

# Sustaining the Willandra

Using environmental-economic accounting to  
link socio-economic, cultural & ecological  
values:

a World Heritage Area experiment

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## (i). THE CHALLENGES:

1. How can we better integrate ecological, socio-economic & cultural values of Protected Areas (PAs) in management planning?
2. How can we better manage this site & other PAs to optimise these different values?

Here's a solution being trialled in NSW, based on 2 ideas...



## IDEA #1: Use an environmental-economic accounting framework based on 5 capitals

- Account principles:
- **Stocks** (assets), opening balance, **flows**, closing balance, **investment**.
- As well as financial & physical capital, we can add:
- Social & cultural capital (social networks; shared values)
- Natural capital (land, natural resources, biodiversity)
- Human capital (skills, education, health).
- Different capitals are relevant to different stakeholders (aboriginal community, farmers, PA managers, tourist industry)

# Building an integrated environmental-economic account

We want to:

- (i) track changes in stocks of the 5 capitals in relation to each other.
- (ii) Assess if management actions are protecting/ rebuilding capital stocks.

To do this, we need to develop & link component accounts i.e.

- Economic account (financial & physical capital)
- *plus:* Social & Cultural capital account
- *plus:* Natural capital account
- *plus:* Human capital account

Example of an account matrix

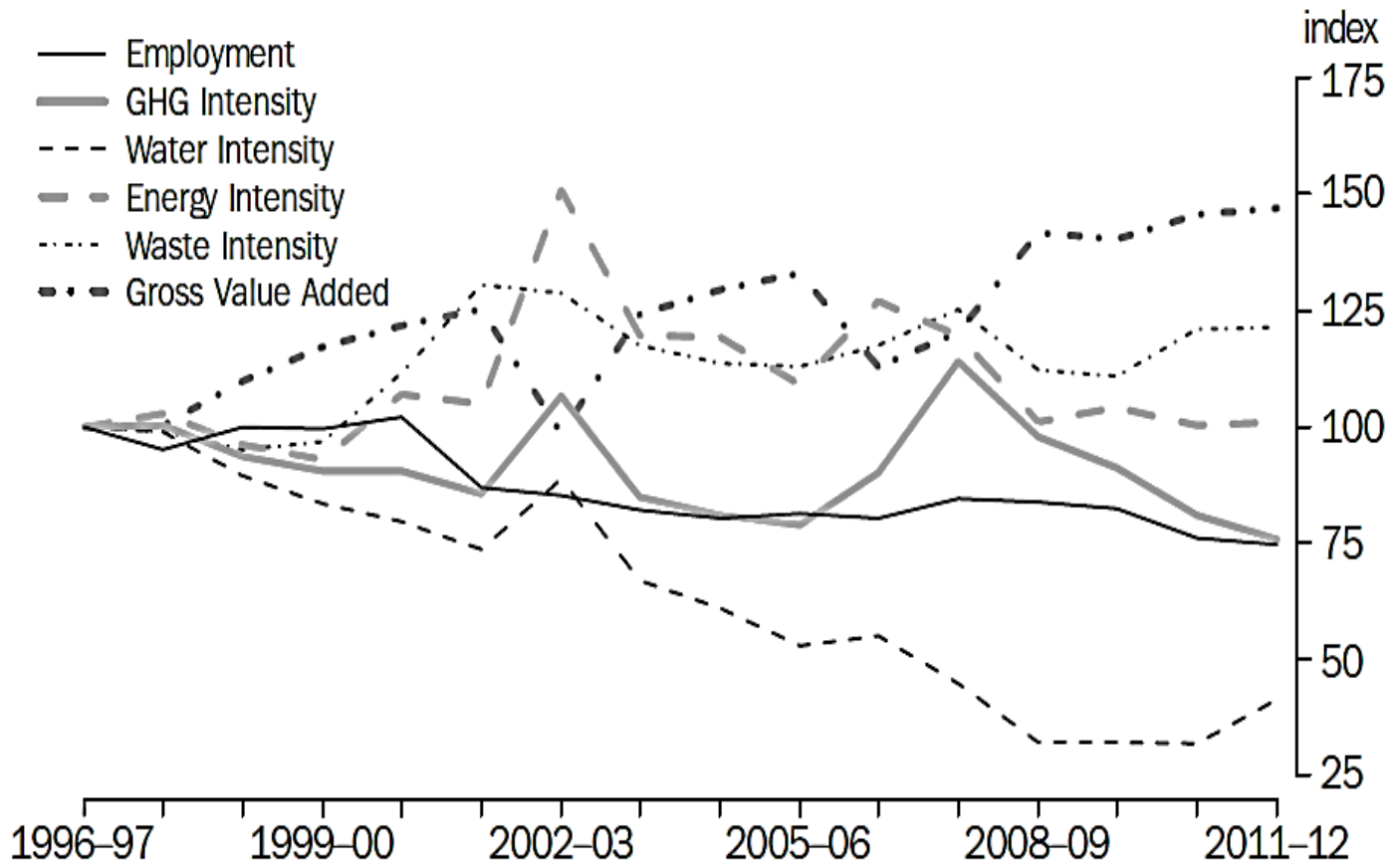


Table 4.1: Ecological capital accounts, land cover stocks and flows account

Land Cover Ecological Account	Land Cover Stocks										Land Cover Flows	Land Cover Stocks	Land Cover Flows
	Grassland	Shrubland	Woodland	Forest	Water	Urban	Barren	Other	Water	Other			
Stocks											Change		
Flow											Change		

## What an integrated environmental-economic account can show

### AGRICULTURE INDUSTRY, Integrated Measures, 1996-97 to 2011-12



Note: Index: 1997 = 100

## IDEA #2: Putting accounts into a policy context with a DPSIR framework

Stocks of 5 capitals represent a 'State' in a DPSIR framework...

DPSIR =

- **Driving forces:** large-scale trends & processes in biophysical & socio-economic conditions
- **Pressures** processes & mechanisms provoking changes in the State
- **State:** environmental & socio-economic conditions influenced by pressures, expressed via metrics/ indicators
- **Impacts:** measurable changes in socio-economic & biophysical conditions of State
- **Response:** management actions & policies causing/mitigating decline

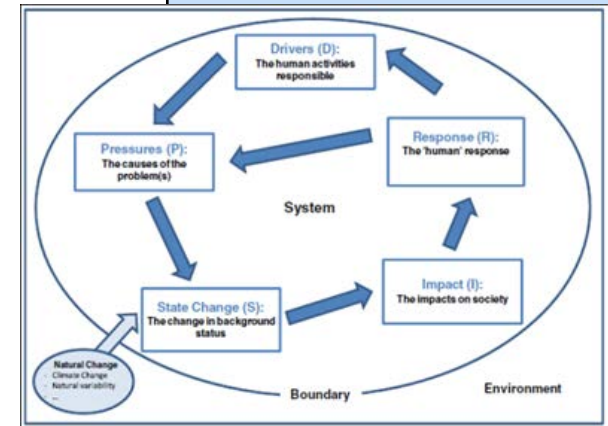
## Uses of the framework for policy

Framework can show:

- Links between high level forces (*Drivers/ Pressures*) affecting:
- capital stocks & flows (*State*);
- responses to these forces (*Responses*); &
- how damaging responses can be modified (*Impacts & Responses*).

