

**NATURAL RESOURCES OF REGIONS  
AND SUSTAINABLE  
DEVELOPMENT**

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**Barooga**

## **ABIOTIC RESOURCES**

- Minerals
- Water
- Energy resources

## **BIOLOGICAL RESOURCES**

- Biodiversity
- Genetic diversity
- Species diversity
- Ecosystem diversity

## **ECOSYSTEMS - Defined**

Convention on Biological Diversity:

“A dynamic complex of plant, animal and micro-organisms and their non-living environment interacting as a functional unit”

# CHARACTERISTICS OF ECOSYSTEMS

- Renewable resources
- Resilient
- Scalable
- Perform functions essential for life support
- Capable of underpinning sustainable economic activity and development
- May be intensively managed or left in predominantly natural state
- Occur within private and public domains

## **ECOSYSTEMS AS CAPITAL ASSETS**

- Parallels with economic capital
- Stock resources
- Production of goods and services
- Vulnerable to degradation and/or depletion
- Capable of restoration or enhancement from investments and wise management

## **ECOSYSTEM SERVICES**

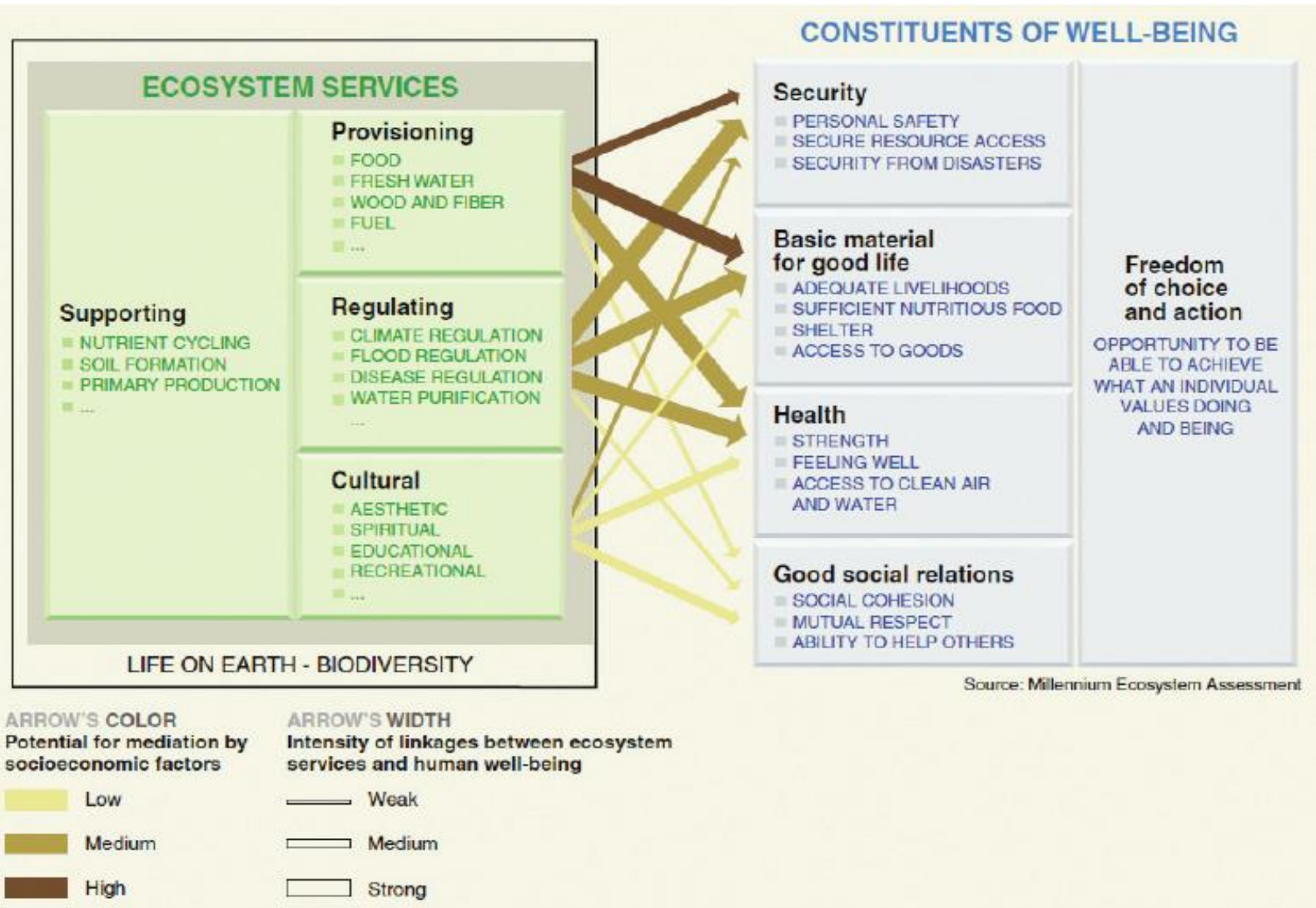
Goods and services produced by ecosystems of benefit to individuals and communities

