

Climate Change Decision Support Tools for Coastal Councils

Dr. Jacqueline Balston
(Phd., Ba App Sc.)

Senior Research Fellow,
UniSA



A Climate Champion's Journey



As a climate champion, you are on a journey...

... to understand the complex nature of climate change

... to become response-able

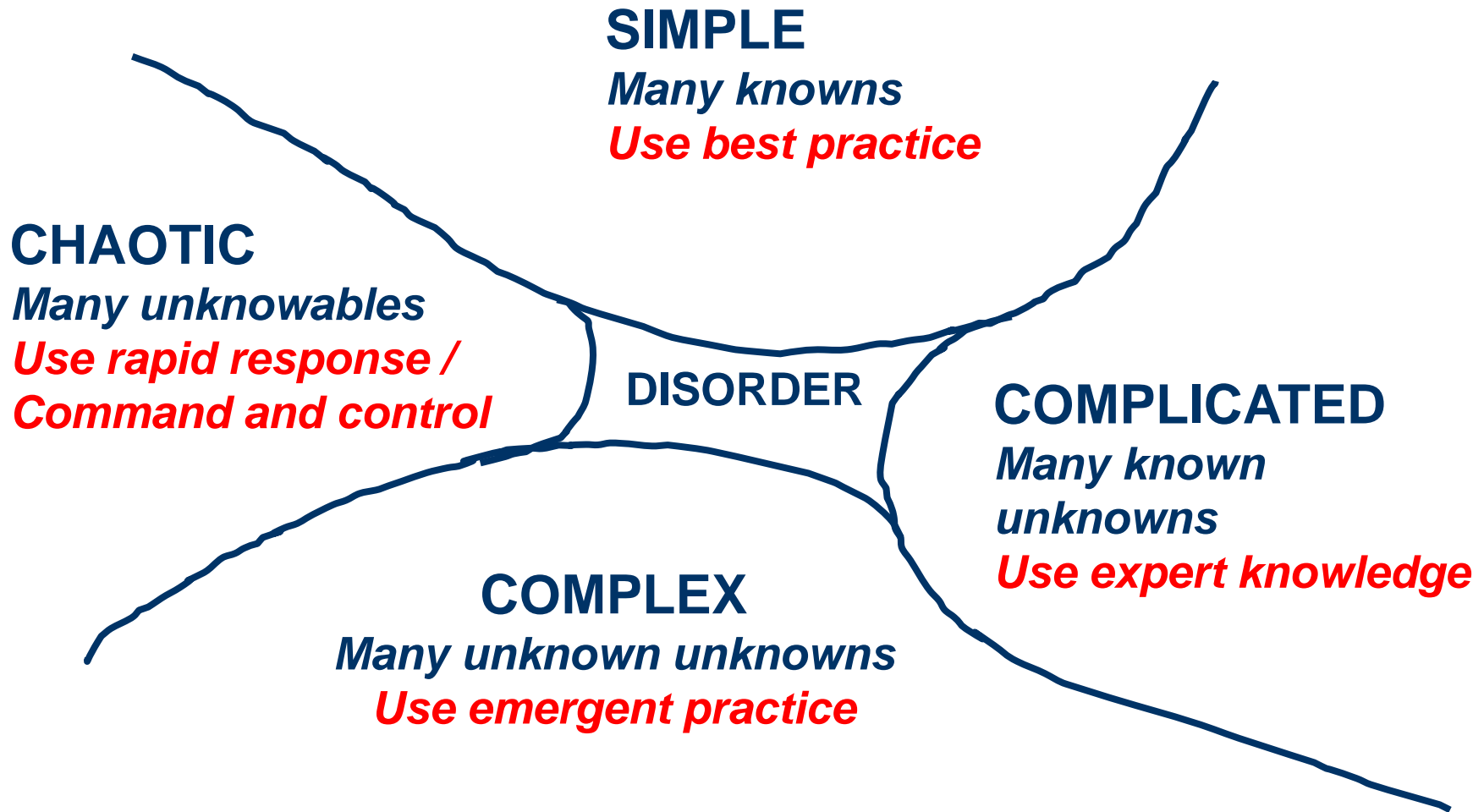
... to decide how to act wisely.

It is a journey I have been on for over 20 years... here are some of the lessons and tools I've used.

The complexity of climate change



The complexity of climate change



The complexity of climate change

COMPLEX PROBLEMS (*Many unknown unknowns*)

Use emergent practice:

- *Observe and inquire;*
- *Realise there is no single solution;*
- *Be guided by values and principals;*
- *Engage with others in an environment of collaboration, integration and co-creation; and*
- *Recognise that we will not have all the information we need and we will get it wrong – we need to be innovative and flexible and learn from our mistakes.*

Becoming response-able

However, our brains have not yet evolved to deal with complex problems well....



