



# Biosecurity

## Wicked Problems, Wicked Solutions

## Wicked Evaluations

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# Introduction

- Biosecurity is not a complex problem...  
...worse, it is a *wicked* problem
- Concepts and characteristics of wicked problems provide wicked solutions
- Collaborative approaches to wicked problems are the most effective
- This paper is based on work commissioned by the Victorian Department of Primary Industries
  - *Review of Core Elements of the Invasive Plant and Animals Program*



# What Are Wicked Problems

- Rittel and Webber (1973)
  - Social issues of urban planning
  - Inability to use traditional linear approaches
  - Created ten criteria for classification purposes
- Conklin (2001)
  - Contrast wicked with tame problems
  - Well defined problem, right or wrong solution
- Australian Public Service (2007)
  - Wicked problems challenge public policy
  - Nine characteristics to help identify response





# Wicked Public Policy Areas

- Koppenjan and Klijn (2004): Complex policy problems are more prevalent than in the past
  - Obesity
  - Indigenous disadvantage
  - Climate Change
  - Murray Darling Basin
  - and Biosecurity!
- Plenty to learn from in other areas



# The Biosecurity Problem

- Invasive plants, animals and disease
- Private and public effects
- Complex web of social, economic and environmental influences
  - Environmental: Biodiversity, habitat, *etcetera*.
  - Social : Health, stress, recreational, *etcetera*.
  - Economic: Production, land management, government programs, *etcetera*.





# Wicked Problem

- Biosecurity
  - involves a range of interdependencies and is multi-causal
  - is not a static issue
  - is socially complex
  - does not sit conveniently within the responsibility of any one organisation
  - involves changing behaviour
  - has been characterised (in some instances) by chronic policy failure

Based on the nine characteristics identified by APS (2007)



# Wicked Solutions

- Traditionally: Administrative Rationalism
  - Bureaucratic, expert orientated, problem disaggregation and solution aggregation