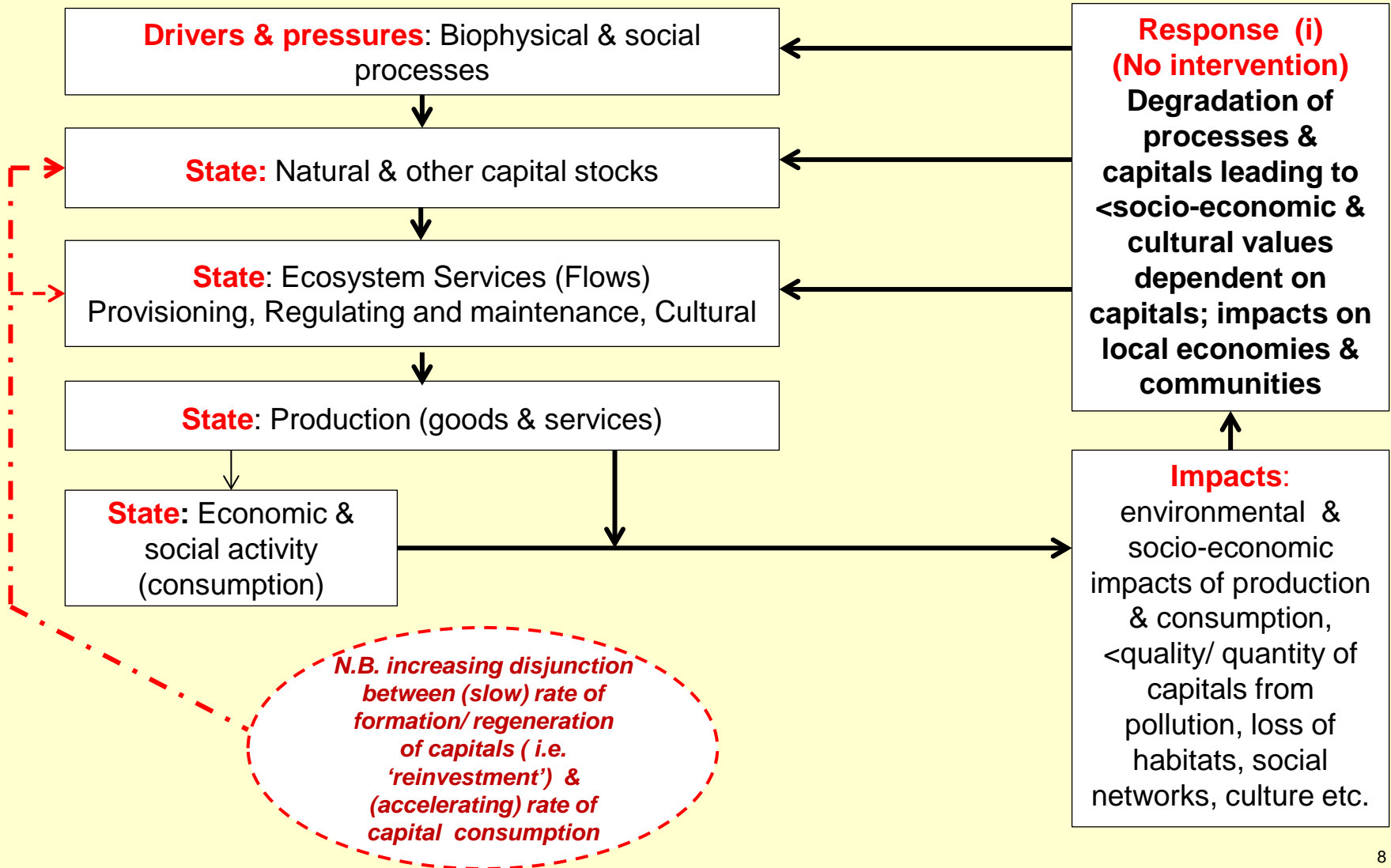
Next 2 diagrams show 2 policy responses:

- (i). No management intervention to reduce declining capital stocks
- (ii). Management intervention to reinvest in capital stocks