Becoming response-able

... to sofa man



Becoming response-able

... to sofa person



Letsknowabout.com (2011)

Becoming response-able



We still respond to PAIN and threats in much the same way as caveman did. We act if things are:

Personal

Abrupt

Immoral

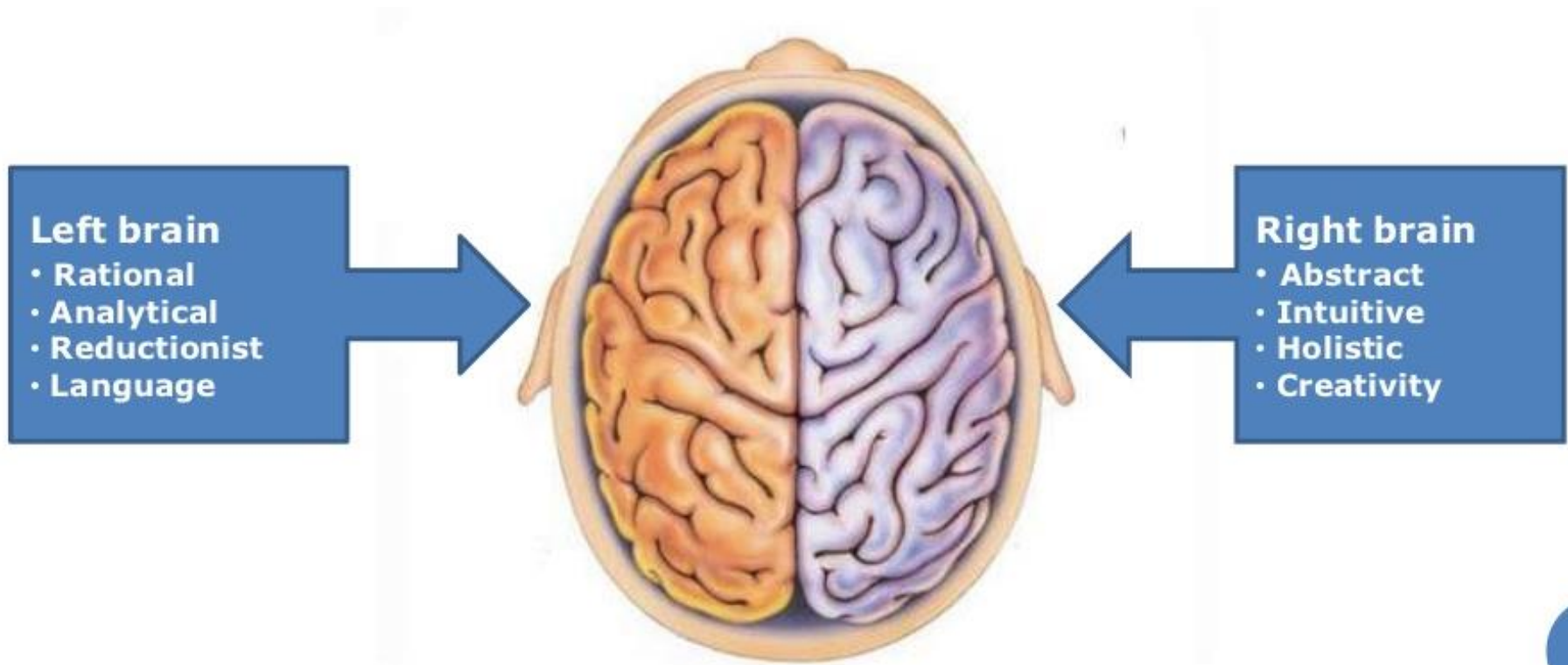
Now!



http://poptech.org/popcasts/dan_gilbert__potech_2007

Becoming response-able

The lateralization of brain function...

