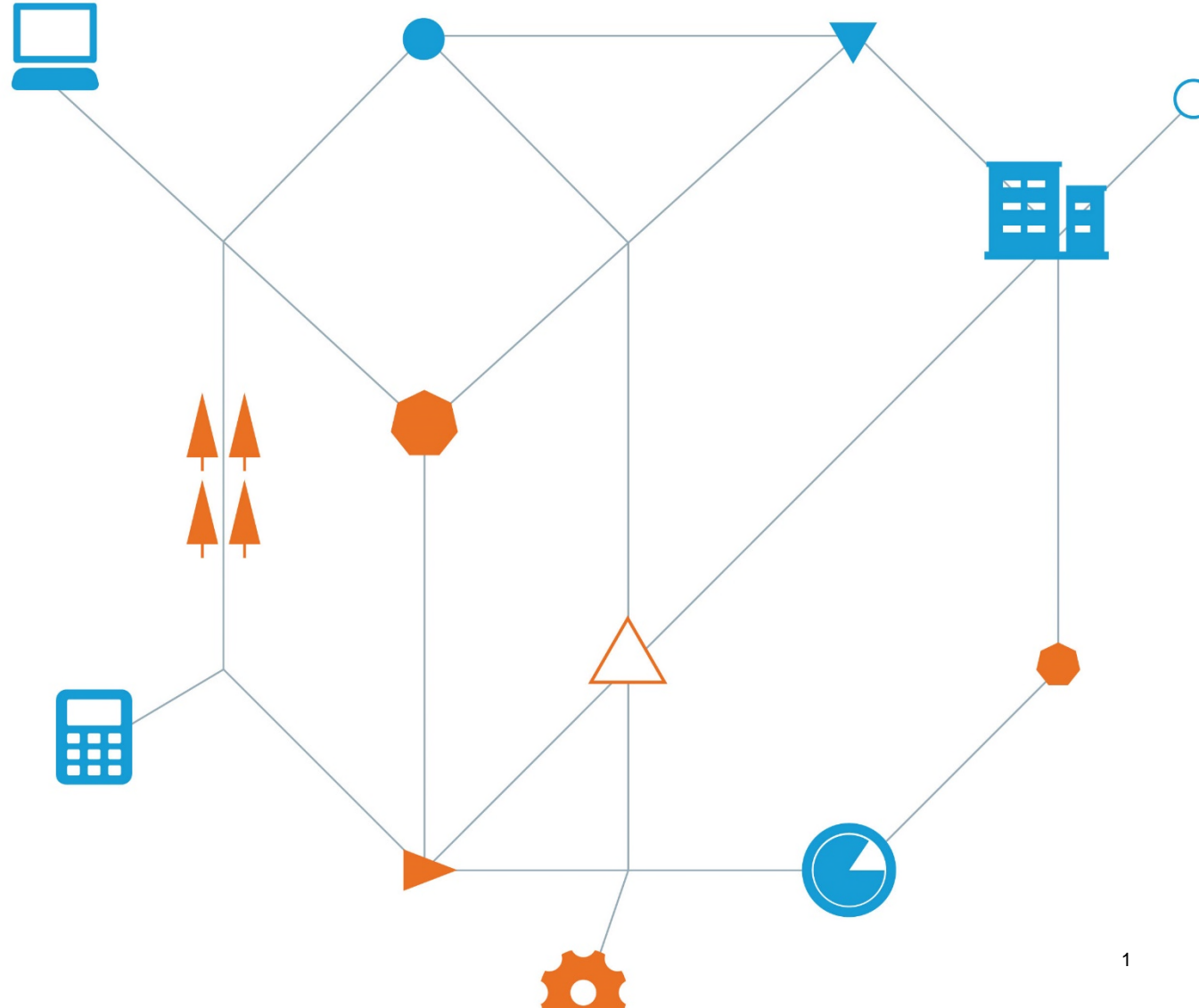


Simplicity
is complexity's
only adversary

A method that can revolutionise
impact assessment

Barton Napier
Senior Principal / Head of Practice

IAIA19 Brisbane



Benchmarking



Impact

Cumulative



Compliance



Integrated

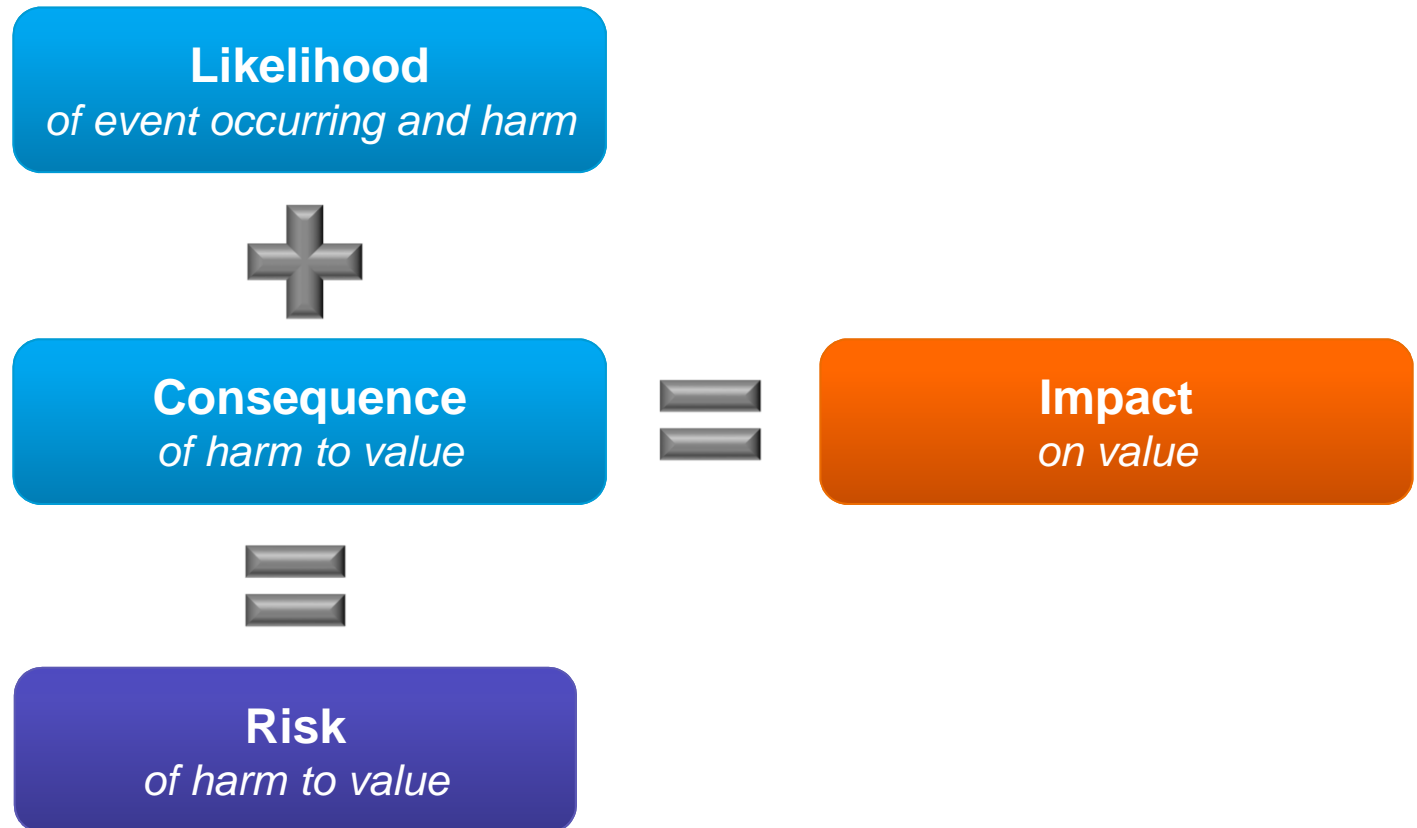




Image source: www.australianmining.com.au



HB 203:2012
