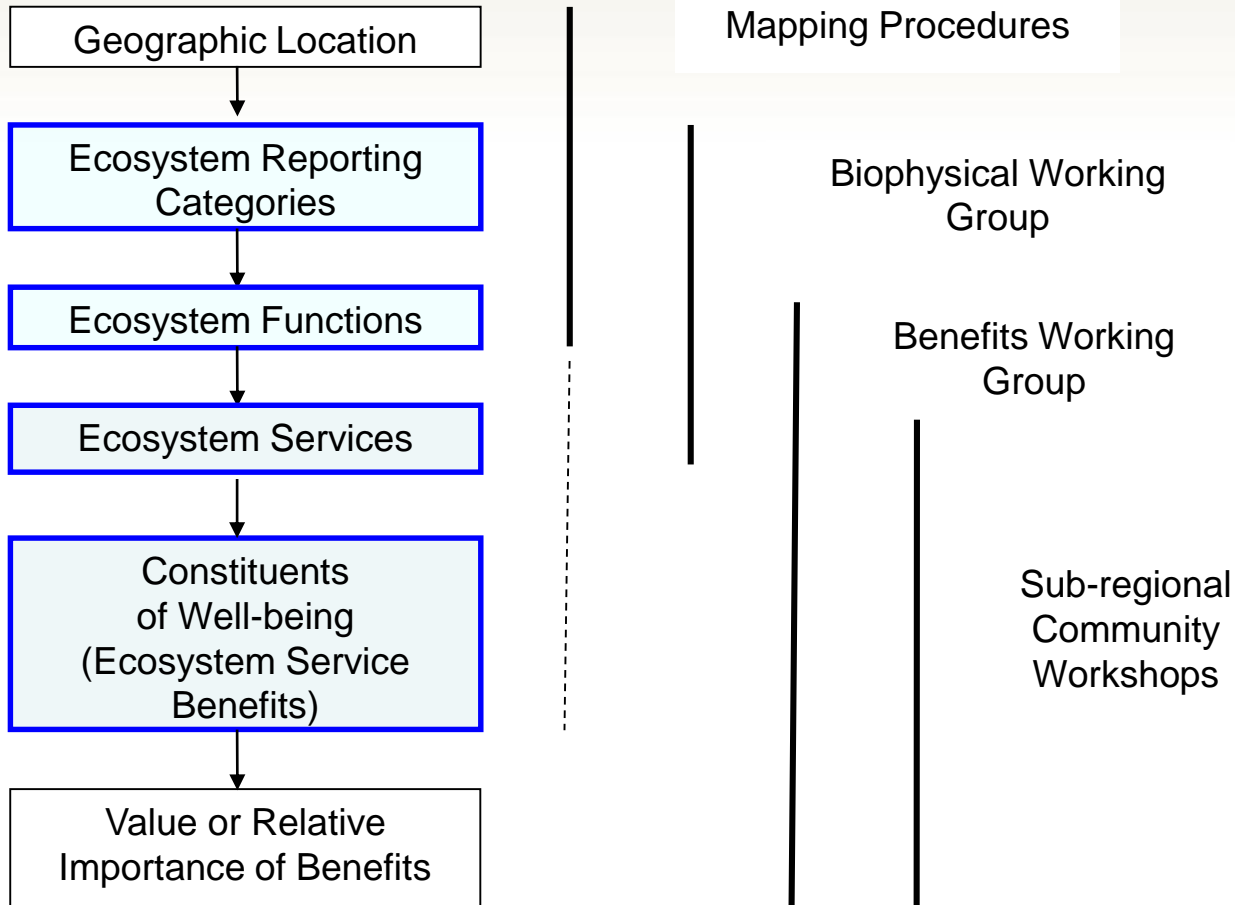GDA 1994 Zone 56
Data Sources: EPA, NRW, DPI&F, HWP

Ecosystem Services Project
Disturbance Regulation Function 3
South East Queensland
1:750,000 printed A3
GDA 1994 Zone 56
Data Sources: EPA, NRW, DPI&F, HWP

Ecosystem Services Project
Ecosystem Reporting Categories
South East Queensland
1:750,000 printed A3
GDA 1994 Zone 56
Data Sources: EPA, NRW, DPI&F, HWP