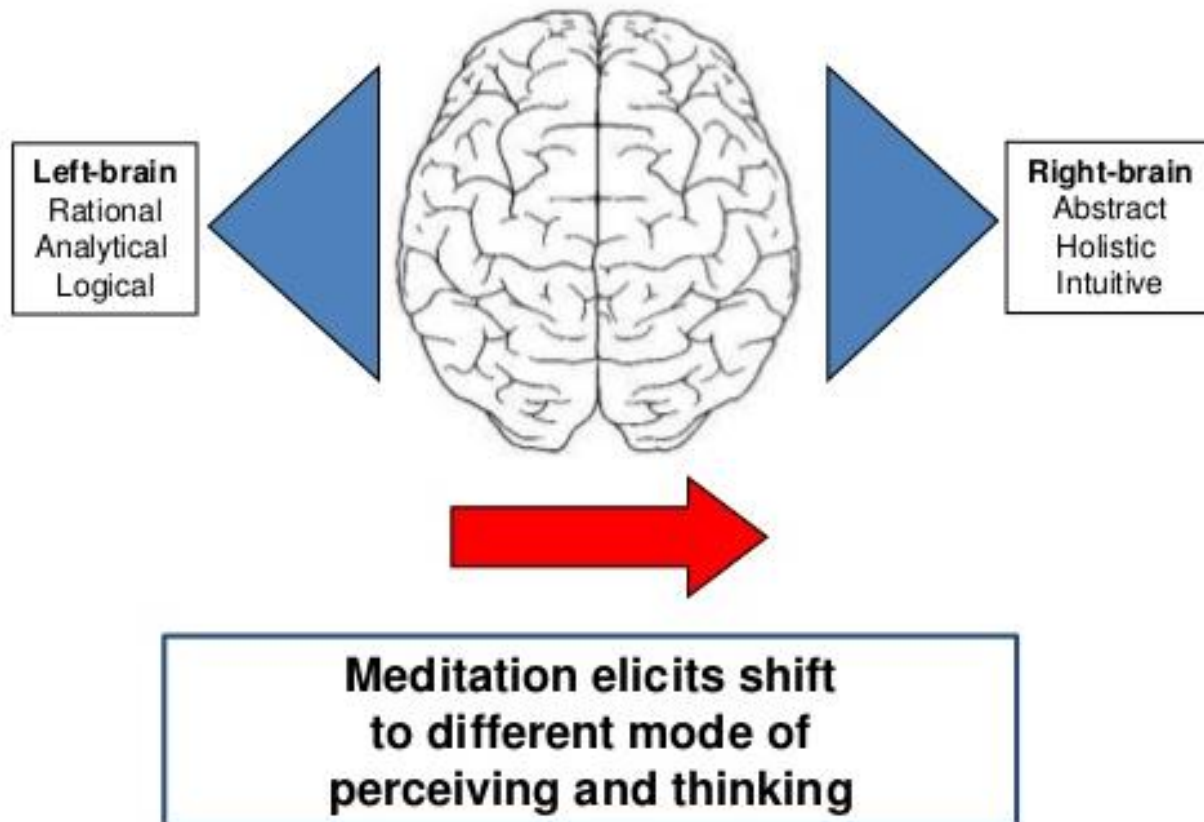


Becoming response-able

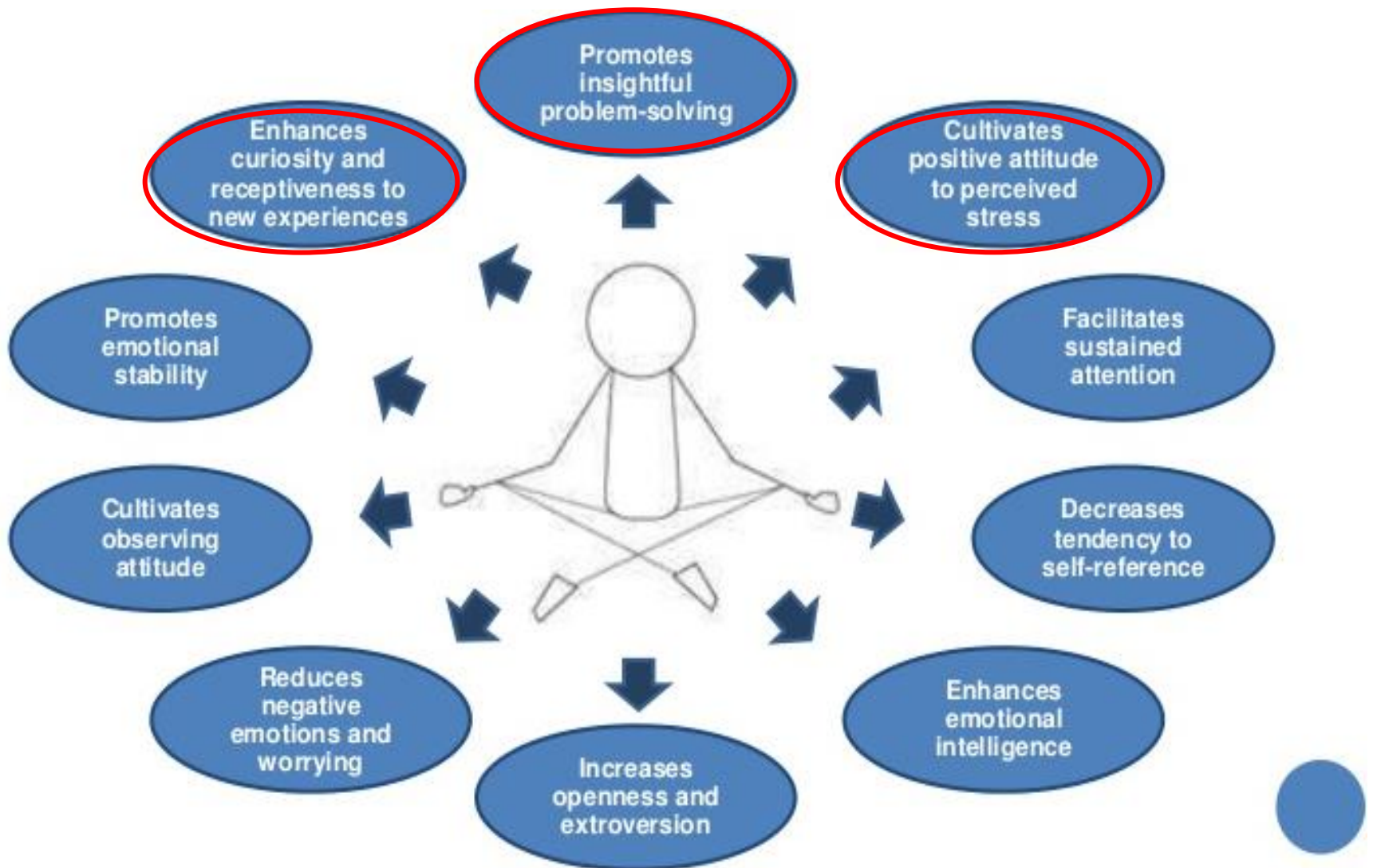


Becoming response-able