### **GENERAL CATEGORIES**

- Supporting services
- Provisioning services
- Regulating services
- Cultural services

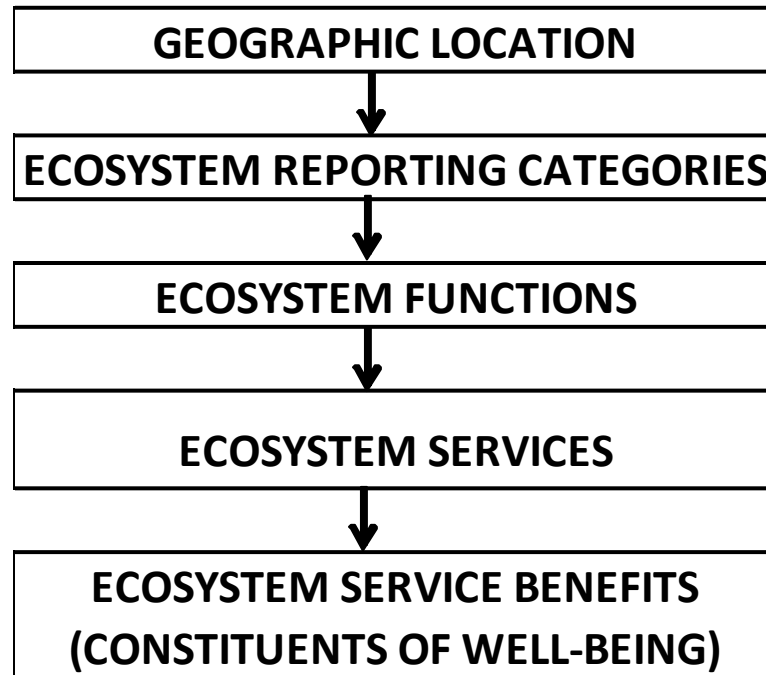
# FRAMEWORKS FOR ASSESSMENT OF ECOSYSTEM SERVICES

- Connecting ecosystems with human well-being
- Ecosystem functions and ecosystem services
- Values of ecosystem services – monetary, other
- Millennium Ecosystem Assessment (MEA)
- SEQ Ecosystem Framework
- UN System of Environmental Accounts (SEEA) Central Framework
- UN SEEA Experimental Ecosystem Accounting Framework

