



# **Jargon to Layperson Translation: Relating TEK & AEK**





# Main Idea

- The integration of traditional and academic ecological knowledge (TEK and AEK) is subject to a great dilemma centered on division and assimilation.
- Division - emphasis has been made on the differences between TEK and AEK
  - criticized for creating artificial division between the two, marginalizing TEK
- Assimilation - increased concern about inadequate incorporation of TEK into scientific practices
  - works to dismiss the holistic aspects of TEK
- The authors argue that there exists relations between TEK and AEK that avoid both points of this dilemma
  - the indigenous that hold TEK are able to understand the scientific mechanisms that guide ecological phenomena
  - AEK often relies on the holistic strategies of TEK when dealing with ecological complexity.



# Main Points

- TEK refers to long-held indigenous knowledge, beliefs and practices relating to the local environment
- AEK refers to knowledge of the natural environment created and used by various scholarly disciplines, such as biology.
- TEK is important to understanding and managing local environments
  - considered relevant in the biological and environmental science disciplines
- The integration of TEK into scientific institutions creates tensions
  - the "scientifically useful" parts of TEK are intertwined with spiritual values and worldviews that are different from the academic approaches of scientists
    - can lead to the obscuring of these core aspects of TEK



# Main Points

- AEK is mechanistic in nature
  - involve analyses of “parts whose activities and interactions are responsible for the phenomena”
  - stark contrast to holistic approaches, which look at ecosystem in wholes
- Contrary to popular belief, TEK can identify these mechanisms and intertwine them into management strategies
- Example: Study of Balinese rice farming by JS Lansing



# Main Points

## J. Stephen Lansing's 1991 study of Balinese rice farming

- Green Revolution reached Indonesia in 1970s
- Introduction of new rice strains with quicker maturation, higher yields
- Transformation of agricultural practices
  - Intense use of fertilizer and pesticides.
  - Abandonment of traditional cropping and irrigation patterns
- Disastrous consequences
  - Water shortages
  - Pest outbreaks
  - Crop damage
    - Strains highly susceptible to pests and pathogens



# Main Points

- Balinese TEK guided farming practices that provided the water management and pest control that would have prevented this agricultural disaster
  - Water temples that controlled water flow according to certain schedules to prevent shortage
  - Synchronized fallow periods prevented the spread of pests such as rodents and insects as well as bacterial and viral diseases.
- example of how TEK has the capacity to identify complex ecological mechanisms in the environment and intervene in them



# Main Points

- On the flip side, AEK often makes use of the holistic strategies of TEK when dealing with ecological complexity.
- Mechanistic analyses and consequent predictive models are not always feasible
  - incomplete understanding of the particular biological and ecological mechanisms in a particular ecosystem
- The focus on patterns and regularities by TEK is useful to AEK as it allows for the construction of predictive models without the need for a complete knowledge of all underlying mechanisms
- In conclusion, the conventional simplistic understanding of TEK and AEK as holistic and mechanistic, respectively, is inadequate in describing their complexities and disregards their interconnectedness



# Interesting details

- With the introductions of different techniques and new systems they typically came as double edged sword
  - This means that although there were positives there was also severe consequences such as in Lansing's work in the Balinese rice farmings
  - With the overview of such text we are able to understand the relationship that TEK and AEK both share and how despite there being a disruption between both they in fact are intertwine with one another
  - Such relationship is build of with the dependence on





## How Does it Relate?

- The concepts of TEK and AEK exists in the medical field
  - traditional and modern medicine
- The arguments in this research can serve as a framework for reconciling traditional and modern medicine
  - Traditional medicine, while oft looked down upon, is of great importance
    - aids drug discovery
    - culturally significant