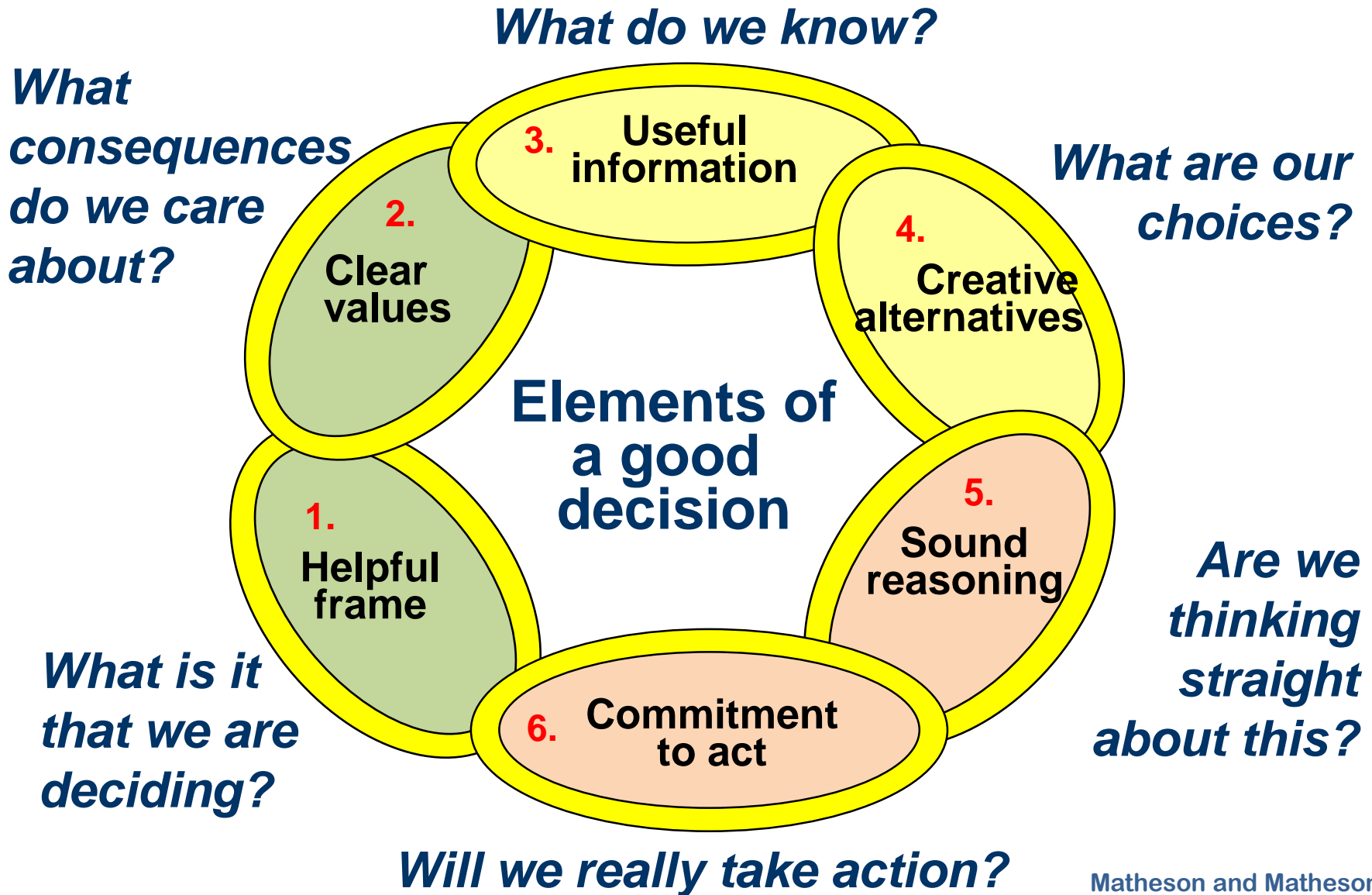
Practicing mindfulness (focussing our attention) prompts a shift from left brain to right brain thinking.



