

Ways of Knowing

The Integration of Indigenous Knowledge and
Scientific Knowledge for the
Management of Natural Resources

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Focus of this Case Study

1. Explore the nature of indigenous knowledge (IK) and scientific knowledge (SK)
2. Consider how can we integrate IK and SK in order to develop effective natural resource management plans
3. Critically examine the challenges in the integration of IK and SK



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Biodiversity panel gives indigenous knowledge core role

Image credit: Flickr/Ainhua Goma/Oxfam

The headline
requires
further
investigation

Source:

<http://www.scidev.net/global/indigenous/news/biodiversity-panel-gives-indigenous-knowledge-core-role.html>



Intergovernmental Platform on Biodiversity & Ecosystem Services



Mission: assess the state of the world's biodiversity and ecosystems, and help policymakers make well-informed decisions.

- “it explicitly embraces different scientific disciplines (natural, social, engineering sciences), as well as diverse (western science, indigenous, local and practitioners' knowledge”

Many international conservation organizations regarded this decision as an innovative endeavor—something that had never been tried before

Indigenous communities around the world have long called for recognition of their traditional knowledge



The communities living at the foot of the Chimborazo volcano in Ecuador are readopting ancient practices associated with planting, crop diversification and farming Andean camelids.

Some in the **scientific community** are skeptical about the value of IK

- Scientific research focuses on determining the true nature of reality through systematic observation, measurement, and experimentation.



To some scientists indigenous knowledge is

- inefficient
- inferior
- Irrelevant
- primitive
- irrational

Indigenous Knowledge Is The Quintessential Opposite to Scientific Knowledge

- social and natural systems are seen in a holistic manner
- knowledge inherently place based and non-generalizable.
- the rules of science regarding evidence, quantification, replication and generalization do not carry the same value in indigenous knowledge systems
- Source: Berkes and Berkes 2009



Rice terraces are deeply intertwined with indigenous cultures, traditional practices and the ecology of many mountainous areas

Source:
<http://ourworld.unu.edu/en/enhancing-indigenous-knowledge-in-rice-terraces>

However...some **indigenous peoples and social scientists** are concerned about plans to integrate IK and SK

- Traditional knowledge and science are sufficiently distinct and incommensurable knowledge systems
- any project aimed at integration will only result in diminishing the value of both indigenous knowledge and scientific knowledge



Aboriginal elders from north-east Arnhem Land discuss the plight of native mammals on their lands with scientist Mark Ziembecki. Photo by: Ian Morris

<http://news.mongabay.com/2013/0214-kimbrough-mammal-australia.html>

Despite these concerns there are three arguments for integration of IK and SK

1. The integration of IK and SK is essential for maintaining global cultural diversity and the biological diversity

(source Bohensky and Maru 2011)

“At least 40% of the world’s economy and 80% of the needs of the poor are derived from biological resources...The richer the diversity of life, the greater the opportunity for medicine developments, economic development and adaptive responses to such new challenge as climate change”

source: The Convention about Life on Earth

Arguments for integration IK and SK, continued

2. Local or traditional knowledge contribute invaluable knowledge for science and natural resource management, filling gaps in understanding that science cannot. (Source: Bohensky and Maru 2011)



The enabling power of participatory 3D mapping among the Saramaccan People of Suriname

Source:
<https://vimeo.com/108466803>

Arguments for integration IK and SK, continued

3. Recognition of traditional knowledge in natural resource management has importance beyond scientific merit

it is tantamount to social justice, sovereignty, autonomy, and identity of indigenous people.

(Source: Bohensky and Maru 2011)



Lumad leaders from Mindanao hold protest march

Climate change makes integration of IK and SK even more relevant

Many of the arguments for knowledge integration revolve around the concept of resilience

- the ability of a social-ecological system to withstand disturbance
- remain flexible in response to changing environmental and social contexts.

“Management of complexity and uncertainty in social ecological-systems can benefit when diverse types of knowledge are combined; co-management arrangements that allow knowledge to be integrated through collaboration can build social as well as ecological resilience”

(Bohensky and Maru 2011: 2).

Three Sections

- **Section 1: “Ways of Knowing”**
 - **Goal:** to understand the differences between indigenous and scientific knowledge
- **Section 2: “Types of data”**
 - **Goal:** compare and contrast types of evidence produce by indigenous and scientific knowledge
- **Section 3: “Data Integration”**
 - **Goal:** evaluate the ways that scientific and indigenous knowledge can be integrated for natural resource management; and debate the pros and cons of knowledge integration