

Land, Culture, Worldview.

A Scoping Review of Indigenous Knowledge in food systems literature

Presented by

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SCHOOL OF
ENVIRONMENTAL DESIGN
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Ministry of
Agriculture, Food &
Rural Affairs



Content

- 01 Background
- 02 Approach and
Methodology
- 03 Results
- 04 Discussion



Background Interest in IK

What

Growing interest in Indigenous Knowledge to solve food systems issues (Agrawal, 2002)

Food production pressure

- Climatic instability
- Pests and disease
- Food access
- Extreme / unpredictable conditions

Indigenous food systems

- Biodiversity conservation (Ingty, 2017)
- Resilience (Garnier et al., 2020)
- Resource management (Vijayan et al., 2022)



Background Creation of categories

How

Creation of distinct categories:

- 'Indigenous Knowledge'
- 'Western Science'

Western Science

- Universal, objective, rigorous

Indigenous Knowledge

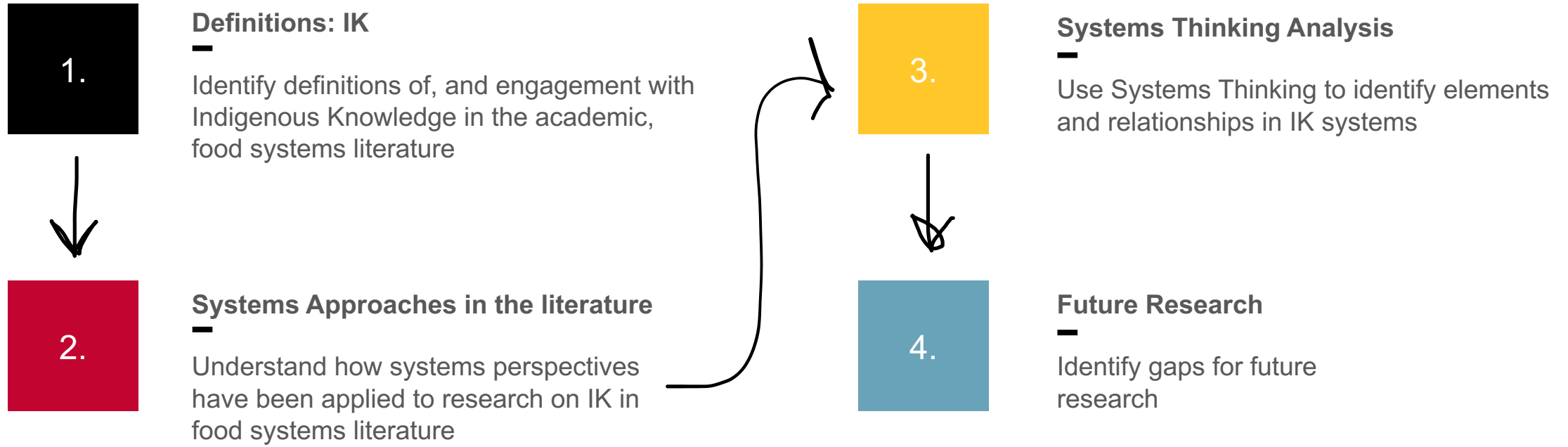
- Local, social, cultural, environmental

Multiple perspectives, approaches, assumptions within disciplines creates an 'internal plurality of science'

There are no pure, complete
'knowledges', rather there
are constellations of
knowledge (Escobar, 2020)

Search Objectives

Indigenous Knowledge is too diverse to be defined
But we can try to understand what components exist
within Indigenous Knowledge Systems and how they
interact with and relate to each other



Methodology

Scoping Review



Section 1

Scoping Review Concepts & Questions

Concept 1	Concept 2	Concept 3
Indigenous Knowledge	Food Systems	Systems Thinking
<i>"Indigenous knowledge" OR "Traditional ecological knowledge" OR "local indigenous knowledge" OR "traditional local knowledge" OR "traditional knowledge" OR cosmovision OR "cosmo vision" OR worldview OR "7 grandfather teachings" OR "Seven grandfather teachings" OR "Andean cosmovision" OR "Andean cosmo vision" OR "Andean worldview" OR "Anishnawbek worldview" OR "Anishnaabe worldview"</i>	"Indigenous food system" OR "Indigenous local food system" OR "cultural food system" OR "peasant food system" OR "traditional food system" OR "informal food system" OR "tribal food system" OR "first nations food system" OR "Aboriginal food system" OR "local food system" OR "Indigenous food" OR "Indigenous local food" OR "Cultural food" OR "Country food" OR "Peasant food" OR "Tribal food" OR "First nations food" OR "Aboriginal food" OR hunt* OR forag* OR "food production"	"system thinking" OR "systems thinking" OR "relational systems thinking" OR "Complex systems thinking" OR "systemic thinking" OR "system theory" OR "systems theory" OR "structural coupling" OR "structurally coupled" OR "structural determinism" OR "structurally determined" OR Autopoiesis OR "Operationally closed system" OR "social autopoiesis" OR "nonlinear systems theory"

1

How are IK systems presented
in the food systems literature?