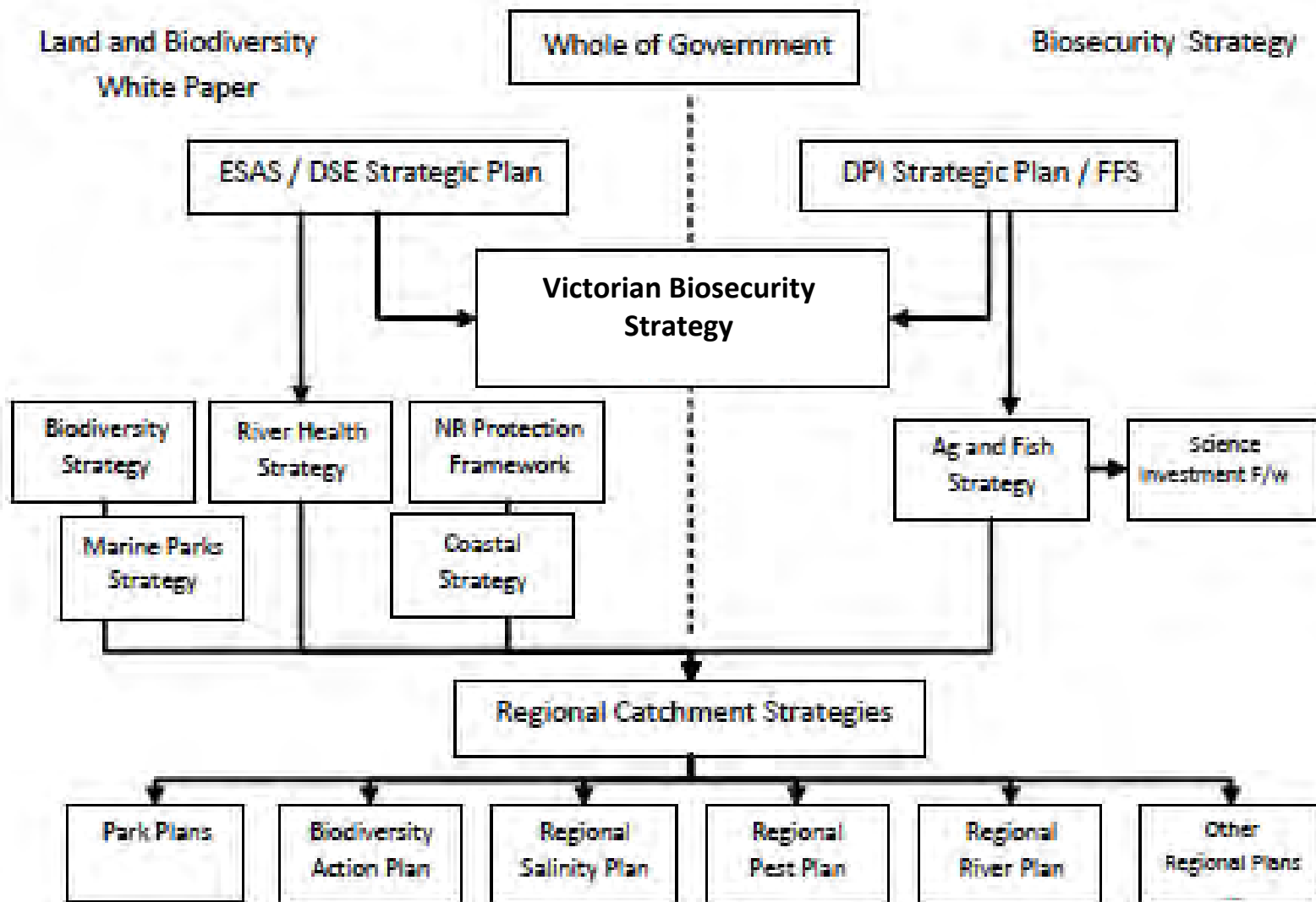
Source: Dryzeck, 2005

- Wicked solutions: Three avenues
  - Authoritative: efficient, timely, alienates community, responsibility with authority
  - Competitive: creative ideas, choice, conflict, stalemates, wastes resources
  - Collaborative: comprehensive, effective, high engagement, transaction costs