Becoming response-able



Acting wisely



Acting wisely - Helpful Frame

A Helpful Frame is provided by having a clear and agreed understanding of the question / problem to be addressed and the context within which it sits.

Tools include:

- Project scope meetings
- Agreed question / problem
- Agreed project aims
- Agreed problem solving / project methodology
- Draft Project scope document

Acting wisely – Clear Values

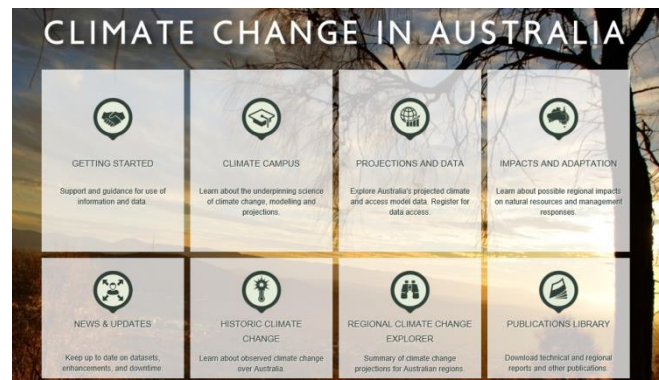
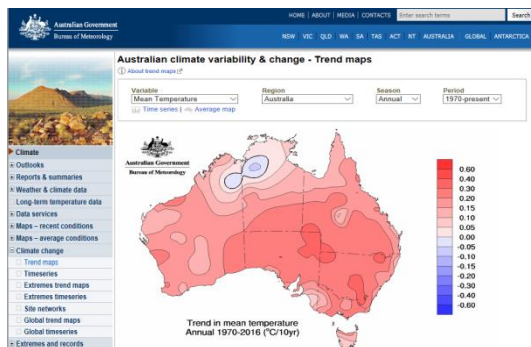
Clear Values are determined by engaging stakeholders and agreeing on a values statement that can be included in the final scoping document.




Acting wisely – Useful Information

Useful Information is found by getting the facts from a literature review of reputable sources including:

- Bureau of Meteorology Climate Change pages (observed changes, data, maps)
- CSIRO Climate Change in Australia Report / website (climate change scenarios, maps, data)
- IPCC, NCCARF, other websites and resources
- Google Scholar for journal searches



Acting wisely – Useful Information cont.

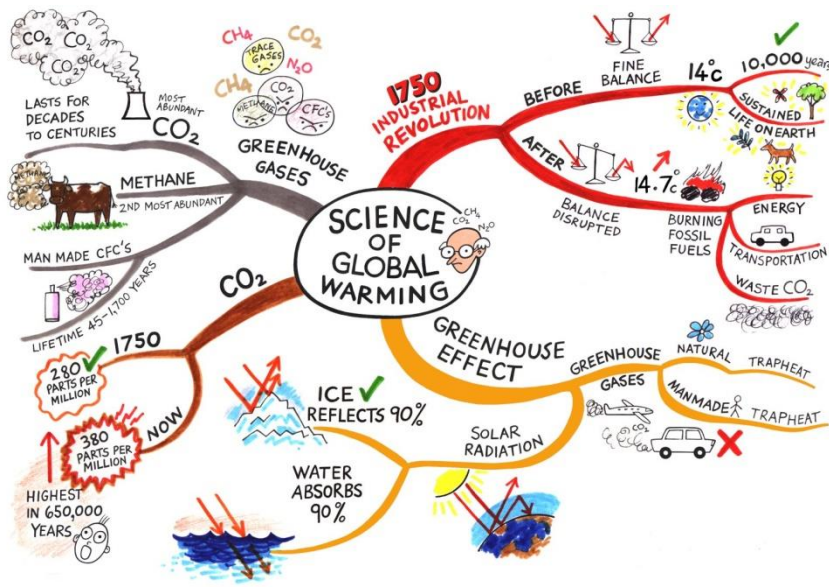
- Coast Adapt (definitions, factsheets, maps)
 - Canute (sea level rise maps)
 - National Tidal Centre SLR data and LiDAR maps
 - Local consultant reports, case studies
 - Community knowledge / engagement
 - Relevant plans, policies and guidelines
 - Ring another Climate Champion!
- 
- Three overlapping booklets or reports are shown in the bottom right corner. The top-left booklet is titled 'Climate Change Strategy' and features a blue cover with a photograph of a coastal town. The top-right booklet is titled 'Coastal Change Strategy' and has a teal cover with a photograph of a boat on the water. The bottom-left booklet is from 'DIANYC' and is titled 'A STRONGER, MORE RESILIENT NEW YORK CITY', with a dark blue cover and a photograph of a rocky shoreline.



