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Integrated science for our carbon future

Dr Megan Clark
Chief Executive
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CSIRO

The need for integration

Flight simulators for marine managers

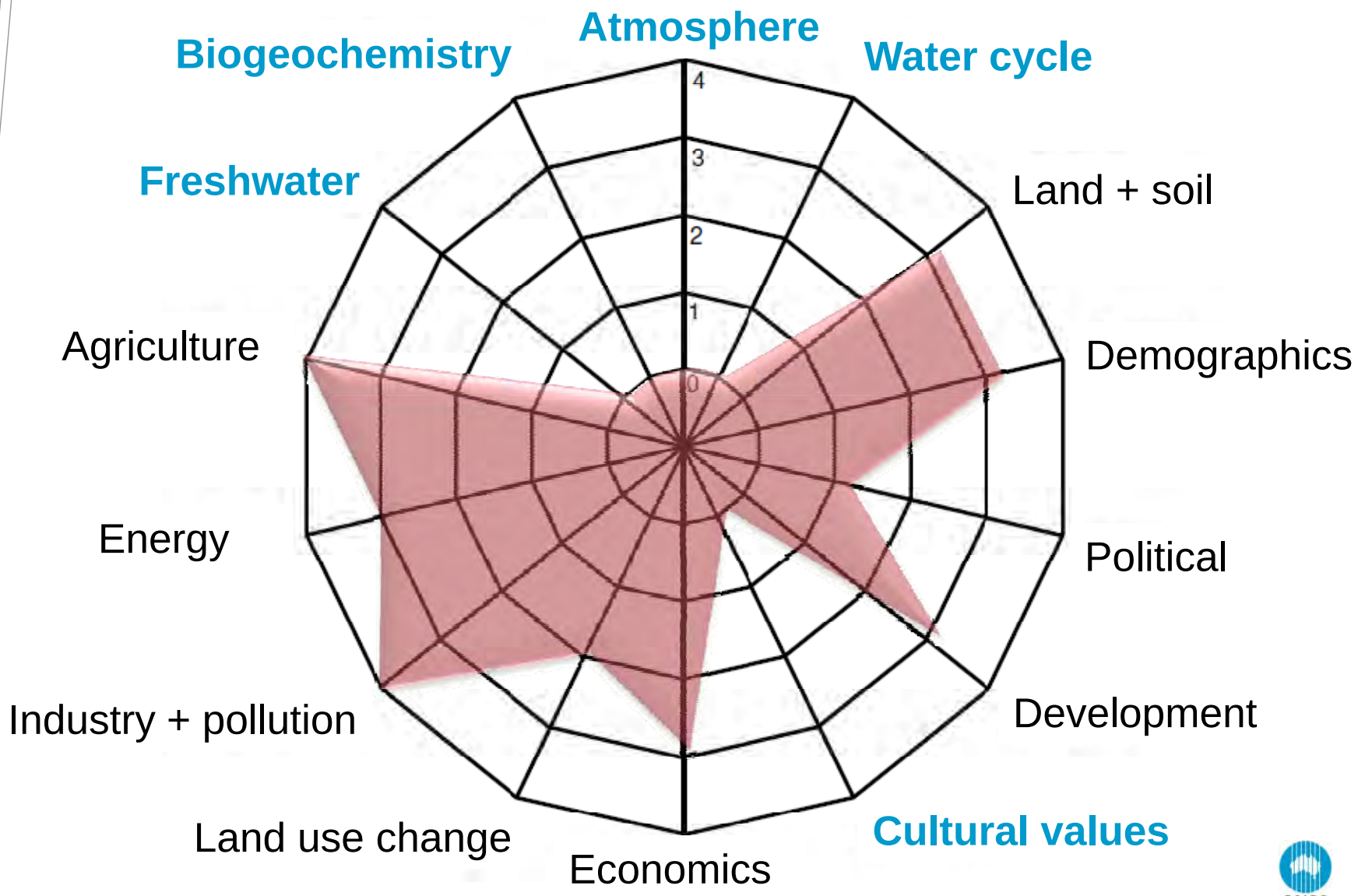
Integrating the physical, biological and human systems

Information jigsaw

Source: CSIRO Ningaloo Collaboration Cluster (Beth Fulton, Bill de la Mare and teams)