Source: APS, 2007, p.9-10

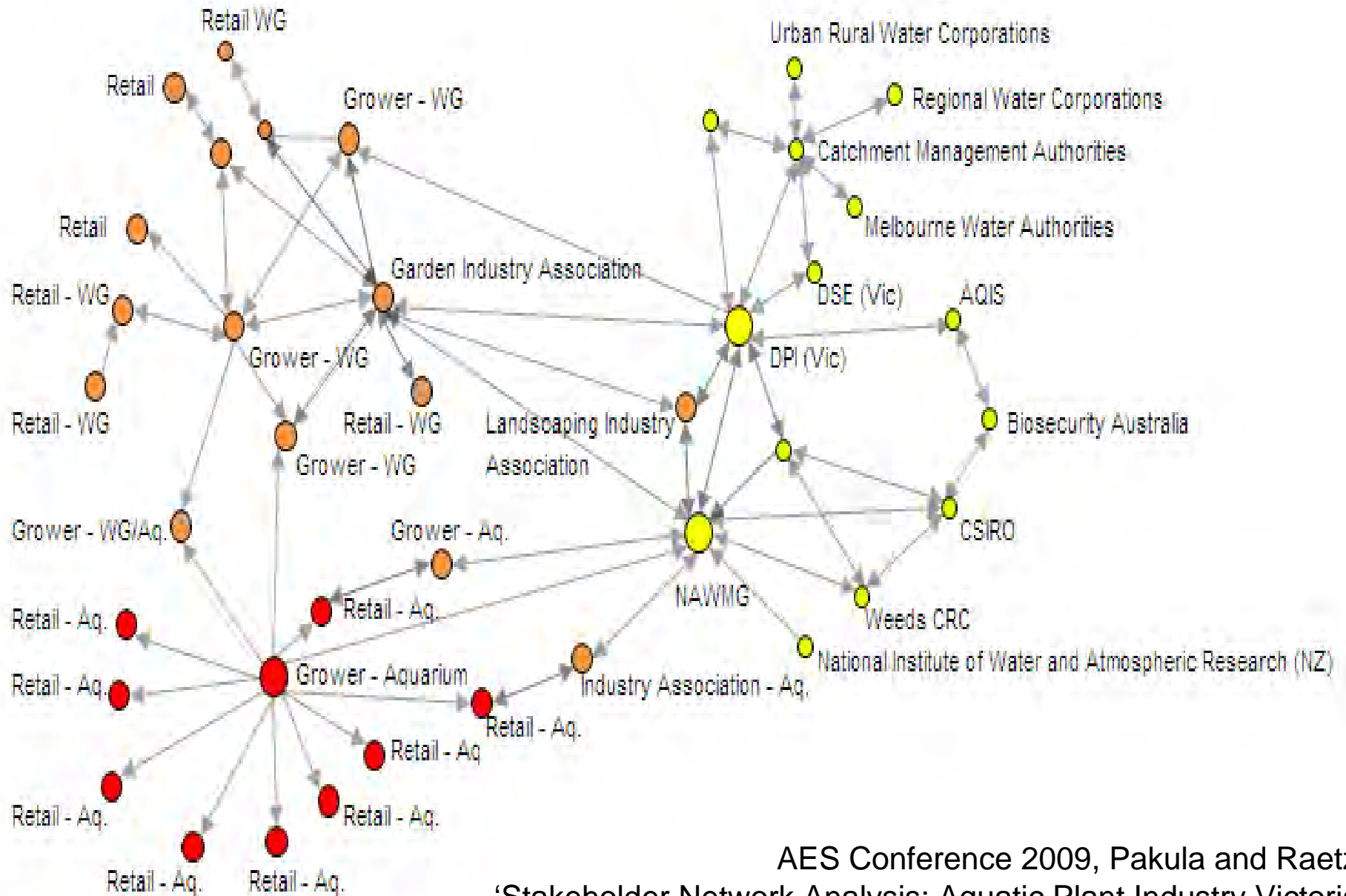


# Victorian Case Study





# Aquatic Plant Industry (Victoria): Stakeholder Network Map\*



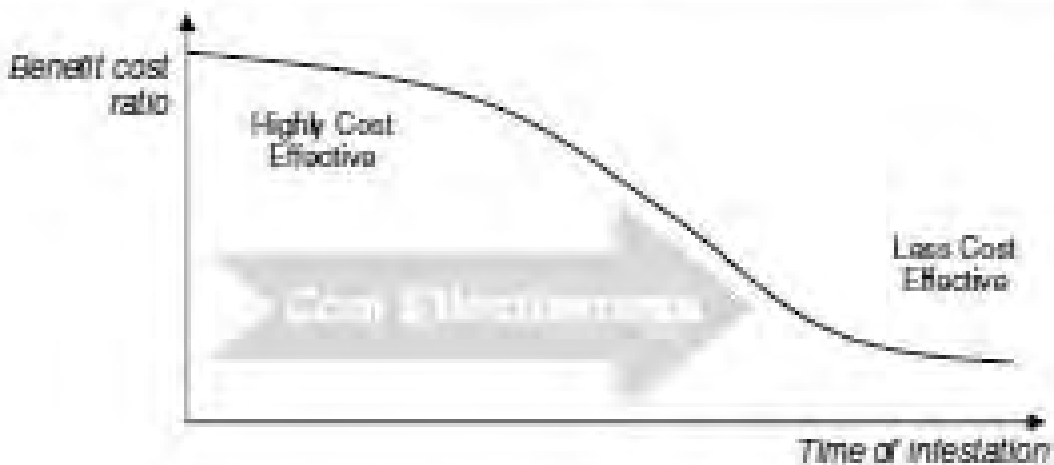
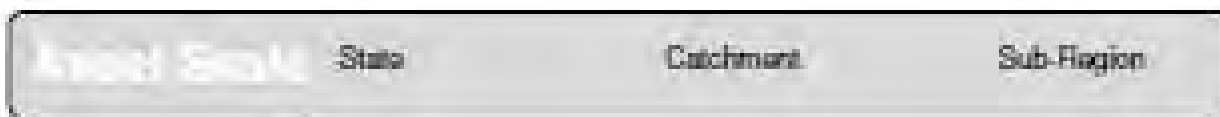
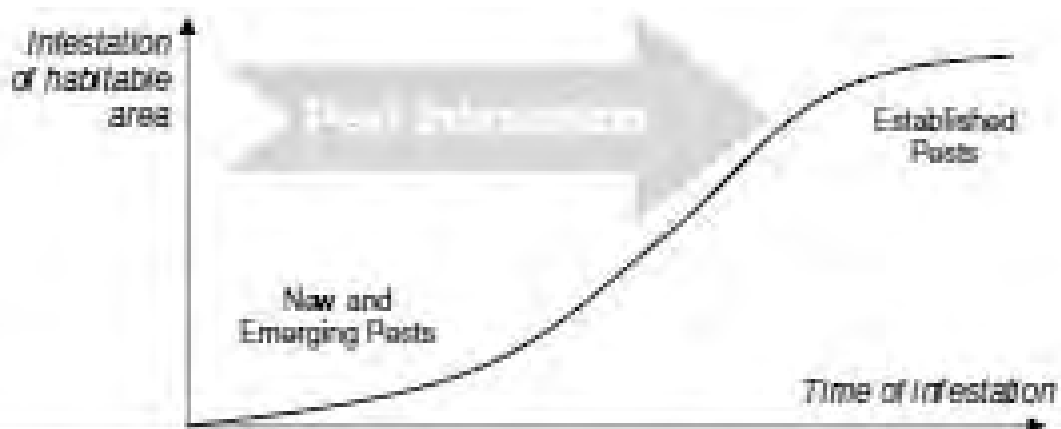