Acting wisely – Creative Alternatives

This is where the right brain function comes into action and includes activities such as:

- Stakeholder engagement / questioning
- Imagining possibilities / scenarios
- Brainstorming
- Word webs

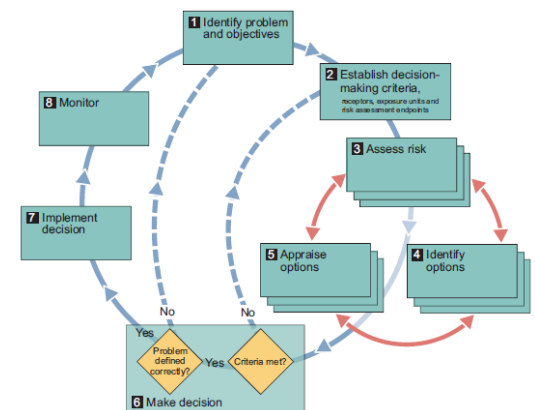
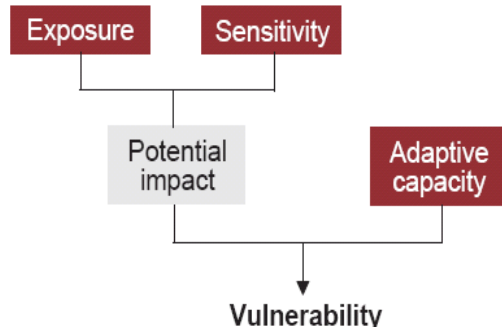
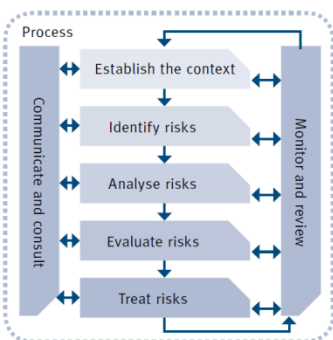


“What if we don’t change at all ...
and something magical just happens?”

Acting wisely – Sound Reasoning

Sound reasoning is where the left brain kicks in and we can use tools such as:

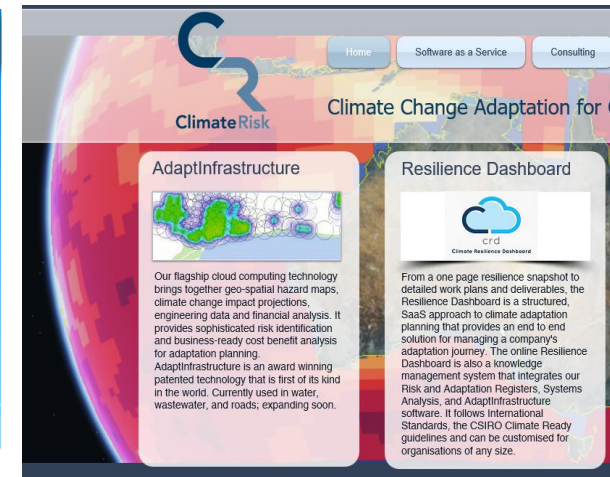
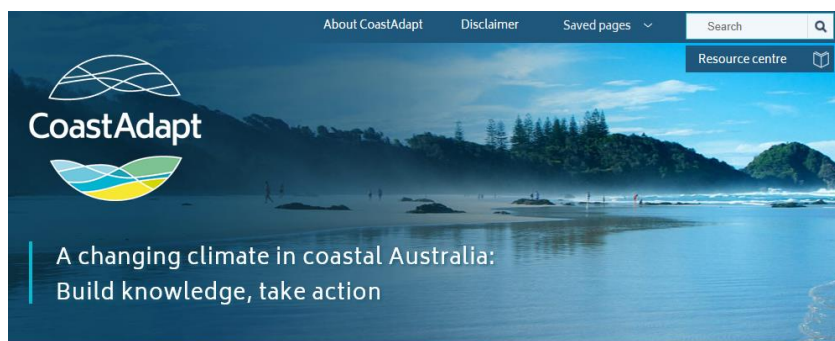
- Risk analysis (ANZ ISO 31000 Risk Assessment)
- Vulnerability assessments (IPCC, UK CIP climate adaptation planning framework and tools)
- Multi-criteria analysis
- Cost benefit
- Decision trees
- Modelling



Acting wisely – Sound Reasoning cont.