Existing integrated assessment

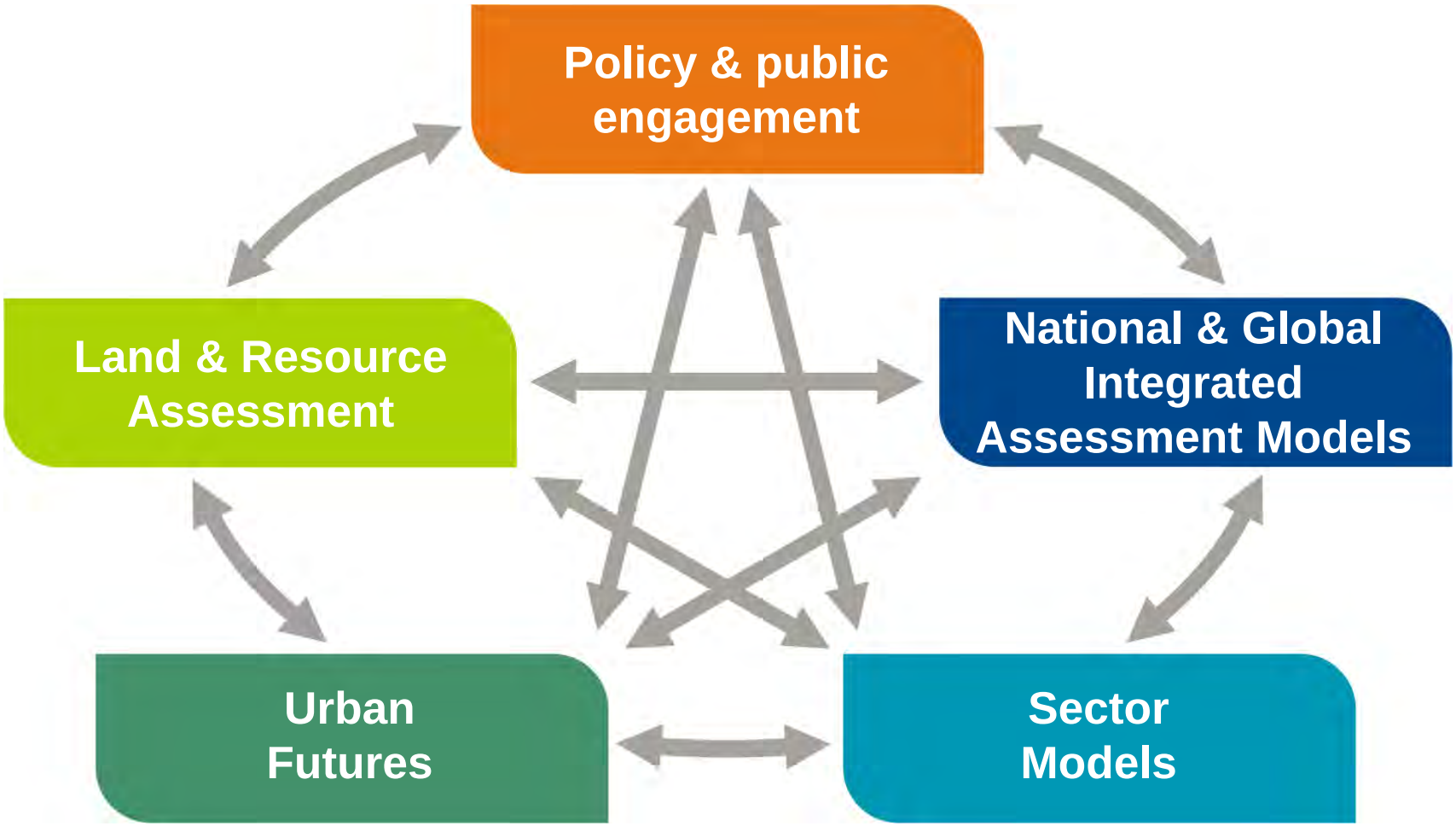
Existing tools miss important factors, such as water and atmosphere