Process Applied and Key Components

```
┌─────────────────────────────┐                    ┌──────────────────────────┐
│     Geographic Location      │         │          │   Mapping Procedures     │
└─────────────────────────────┘         │          └──────────────────────────┘
              │                          │
              ▼                          │
┌─────────────────────────────┐         │
│     Ecosystem Reporting      │         │                 Biophysical Working
│        Categories            │         │                        Group
└─────────────────────────────┘         │
              │                          │
              ▼                          │
┌─────────────────────────────┐         │
│     Ecosystem Functions      │         │                  Benefits Working
└─────────────────────────────┘                                  Group
              │
              ▼
┌─────────────────────────────┐
│     Ecosystem Services       │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│        Constituents          │                      Sub-regional
│      of Well-being           │                      Community
│  (Ecosystem Service          │                      Workshops
│      Benefits)               │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│      Value or Relative       │
│   Importance of Benefits     │
└─────────────────────────────┘
```

Context Dependant

Who are the beneficiaries and where are the good things being received?

Community Workshops and prioritisation:
- Ecosystem Services
- Constituents of Well-being

What matters to who!

SEQ Experts

Top 5 Ecosystem Services

- Habitable climate
- Water quality
- Knowledge systems
- Reduce pests/ diseases
- Buffering against extremes

Top 5 Constituents of Well-being

- Mental health
- Community and social cohesion
- Self actualisation
- Security of health
- Social and economic freedom

Redland's Community

Top 5 Ecosystem Services

- Habitable climate
- Water quality
- Air quality
- Water for consumption
- Productive soils

Top 5 Constituents of Well-being

- Breathing
- Drinking
- Nutrition
- Physical health
- Shelter

Regional Planning in SEQ
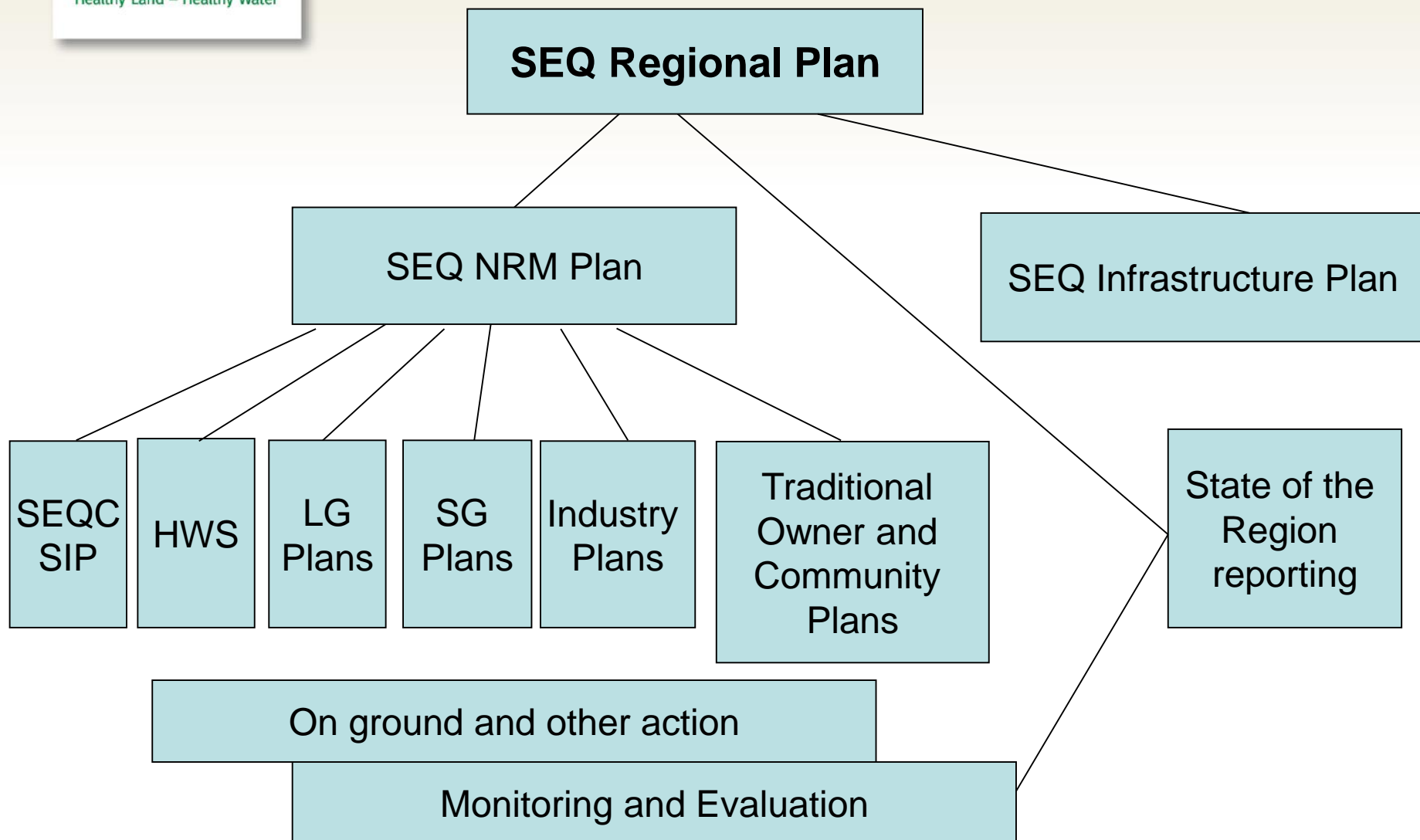
SEQ Regional Plan 2009 - 2031

