

We acknowledge the tradition of
custodianship and law of the Country on
which the University of Sydney campuses
stand. We pay our respects to those who
have cared and continue to care for Country.



THE UNIVERSITY OF
SYDNEY

Community Risk Assessment

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Project Team

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Significance

Practical significance

Need to change

- Agencies are at different stages of a moderate to significant revision of community risk assessment practices:
 - Incubation
 - Development
 - Implementation

Theoretical significance

Need to reflect complexities

- Multi-hazard scenarios
- Multi-stakeholder scenarios
- Dynamic scenarios
- Consideration of vulnerability and resilience



Systematic Literature Review



Key literature to
establish the concepts



Quality check



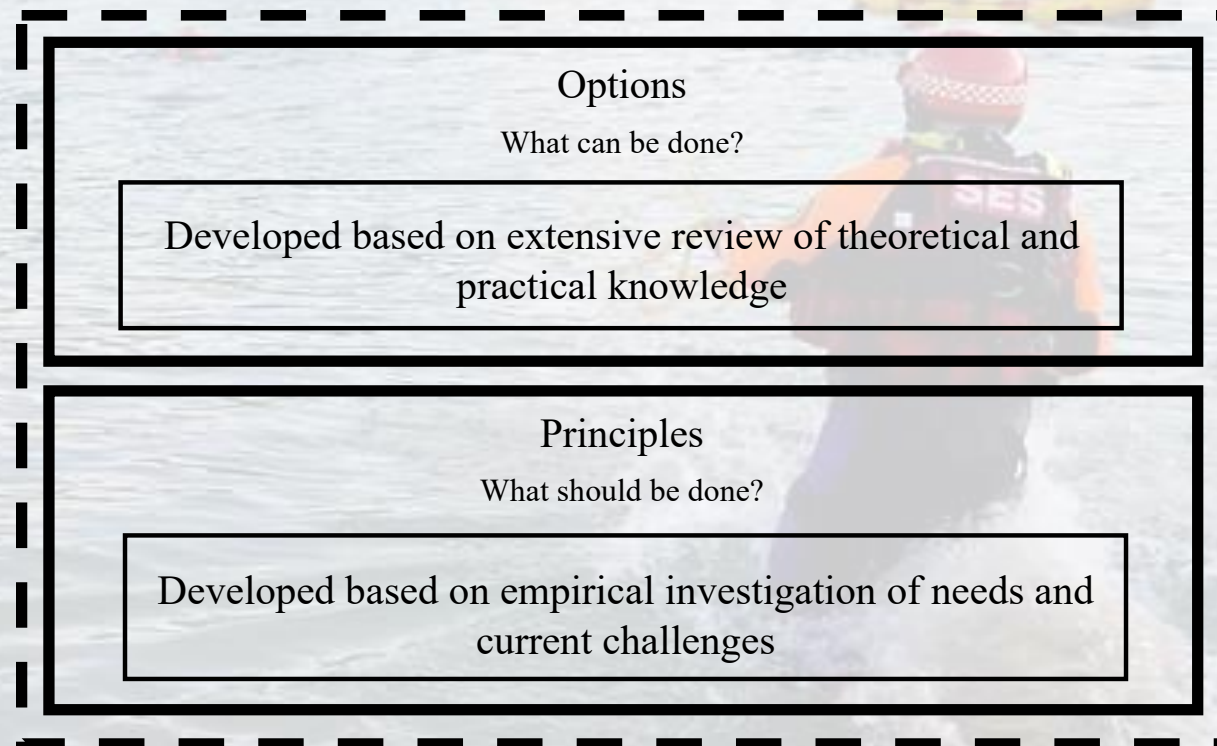
Analysis and synthesis
of the concepts

- “community risk assessment”
 - 47 manuscripts
- 45 manuscripts
- Community risk assessment approach/methodology table
- Empirical study: interviews with 29 individuals from a range of agencies and organisations across the country
 - 298 manuscripts
 - Exposure data
 - Hazard data
 - Vulnerability data
 - Data for identified risk elements



Main Outputs

- Guideline for development of community risk assessment
- What are the range of potential approaches and their capabilities?
 - How can we innovate and do it differently?