2

How do Indigenous Knowledge
systems support local food systems?

3

How is systems thinking currently
being applied in this literature to
guide research?

Inclusion Criteria

	Inclusion	Exclusion	Rationale
Publications	Academic, <u>peer-reviewed</u>	Book reviews, thesis, magazines, blogs	To understand how Indigenous knowledge is presented, discussed in the academic food systems literature
Focus	Food Systems (<u>production</u>)	<ul style="list-style-type: none"> Focus on other stages in food system (processing, marketing, etc) If they do not discuss food systems 	
Engagement	Indigenous Knowledge (Application, reference, discussion)	<ul style="list-style-type: none"> <u>Flexible</u> definition of 'IK' to capture diverse localities Only 1 reference of IK 	
Approach	Application of systems thinking concepts or approaches	Any literature that does not discuss or apply systems thinking	To understand how Systems Thinking is used to understand or engage with Indigenous Knowledge related to food systems
Geography	No geographic limits were set		

Theory

Systems Thinking

1

What is a System?

Interacting individual items that are greater than the sum of their parts

2

Environment

Systems exist within surrounding environment that influence, interact, shape the system

3

Systems thinking

Framework for identifying composite elements within a bounded area to understand relationships and changes



Results

Scoping Review

Section 2

Objective 1.

Identify definitions of IK

Defined in the literature as

- Values, beliefs, protocols (Dam Lam & Gasparatos, 2020)
- Ecocentric worldview, spiritual cosmology (Graddy, 2013)
- Contextual & place-based (Merçon et al., 2019)
- Generational observations and reciprocal relationships with the environment (Harper et al., 2019)

Terminology in the literature

- Traditional knowledge
- Ecological knowledge
- Traditional Ecological Knowledge
- Cultural Ecological Knowledge
- Indigenous Wisdom
- Socio-ecological wisdom
- Indigenous epistemologies
- Traditional peoples' knowledge
- Heritage knowledge

Objective 1.

Engagement with IK

Reasons for engaging IK

1. Paradigm shift
2. More sustainable production
3. Improved food and livelihood security
4. Biodiversity conservation
5. Climate change adaptation
6. Documentation and preservation of IK

Expected results of connecting IK & WS

1. Integration
2. Co-production
3. Bridging
4. Two-eyed seeing
5. Hybridization

Objective 2.

Systems Thinking Concepts

Systems Thinking Concepts	Systems Thinking	Indigenous Knowledge
Social-Ecological Relationality	Mutually reinforcing dynamics (Humans + nature)	People are intimately connected to their environment
Complexity	Relationships in systems are non-linear and unpredictable	Ecological processes are too interconnected to be replaced
Co-evolution	Positive re-inforcing cycles of well-being b/w humans, nature create conditions supporting life	Relational understanding of ecosystems. Constituent parts grow and change together
Structural coupling	Long-term interaction b/w system and enviro creates form, function, outputs	Humans shape the land and they are shaped by the land
Feedback loops	Linkages between multiple factors create balance or imbalance	Relationship of causality between changes to natural processes
Self-Organization / Autopoiesis	Relationship between system and environment allowing system to reproduce and organize	Socio-cultural practices enable self-organization and group cohesion

Discussion

Systems Thinking

Analysis



Section 3

Theory Conceptual Framework

1.

General Systems Theory (GST)

- Set of general laws for arbitrarily complex arrangements—“systems”—which constitute functional integrities.” (Sieniutycz, 2020)
- Used in literature to understand Social-Ecological systems
 1. Identify elements within systems
 2. Understand relationships between elements that produce functions

2.

Social Systems Theory (Nicholas Luhmann)

- Apply GST concepts to social systems analysis
- **Communication:** key element of social systems that allow them to be self-sufficient (autopoietic)
 1. Content
 2. Utterance
 3. Understanding

Objective 3. **Adapting Luhmann**

Communication

implies a one-way flow of
information

Indigenous epistemology

life functions are products of
dynamic, changing relationships
with nature, people, plants,
cosmos

Relational Systems

Thinking

Mutual benefit, co-existence
between humans,
environment

Relationships between
humans and environment are
fundamental and complex

Objective 3. Systems Elements

Content: Land

- Landscape, Policies, Government, Climate

Utterance: Culture

- Governance and institutions, Communication / Language, Intergenerational traditions, Ceremonies & Rituals

Understanding: Worldview

- Relationality, familial relations between humans and nature, balance, co-existence, holism, reciprocity, stewardship



Conclusion

Take-aways

1. Systems thinking approaches used to understand, co-produce knowledge with Indigenous groups
2. Limited research exists that investigates
 - Mechanisms that facilitate, regenerate, transmit IK
 - How IK changes, evolves, adapts, erodes
3. More research is needed to understand the relationality between land, culture and worldview that support and sustain IK systems – and how they sustain food systems



The End.



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