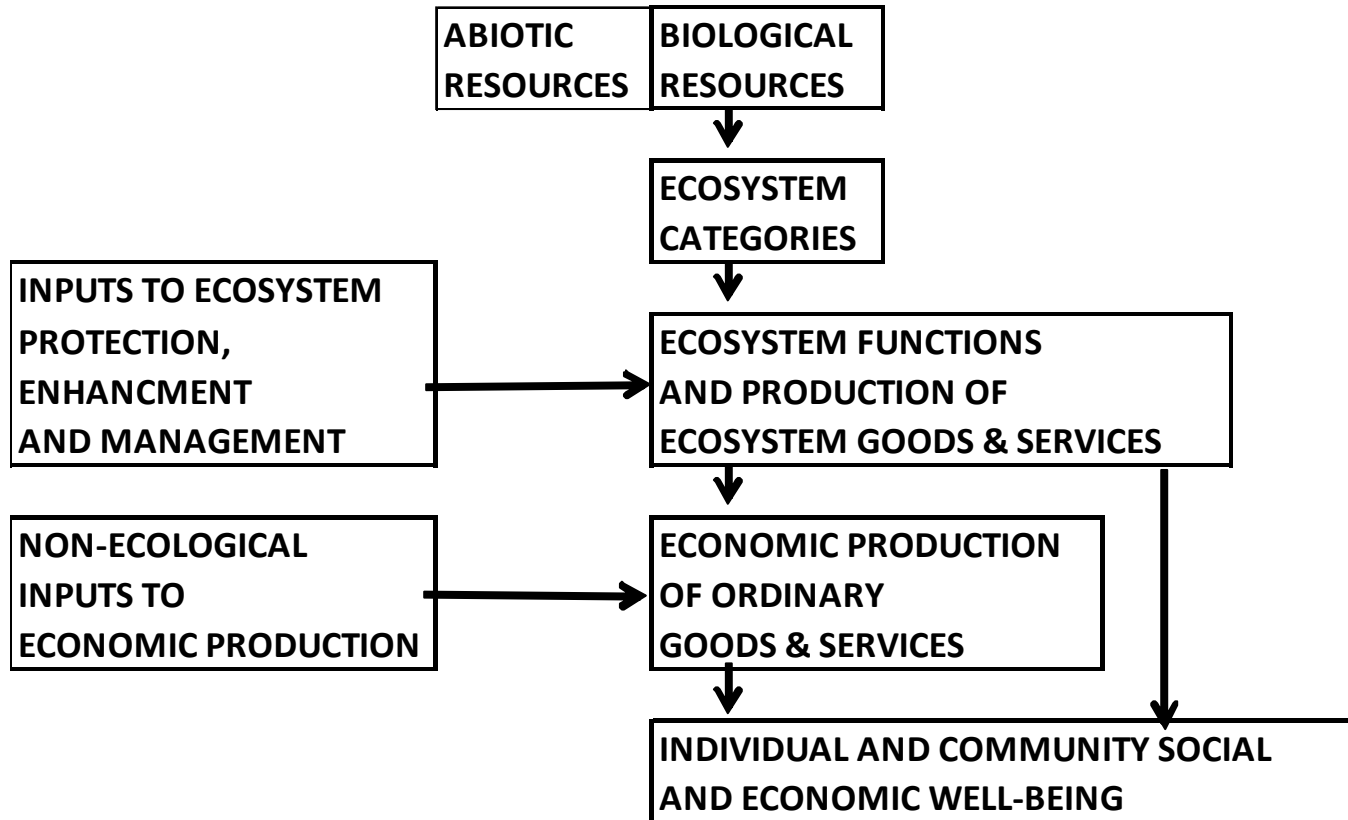




## SEQ ECOSYSTEM ASSESSMENT FRAMEWORK



## ROLE OF ECOSYSTEMS IN REGIONAL PRODUCTION



# **ECOSYSTEMS IN MURRAY-DARLING BASIN**

- Native grasslands
- Croplands
- Woodlands
- Orchards and vineyards
- Irrigated pasture
- Floodplains
- Wetlands
- Forests
- Freshwater lakes
- Riverine aquatic systems
- Estuarine systems

## **ECONOMIC ACTIVITIES SUPPORTED BY ECOSYSTEMS IN MDB**

- Irrigated agriculture
- Dryland agriculture
- Fisheries
- Forestry
- Domestic water supply
- Education and scientific research
- Tourism
- Recreation-based commercial activities
- Residential development

## **CULTURAL VALUES OF ECOSYSTEMS IN MDB**

- Option use values
- Existence and bequest values
- Sense of place
- Indigenous values
- Ecosystems of national and international significance (RAMSAR etc)