Source: John Finnigan, CSIRO

Integrated Carbon Pathways

Bringing it all together: rich links and interaction



Land use options

Assessing complex trade-offs

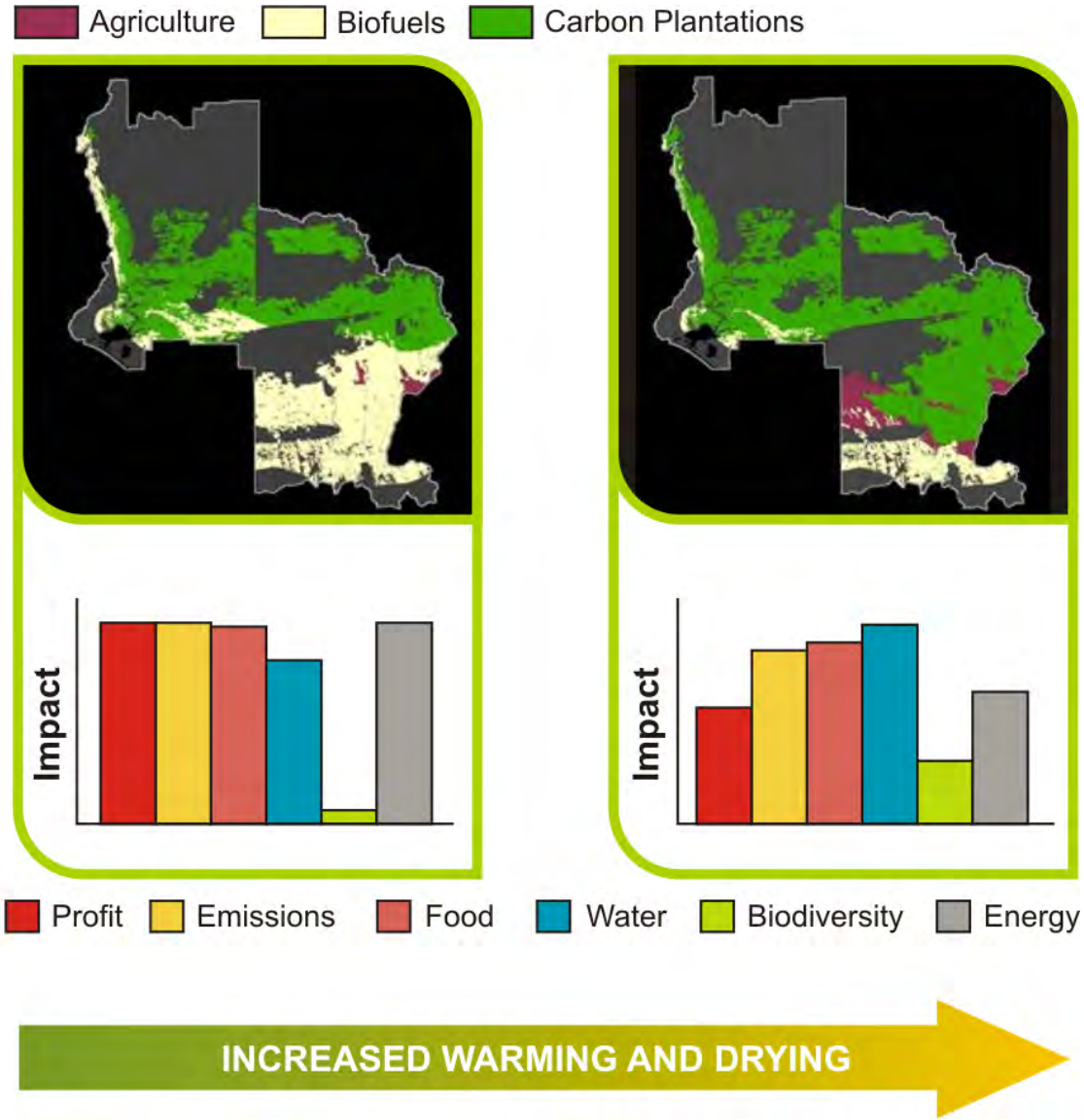
Land use/mgmt. option	GHG (Mt/yr)	$	Food	Water	Energy	Biodiv.	Land
Grazing land mgmt.	**100**						
Livestock emissions	**26**						
Crop land mgmt.	**25**						
Biochar	**?**						
Savannah fire mgmt.	**13**						
Eucalypt forest mgmt.	**47**						
Carbon forestry	**750**						
Land clearing + regrowth	**56**						
Bioenergy	**?**						
Biofuels	**?**						
Total	**1,017**						

Strong negative impact
Negligible impact
Strong positive impact

Source: CSIRO (2009), Wentworth Group (2009)

Integrated assessment example

Murray-Darling Basin: impacts under various climate scenarios



Integrated Assessment Example

Murray Darling Region – Impact of carbon price on land use

Carbon Price $1/tonne

Carbon Price $11/tonne

Carbon Price $36/tonne

LEGEND - LAND USE

Carbon sequestration

Agricultural production

Visualisation

Making the system more meaningful and accessible

Integrated Carbon Pathways

Bringing together the environment, society and economy

CSIRO
Dr Megan Clark
Chief Executive

Phone: 02 6276 6621
Email: megan.clark@csiro.au
Web: www.csiro.au

www.csiro.au

Thank you

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