Integrated Approach

→ Bottom-up approach

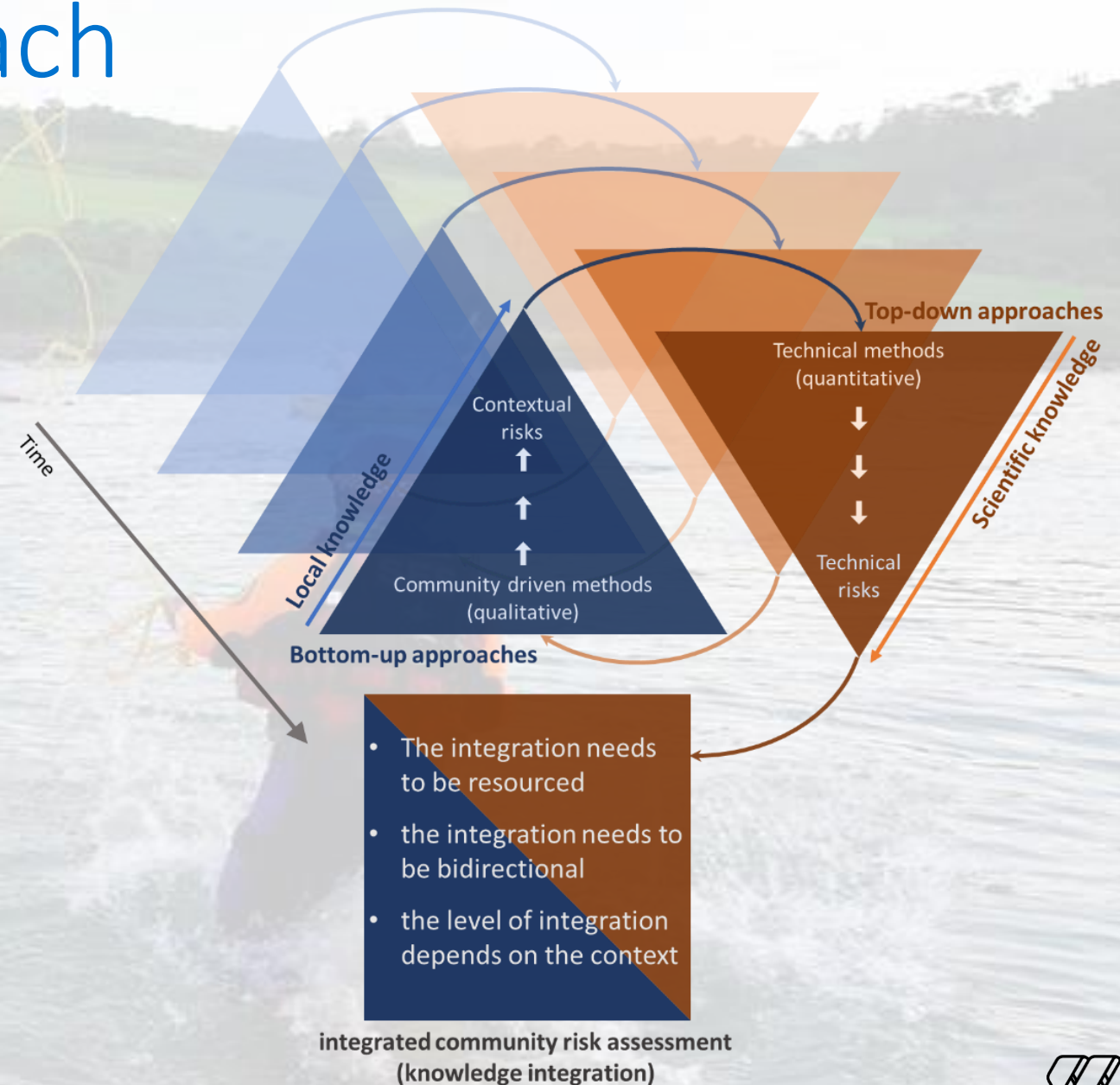
- Based on input and engagement of local and Indigenous community including rich contextual understanding

→ Top-down approach

- Based on technical and scientific input and analysis

→ Integrating bottom-up and top-down community risk assessment

- Complimenting data – filling data gaps
- Tailoring community responses
- Validation and verification using community input



Two Paradigms

→ Top-down

- Statistical
- Simulation based
- Index based

→ Bottom-up

- Focus groups and informant interviews
- Hazard mapping
- Seasonal calendar analysis
- Transect walks



Inconsistencies

- There is no established systemic perspective on organizational structures in risk assessment efforts.
- An imbalance between centralization and flexibility results in disjointed risk assessment efforts.

- One major methodological challenge is aggregating smaller-scale assessments and incorporating them into larger-scale assessments.
- The absence of clearly defined and shared risk assessment methods complicates the integration, validation, and interpretation of results.

- The effectiveness and applicability of disaster risk assessment results across different scales are influenced by a variety of social, political, and financial factors.

Organizational structure

Organizational processes

Governance

Inconsistent risk
assessments



Coordination barriers

- Community members' views of risk may not always align with those of the responsible agencies.
- The target audience of risk assessment models may not be comfortable interpreting the results.
- The uptake of community engagement campaigns conducted by agencies is often lower than expected.

- Data is typically collected and maintained by different organizations, which can limit accessibility across them.
- Inconsistent data collection and maintenance protocols restrict the interoperability of available data.

Lack of shared understanding and fragmentation in practices

Data sharing and confidentiality

Coordination barriers



Challenges of integration

- Communities are not homogeneous, which makes it challenging to capture the voice of the entire community.
- The dynamic nature of communities regarding exposure and vulnerability poses a challenge for risk assessments.

Diversity and the dynamic nature of communities

- Sourcing data from communities is often more challenging than obtaining technical data.
- The ideal level of data granularity required for certain community-level risk assessments may raise privacy concerns.

Data collection

- Risk assessment models are inevitably based on a range of questionable assumptions.
- Influential salient variables are not easily quantifiable.
- Our limited understanding of natural phenomena challenges the effectiveness of risk assessments.
- Risk assessment and community responses become more complex when multiple hazards are considered.

Reduction of reality through risk assessment models

Challenges in operationalizing the integration of risk assessment models



Integration opportunities

- Knowledge gaps in decisions based on assumptions can be addressed by incorporating local or technical knowledge.
- Community input on risk assessment model results can help in validation and verification.

- Skilled professionals may be misallocated or displaced due to limitations in the availability of skilled human resources.
- There is a need to incorporate the physical resources available to a community into risk management plans to address resource availability and logistics issues.

Intangible resources

Tangible resources

Integration opportunities



Principles

Clarify level of analysis and scale of risk assessment

Coordinate risk assessment actions

Consistent practices within the sector

Focus on impact and consequences of scenarios



Ensure bi-directional feedback mechanisms between communities and agencies

Systematic community knowledge acquisition

Develop shared understanding

Support diversity and multiplicity of knowledge

Guiding principles of community risk assessment aim to ensure a climate ready approach regardless of the contextual nuances, including the diverse knowledge sources, or consideration of level and scale of analysis.



Path forward

Resourcing integration of bottom-up and top-down risk assessment

Bi-directional integration: system of systems approach

Appropriate level of integration based on context





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