Managing environment-related risk

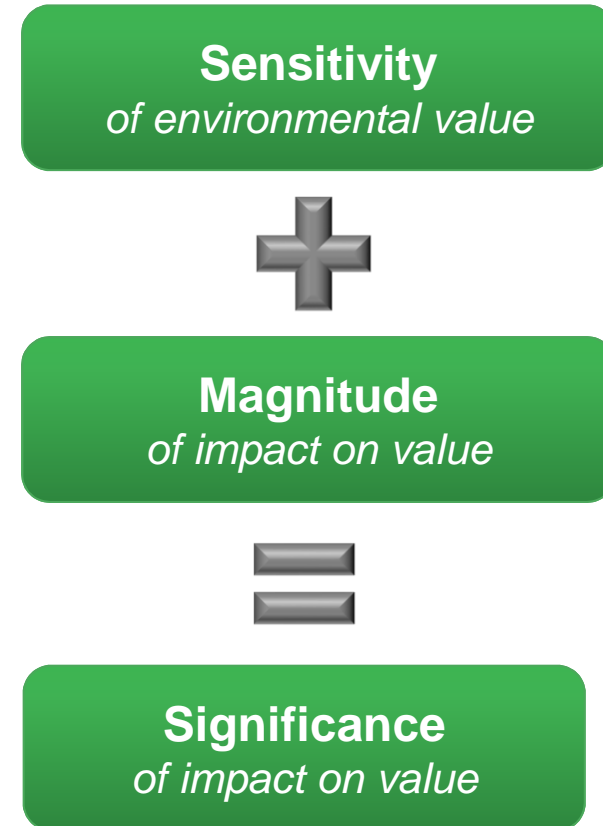


Context is everything



Key assumptions

- Credible impact
 - hazard
 - mechanism/driver
 - pathway
 - receptor
- Impact will occur
- Mitigation proven and effective



Valued environmental component or value

- An aspect that is **valued, desirable** or **useful**
- A quality or characteristic that is **conductive** to ecological and human health and/or public amenity and safety

Sensitivity attributes

- **Worth** (value placed by communities or society)
- **Intactness** (intact / degraded / compromised)
- **Uniqueness or rarity** (only one, endemic or common)
- **Adaptability or recovery potential** (can or cannot adapt to change)
- **Replacement potential** (other examples elsewhere)