# Engagement in Biosecurity

- Collaborative approach requires high level of engagement
  - Challenges include expectations, cynicism, resources and divergent views
- SNA helps identify stakeholders based on:
  - Role, network, interest, awareness, perceived responsibility, likelihood to trade in risky aquatics, quality of network, interactions
  - Gaps in engaging and evaluating informal networks that by their nature are hidden from view



# Invasion Curve & Cost Effectiveness





<b>Activity</b>	<b>Efficiency Factor</b>
<b>Prevention</b>	Coordination, integration, quick response, evidence based, planning
<b>Eradication</b>	Coordination, timely, evidence based
<b>Containment</b>	Coordination, community involvement, regional involvement, spatial identification
<b>Asset Protection</b>	Scope of stakeholders, community involvement
<b>Public Awareness</b>	Scope of stakeholders / activities, degree of influence, community involvement
<b>R&amp;D</b>	Evidence based, human resource capacity, interaction with researchers, involvement of science and experts



	Short Term	Long Term
<b>Positive Public Effects</b> <b>Positive Private Effects</b> <b>Positive Industry Effects</b>	Industry Funded (levies) / Extension	Industry funded (levies) / In Kind Contribution
<b>Positive Public Effects</b> <b>Positive Private Effects</b> <b>Negative Industry Effects</b>	Cost Recovery / Cost Sharing	Government Funded / Cost Sharing
<b>Positive Public Effects</b> <b>Negative Private Effects</b> <b>Positive Industry Effects</b>	Partnerships & Cost Sharing	Partnerships & Cost Sharing
<b>Positive Public Effects</b> <b>Negative Private Effects</b> <b>Negative Industry Effects</b>	Fully Government Funded	Fully Government Funded
<b>Negative Public Effects</b> <b>Positive Private Effects</b> <b>Positive Industry Effects</b>	Industry Funded (levies)	Industry Funded (levies) / Possible In Kind Contribution
<b>Negative Public Effects</b> <b>Positive Private Effects</b> <b>Negative Industry Effects</b>	Landholder Funded	Landholder Funded
<b>Negative Public Effects</b> <b>Negative Private Effects</b> <b>Positive Industry Effects</b>	Industry Funded (levies)	Industry Funded (levies)
<b>Negative Public Effects</b> <b>Negative Private Effects</b> <b>Negative Industry Effects</b>	No Action	No Action



# Wicked Evaluations

- Evaluation based on wicked solution:
  - Collaborative approach and networks
  - Adaptive governance: Participatory, deliberative, multi-layered, nested, accountable, responsive, just, well informed.
  - Systems approach to the evaluation: economic, social and environmental context
- The utilisation of results for continuous improvement is of utmost importance
  - Evaluate outcomes? Sure.
  - Provide lessons for tomorrow? Definitely!

**Phew.. The end!**

**Thank you for  
your time**

**Questions?**





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