Principle 4.3 Ecosystem Services
Protect, maintain and enhance the capacity of the region's ecosystems to supply ecosystem services.
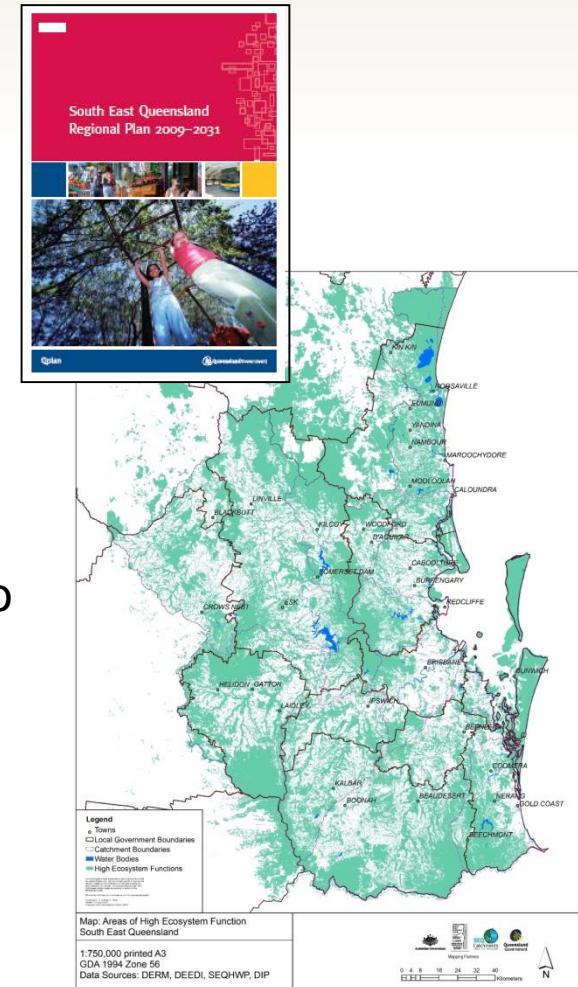
Policy 4.3.1
Protect areas supplying high levels of ecosystem services from development impacts.

Programs
**4.3.2** Use the SEQ Ecosystems Services Framework to identify and measure ecosystem services.

