Food, Fuel and Fibre from the Rural Heartland

GCI Food Security Discussion Series
5th May 2016

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Outline

- Multiple land use and cumulative impacts
- A tale of two mines – Mt Thorley Warkworth and Drayton South
- Balancing impacts and trade-offs
- Modern risks and wicked problems
- Multi-functionality and the five capitals model
- What are the lessons from multi-industry regions?
- Can exploiting finite resources contribute to sustainability?
Land Use: Mines, thoroughbreds, vineyards

• 20 mines with new + expansions
• 75+ horse studs
• 30+ wineries
• Tourism
• Towns

What’s the total ‘footprint?’
Aerial view of Muswellbrook, Hunter Valley
Increasingly challenging situations for managing cumulative impacts

- A range of often unrelated human activities to be taken into account
- Meeting human needs for food and energy but often on a ‘collision course’ with sustainability goals
- Operating over different time scales and impacting on different ‘spaces’
- Combining and interacting (often in unpredictable ways)
- Impacts are multi-dimensional (social, environmental, economic)

➢ The cumulative impact could exceed that of a number of comparable and more easily aggregated activities.
A systems model – where is the action?

Cumulative impacts of one mining operation over time

Cumulative impacts of multiple operations over time and space

Cumulative impacts of multiple operations within multiple industries over time and space

Mainly here

Sources (actors/activities)

Stressors

Exposure + Vulnerability

Combined Risks

INPUTS & extractions (source impacts)

Outputs & additions (sink impacts)

AGGREGATION
(time & space)

INTERACTION
(triggers & associations)

FEEDBACK

RECEIVING ENVIRONMENT

ACTIVITY SPECIFIC IMPACTS

~85%

~10%

~5%
Friday 27th Nov. 2015 – two PAC decisions
1. Mt Thorley Warkworth – bad news for Bulga village
Mt Thorley Warkworth - good news for 1,300 workers
2. Drayton South – good news for thoroughbred breeders and vineyards

Bad news for 400 families in Muswellbrook: “we’ve been hung out to dry”
Managing and balancing impacts

Negative Impacts:
- Livelihoods and local economy undermined
- Safety and security decrease
- Health and education standards deteriorate
- Social divisions increase
- Culture eroded
- Displace government infrastructure & services

Policies and practices:
- Benefits distribution
- Behaviour
- Side Effects

Positive Impacts:
- Livelihoods and local economy enhanced
- Safety and security increase
- Improved health and education
- Social cohesion and cooperation increase
- Culture enriched
- Increased capacity of government to provide infrastructure & services

Adapted from Luc Zandvliet & Mary B. Anderson (2009) *Getting it Right. Making Corporate-Community Relations Work*
Do the gains outweigh the losses?

- jobs
- export earnings
- retained rural youth
- diversified farm incomes
- electrified lifestyles

- infrastructure shortfalls
- two-speed economy
- widening social divisions
- threatened livelihoods
- stress and poor health

Image Source: You-tube change management video
The conventional proposition that all a region needs is an industry that brings jobs, economic growth and better infrastructure no longer secures a social licence to operate.

Not simple trade-offs e.g. mining v. farming

2010 Value of production $bn.

- WA: Mining $121
- QLD: Mining $121
- NSW: Mining $34
- VIC: Mining $6
- NT: Mining $4
- SA: Mining $4
- QLD: Agriculture $27
- NSW: Agriculture $5
- VIC: Agriculture $3
- NT: Agriculture $2
- SA: Agriculture $2
Non-calculability and non-solubility of modern risks

### Challenges for ‘evidence-based’ decision-making:

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<tr>
<th>Issue</th>
<th>Details</th>
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<td>Relevant to many stakeholders with conflicting priorities and values</td>
<td>• Agriculture, CSG, Mining and other industries; Government; NGOs, Community members</td>
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<td>Difficult to aggregate multiple activities</td>
<td>• Interacting and occurring across different time scales and different spatial units</td>
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<td>Issues are inter-connected and tangled with each other not discrete</td>
<td>• Industry practices, climate conditions, government policies, trade arrangements</td>
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<td>Conditions are volatile, dynamic and hard to predict and model</td>
<td>• Nature, industries and human behaviour are not exact, uniform and un-changing</td>
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<td>Available data is uncertain and incomplete</td>
<td>• Held by different sources, evolving over time</td>
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<td>• Collected for various purposes, incompatible</td>
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<td>Complex and multi-dimensional problems rather than linear ones</td>
<td>• Interdependent financial, physical, human, natural &amp; social capitals but no whole system</td>
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Ecosystems serve multiple functions (MEA)

Supporting

Provisioning

Regulating

Can human activities do so too?
The cumulative impacts on regional assets/ capital

Conceptual Framework

- Human capital
- Social, institutional and cultural capital
- Built capital
- Economic capital
- Natural capital

- Sustainable development maintains (and where possible increases) stocks of these various kinds of capital so that we live off the ‘flows’ without depleting the stock of capital itself.

- Development is not sustainable if we ‘liquidate’ or degrade our assets rather than add value to them.
Lessons from regions with extractive and other industries

1. Any industry brings benefits, risks and costs
2. The benefits and risks of extractive industries are not equally spread
3. Resource extraction creates jobs but can deplete the labour pool and other paradoxes
4. The social changes accompanying extractive industries can affect social fabric and psycho-social well-being
5. Social impacts are hard to define and measure
6. Numbers don’t tell the whole story

Other lessons?
Can finite resources contribute to sustainability?
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THANK YOU

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