Some tools specific to the coastal zone include:

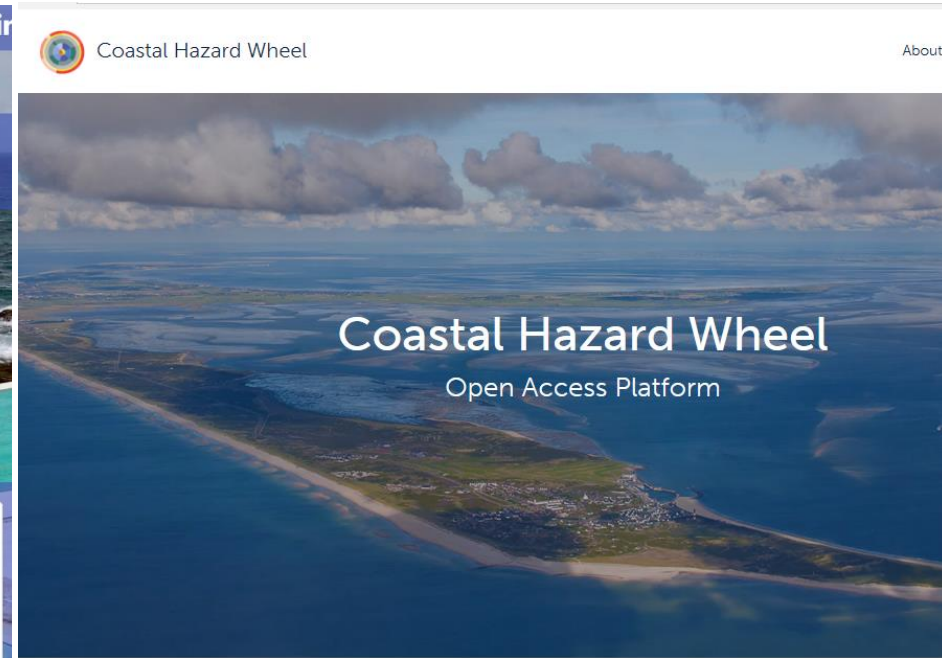
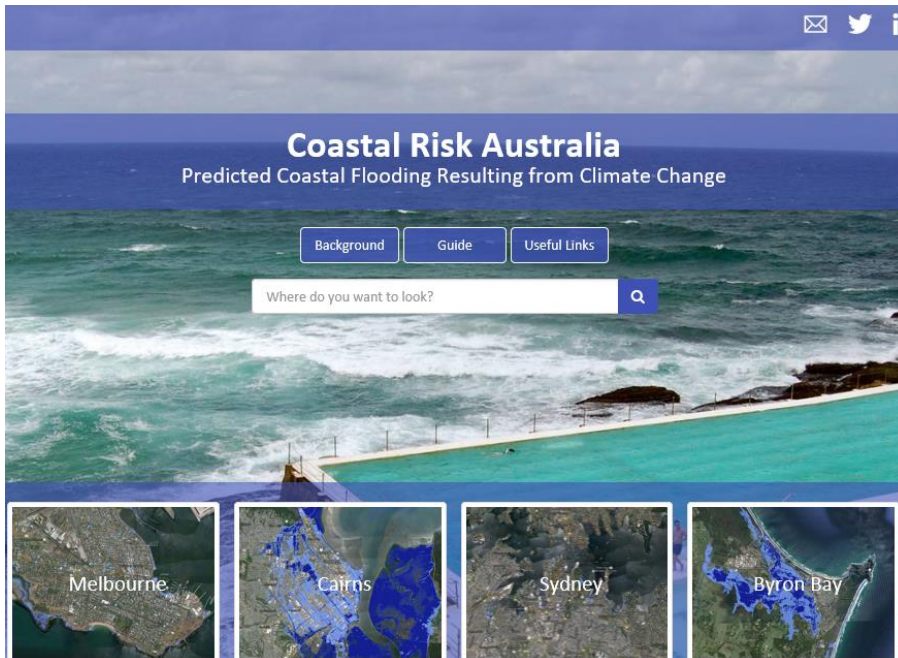
- Coast Adapt (SLR mapping, decision tools)
- Coastal Adaptation Decision Support Tool (LGA SA – decision tree, maps and SLR model)
- AdaptInfrastructure (Climate Risk – GIS hazard mapping, climate change projections, infrastructure risk identification and cost risks)



Acting wisely – Sound Reasoning cont.