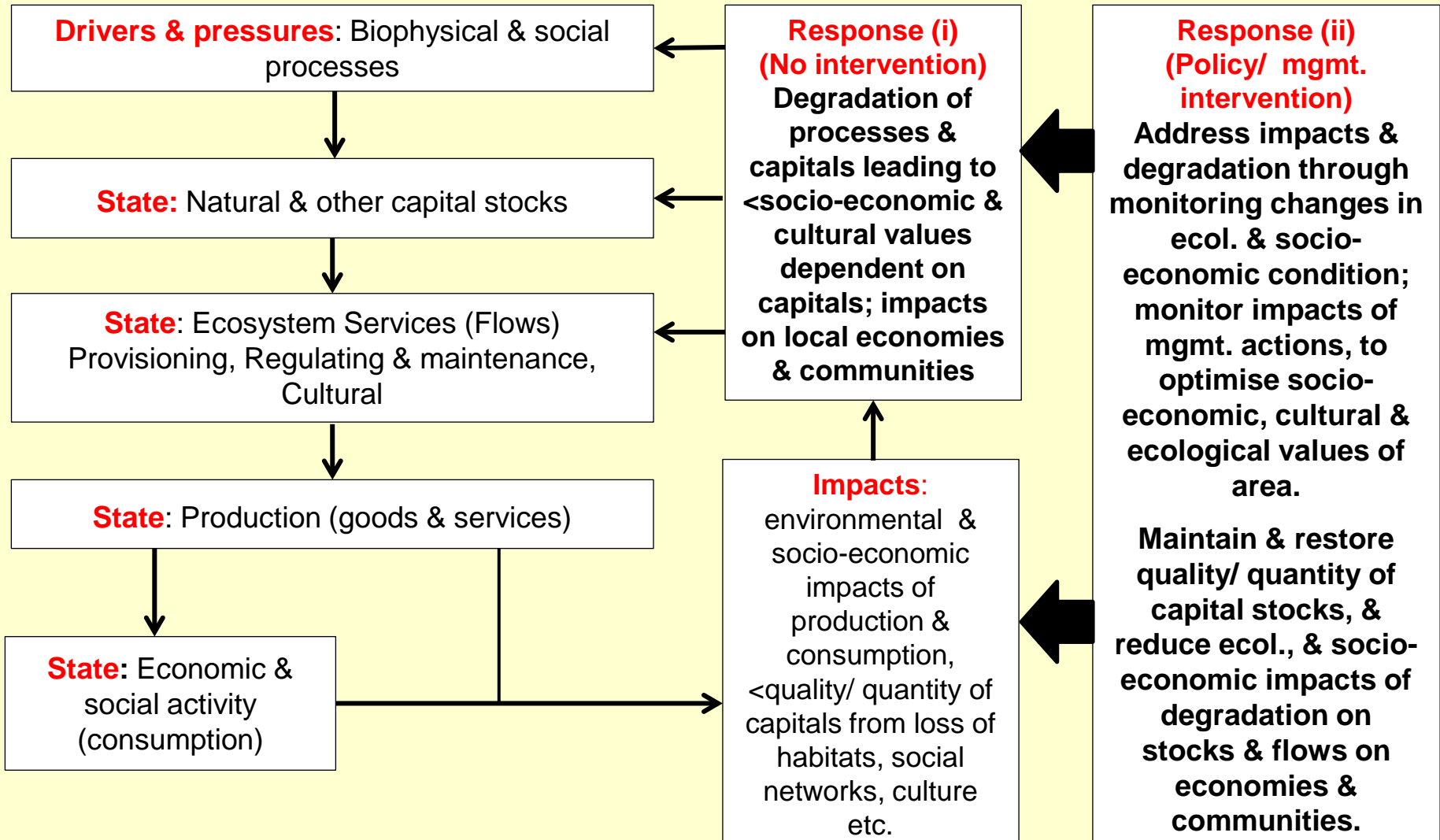
A version of a  
DPSIR framework

## Stocks & Flows 1: No Management Response





## Stocks & Flows 2: Management Response



## Summary:

### 2 ideas for meeting Challenges 1 & 2

Re #1. How can we better integrate ecological, socio-economic & cultural values of PAs in management planning?

- Use integrated-environmental accounting framework to show links between changes in quantity/quality of social, cultural, environmental & other capital stocks.
- Use DPSIR framework to show need to reinvest in natural etc. capital through management actions, to prevent degradation of stocks & decline in flows of ecosystem services.

AND...

## Summary: 2 ideas for meeting Challenges 1 & 2

Re #2: How can we better manage PAs to optimise these different values?

- Use accounting approach to assess effectiveness of management actions intended to optimise values by tracking changes in stocks over time.
- SO...these 2 linked ideas could be a solution for PA managers wanting to protect & enhance the different values of PAs...
- AND assess the effectiveness of the management actions they use to do this...

Thanks for listening