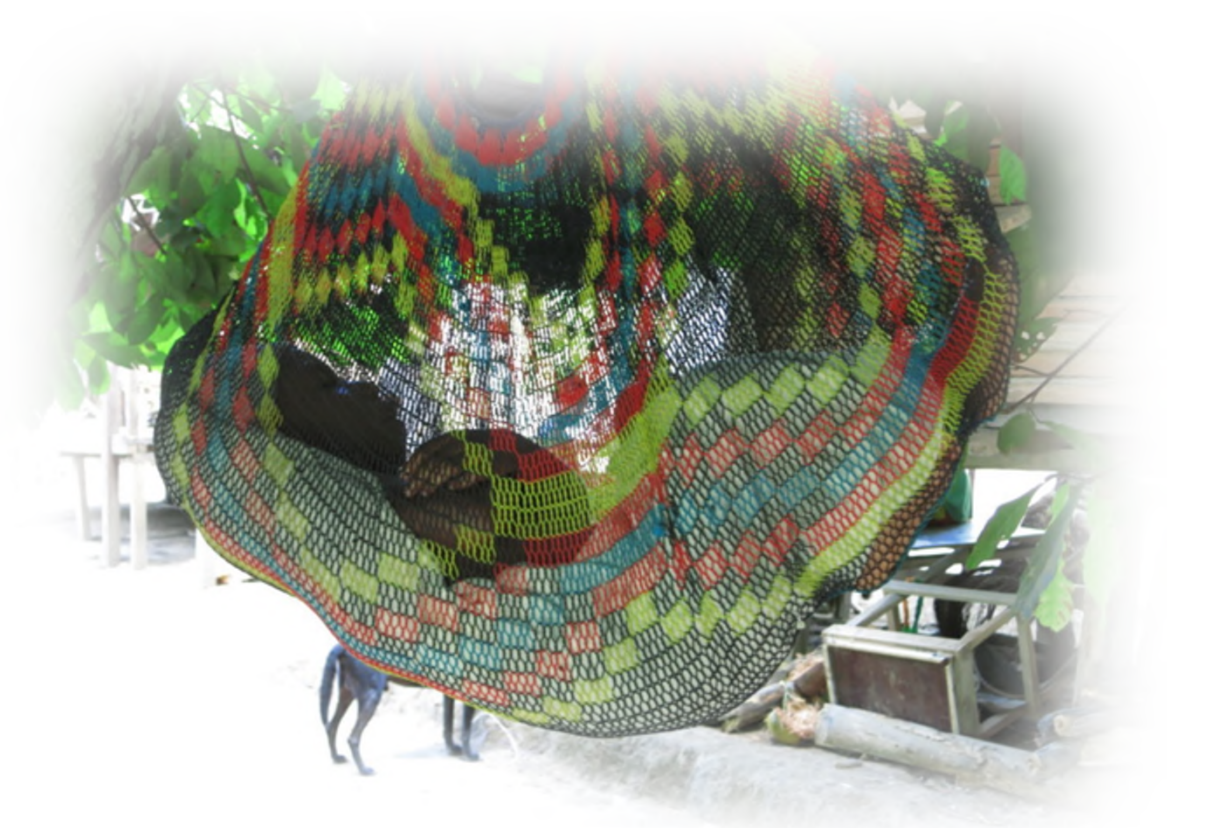


Image source: Coffey

Magnitude attributes

- **Geographic extent**
 - Local, regional or widespread effects
- **Temporal extent (or duration)**
 - Immediate or delayed impact
 - Occurring during day or night, wet or dry season; summer, autumn, winter or spring
 - Project phase (early works, construction, operation, decommissioning)
 - Once-off or cyclical or continuous
 - Short-term, medium-term or long-term
- **Severity (or intensity)**
 - Scale (large or small)
 - Degree (intense or mild; acute or chronic)
 - Rate of change (rapid or gradual onset)



Image source: Coffey

	Sensitivity of value				
Magnitude of impact	Extremely sensitive (very low resilience)	Very sensitive (low resilience)	Sensitive (some resilience)	Not very sensitive (moderate resilience)	Not sensitive (high resilience)
Very high	Major	Major	Major	High	Moderate
High	Major	Major	High	Moderate	Low
Moderate	High	High	Moderate	Low	Low
Low	Moderate	Moderate	Low	Low	Very low
Very low	Moderate	Low	Very low	Very low	Very low
Positive	Positive	Positive	Positive	Positive	Positive
Very positive	Very positive	Very positive	Very positive	Very positive	Very positive



Mitigation applied to magnitude **reduces severity** of impact on value

Mitigation applied to sensitivity **increases resilience; enhances adaptability** of value to change

The project

- Unconventional gas development
- Covering 6,500 km²
- Infrastructure locations uncertain
- Southeast Queensland, Australia

Environmental and social context

- Regionally and nationally important groundwater systems
- High quality agricultural land
- Groundwater dependent ecosystems (springs)

Key outcomes

- Reverse impact assessment (based on sensitivity of values)
- Informed constraints mapping
- Supported development framework



Image source: Coffey



Image source: Coffey

The project

- Conventional gas development
- Gas field and export pipelines
- Western Province, Papua New Guinea

Environmental and social context

- Dynamic landforms
- Intact forest; high biodiversity
- Indigenous communities; subsistence lifestyles

Key outcomes

- Better understanding of sensitivity of communities
- Better context for biodiversity impacts
- More focus on managing mechanisms/drivers of impacts



Image source: Coffey



Image source: Coffey

- Impact assessment methods are often **inappropriately applied**
- Without **context** we cannot properly assess impacts
- Alternative method **overcomes** observed issues by
 - producing a better understanding of affected values
 - more adequately assessing the sensitivity of values to change
 - assuming credible impacts will occur and mitigation will be effective
 - providing a basis for supporting claims of positive effects
- Select the **most appropriate method**



Thank you



Image source: Coffey