More tools specific to the coastal zone include:

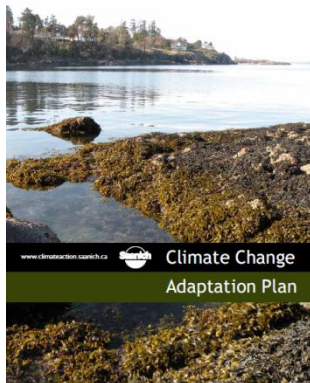
- Coastal Risk Australia (Mapping tool for IPCC scenarios and local tidal influences)
- The Coastal Hazards Wheel (UNEP – Coastal classification tool and analysis framework)



Acting wisely – Commitment to Act

A commitment to act is the final link in the good decision chain. Tools that are used for this include:

- Gantt charts
- Financial plans
- Operational plans
- Action plans
- Monitoring and evaluation processes
- Regular review



Storms					
Option	Primary Responsibility	Secondary Responsibility	Score	Priority	Comments
Relocate power and phone lines underground	Council	Energy Australia	25	High	Protects power lines from falling trees and o to maintain continuous power supply during
Conduct community education program	Council	Emergency services	20		Improves community self reliance
Discounts or rebates provided for storm resilient construction (ie, window shutters, corrugated roofing, SABS warning system)	Council	Supplier	20		Provides greater protection to the inter-
Understate disaster risk assessments of key infrastructure	Council	Consultant	18		Provides warning to allow for early res-
Stabilisation works of known high erosion areas	Council	Contractor	17		Provides greater protection to the inter-
Replace roofing with storm resistant materials	Council	Contractor	16		Protects infrastructure and property
Review and regulate planning controls which increase resilience of the built environment in storm events	Council	State Government	14		Provides greater protection to the vil-
Train staff in disaster management (ie, chain-of-command)	Council	Education	14		Improves clean up response by Co
Identify and manage vulnerable trees	Council	Contractor	12		Reduces the incidence of damage
Replace canopy trees with appropriate trees to withstand high velocity winds	Council	Contractor	8		Reduces the incidence of damage
Maintain Link Emergency Operation Centre for the provision of logistical support	Council	Emergency Services	8	Medium	Allows for greater coordination +
Install underground power supply (long-term) at all key Council facilities (ie, Chambers, Depot, Community centres/meets on wheels)	Council	Contractor	7		Allows for continued operation of key Council facilities throughout power failure events
Provide welfare and resource information to residents and businesses affected by storms	Council	SES	7		Assists affected community members to access available services
Review, update and increase awareness of the DISPLAN	Council	Emergency services	5		Provides relevant and up to date procedures in managing the logistics of emergency events
Assess and reinforce vulnerable infrastructure (ie, bridges)	Council	Consultant	5		Protects infrastructure in high risk areas
Upgrade road structure and materials to improve resilience	Council	Contractor	5	Low	Protects road surfaces to withstand greater water velocities
Increase capacity of stormwater infrastructure	Council	Contractor	5		Reduces flooding of downstream properties
Provide mobile welfare support (eg, Meals on Wheels)	Council	State Government	4		Provides food and other services to vulnerable and less mobile community members

In summary – Decision Principals

COMPLEX PROBLEMS

(Many unknown unknowns)

Use emergent practice:

- Observe and inquire;
- Realise there is no single solution;
- Be guided by values and principals;
- Engage with others in an environment of collaboration, integration and co-creation;
- Recognise that we will not have all the information and we will get it wrong – we need to be innovative and flexible and learn from our mistakes;
- Practice mindfulness to develop right brain functions.

In summary – Decision Practices

- Framing of the problem includes a clear and agreed question and scope
- Values of stakeholders are included
- Relevant and rigorous information from a literature review provides context, impacts, options, costs
- Alternatives identified by brainstorming, engagement
- Sound reasoning uses a logical decision process to options (screening, risk, cost benefit, vulnerability assessments, decision trees, multi-criteria analysis)
- There is a commitment to implement actions embodied in a Gantt Chart, Operational, Financial or Action Plan (identifies actions, responsible persons, budgets, timelines, monitoring, evaluation and regular review).

Thank you



Jacqueline Balston

Climate Consultant

Dr. Jacqueline Balston

P.O. Box 315, Bridgewater SA 5155

0488-010466 jacqueline.balston@jbalston.com