# **ECOSYSTEM MANAGEMENT UNDER MURRAY-DARLING BASIN PLAN**

## **Water Act 2007 Section 20:**

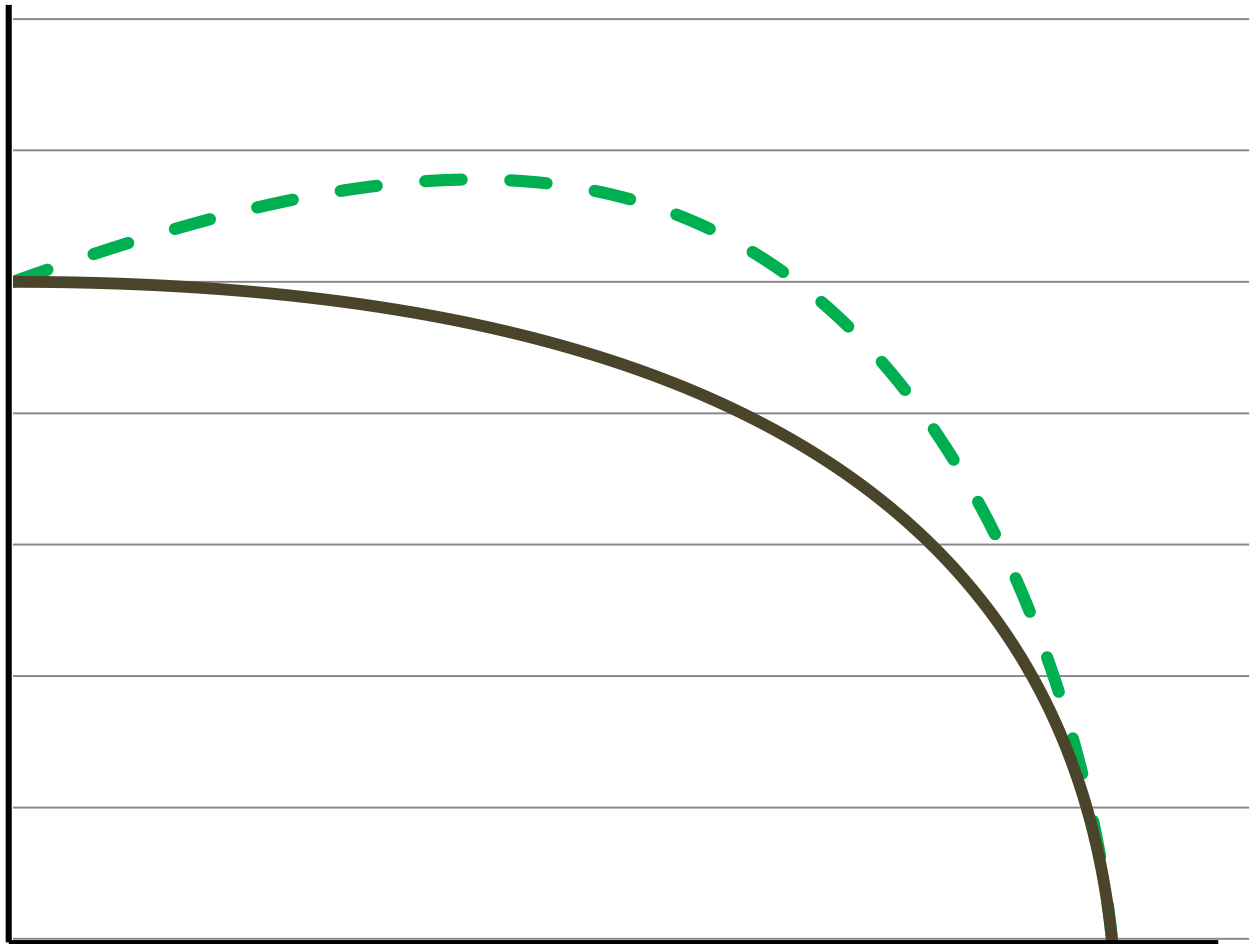
“The purpose of the Basin Plan is to provide for the integrated management of the Basin water resources in a way that promotes the objects of this Act, in particular by providing for.....

(d) the use and management of the Basin water resources in a way that optimises economic, social and environmental outcomes”

## **KEY ASPECTS OF THE BASIN PLAN**

- Focus of Basin Plan – water resource management
- Environmental indicators and targets – vegetation, fish, water birds
- In-stream and lateral connectivity
- Salinity, algal blooms, dissolved oxygen
- Outcomes at icon sites
- Trade-offs between socio-economic and environmental objectives
- Triple bottom line evaluation

**SOCIO-  
ECONOMIC  
OUTCOMES**



**ECOLOGICAL OUTCOMES**



# **ADVANCING ECOSYSTEM MANAGEMENT IN MDB**

Key management objectives

Research agenda

Involvement of research institutions

Collaboration with stakeholders

Collaboration with Federal and State agencies

Formulation of plans of action