4.3.3 Support landholders to protect, maintain and enhance the provision of ecosystem services.

Guiding Principle 2

Natural resources supply a range of goods and services. These goods and services are known as ecosystem services and the planning and management of these services is essential for the region's long term economic, social, cultural and environmental sustainability and community well being.
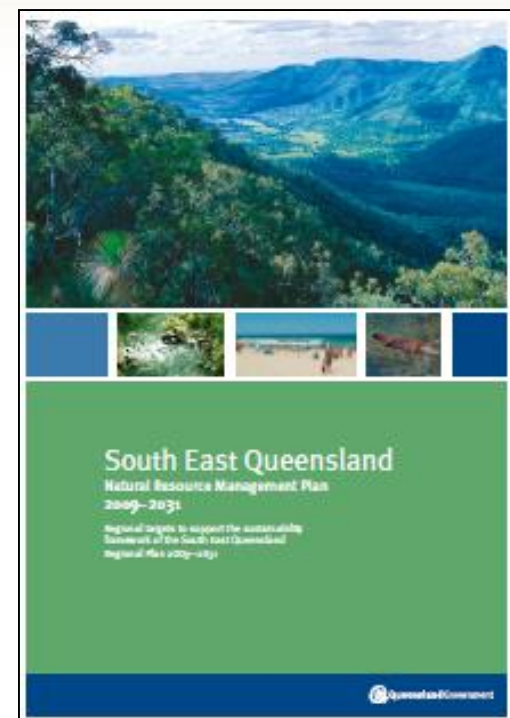
Applications of the Framework

- SEA Regional Plan;

- SEQ NRM Plan;

- State of Region reporting;

- SEQ Greenspace Network and Offsets Metric;

- Ecosystem Functions in the Moreton Bay Regional Council Area;

- Brisbane Valley Rail Trail Natural Resource Management Plan ;

- Brisbane City Council Water Resources Strategy;

- Bioregional Assessment for Coal Seam Gas and Large Coal Mining ;

- Scenic Rim Regional Council Biodiversity Strategy;

- Valuing and Investing in Natural Capital in the Ipswich City Council Area;

- Climate change assessments.
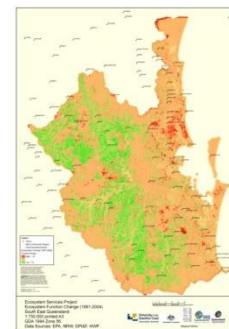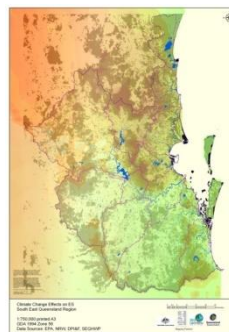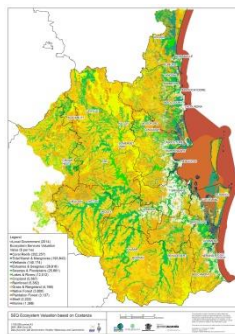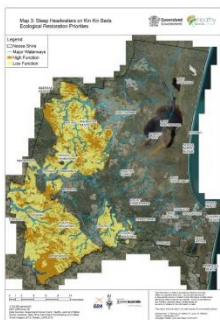
The Framework is NOT!

- The SEQ ES Framework is a *decision support tool* <u>NOT</u> a *decision making tool*.

- The SEQ ES Framework assesses *ecosystem services* <u>NOT</u> *biodiversity*.

Lessons Learnt

- ✓ Highly dynamic – **be prepared to change** to suit emerging needs
- ✓ **Get to know your stakeholders**
- ✓ **Engage** stakeholders as **early and** as **often** as possible
- ✓ **Question and listen - respond and communicate**
- ✓ Create **communities and champions**
- ✓ **Needed skills** - conflict resolution, negotiating, sense of humour, empathy
- ✓ Coordinators need **multi-disciplinary knowledge** and an **ability to simplify complex information**
- ✓ **Create the political space** to allow a framework to be developed and multi-stakeholder and trans-disciplinary knowledge systems to inform each other
- ✓ **Set-up a well-coordinated and facilitated program with strong leadership** (Co-)Leads
- ✓ **Paradigms/traditional approaches -** need to change … can not necessarily take/apply a new approach with current information (e.g. definitions)
- ✓ **Need for a central platform** to house information and tools for free and easy access … flexible, non-prescriptive
- • **How defensible is the work**, data confidence and interpretation of data
- • **Considered to be an externality** and needs greater integration with decision making
- ✓ **Never ass/u/me!**

Have fun!!

What has Nature done for YOU today?

What have YOU done for Nature today?

Thank You

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