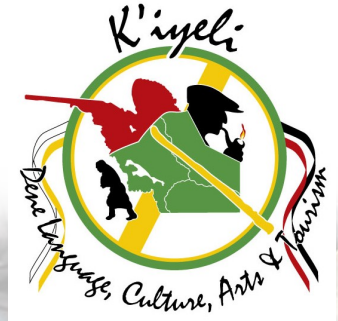
WELCOME

Traditional Knowledge and Western Science

Similarities and Differences



The Purpose of Traditional Knowledge

- **Traditional knowledge is a complex system of integrated information about the relationships of events, animals, plants, the universe and the spirit world, developed over thousands of years to enable people to live full lives on the land within nature**

The Purpose of Western Science

- **Western science is a relatively simple set of principles to guide research methodology in discovering what the universe contains and how it all works**

- **The application of the results of western science has powered much of the recent vast modernization of the world in all its dimensions**

The Nature of Traditional Knowledge

- **Held by indigenous peoples**
- **A spiritual way of life, in tune with nature**
- **Detailed understanding of the natural, cultural, and spiritual worlds**
- **In any one region based on thousands of years of observation and experiment**
- **Predictive, based on indicator species, events, and characteristics**
- **Holistic and sensitive to cumulative effects**

The Nature of Traditional Knowledge

- **TK can be used directly to inform modern issues**
- **TK includes variables from natural, cultural, social, and spiritual areas**
- **TK is a value system**
- **Interpreting TK requires TK Elders and other TK experts**
- **TK is nurtured within a framework that involves a range of secular and sacred protocols**

The Nature of Western Science

- **Requires specialized training available to a select few, results available to all people through publication ranging from research papers and text books to popular articles and books**
- **An intellectual approach to discovering the universe**
- **Detailed and theoretical understanding of the universe**
- **In any one region, based on a few years to a few decades of observation and experiment**
- **Predictive, based on abstractions of nature into models**
- **Analytical, emphasizing parsing out the variables**

The Nature of Western Science

- **Operates in a methodological framework**
- **Based on field observations and experimentation**
- **Creates testable hypotheses (statements that can be falsified) to derive relationships**
- **Creates predictive models**
- **Accumulates individual observations and results in a variety of recorded material including text, photographs, audio and visual materials, maps and many more**
- **Uses recent data to update existing baselines and existing predictive models. Moderated by peer review.**

The Nature of Western Science

- **Western science is research oriented and not practical by nature but yields useful knowledge, techniques, and technology that can be practical**
- **Western science includes variables from natural, cultural, social, but not spiritual areas**
- **Western science strives to be objective, and not to be influenced by cultural value systems**
- **Interpreting western science requires scientists familiar with the methods and data used**
- **Western science is nurtured within an educational framework that involves extensive infrastructure.**

Information flow

Western Science	Traditional Knowledge
Scientist collects data, analyses it, assembles data from multiple sources, develops theories to test, derives predictive models. Data are not shared widely until published	**All people make observations and try out ideas which are shared by all members**
Information is made available first as research papers, then as text books, popular articles, and books	**Elders and others act in a leadership role to establish practices, stories, songs, dances to record the knowledge**

Information flow

Western Science	Traditional Knowledge
Publication is reviewed and refereed at primary level. Process of science updates theories and models primarily through publication	**Elders review initial data and modify interpretations of oral records as appropriate**
Scientists and publications placed in categories of "ologies"	**Everyone understands basics, but each member has an emphasis in applied areas such as medicine, hunting, etc.**

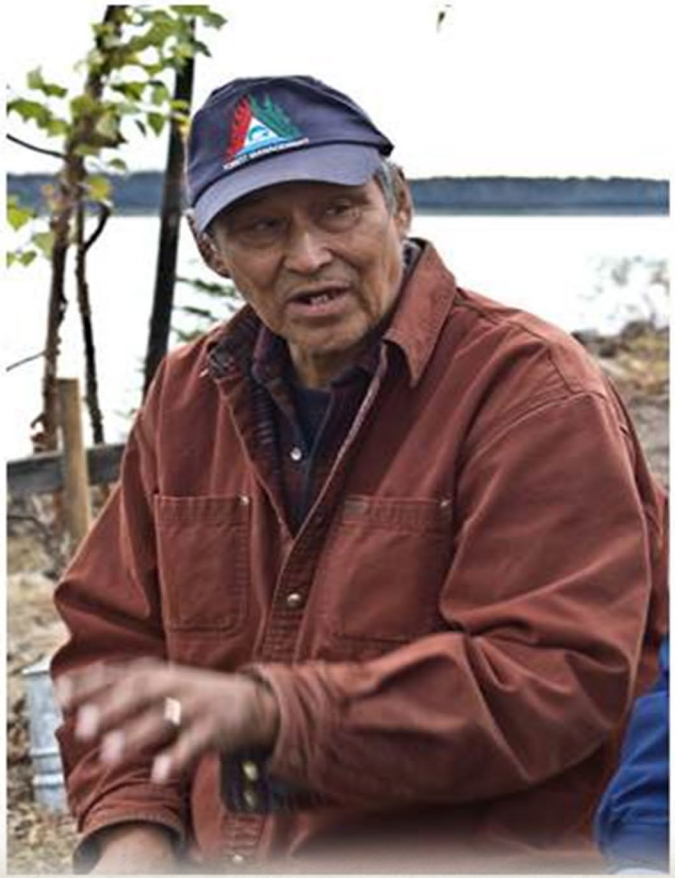
Similarities

- **Both operate in a methodological framework**
- **Both are based on field observations and experimentation**
- **Both create testable hypotheses to derive relationships**

Similarities

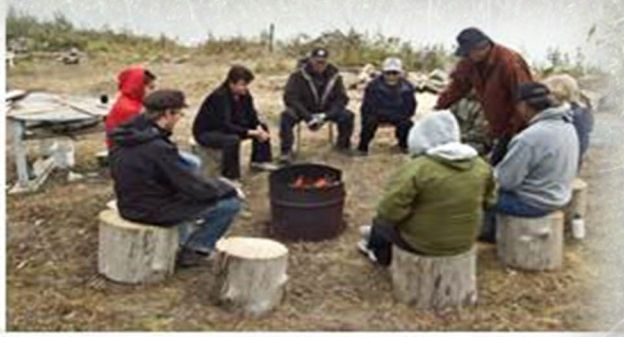
- **Both create predictive models**
- **Both use recent data to update existing baselines and existing predictive models. TK is immediate by consultative reporting, whereas science is through subsequent publication.**
- **Both are moderated: science by moderated by peer review whereas TK is moderated by Elders**

Similarities



- **Interpreting both TK and western science requires expertise**
- **TK and western science are both based on observation and experiment but TK is older**

Differences



- TK is a way of life so it is shared knowledge
- Western science is a research method but the results sometimes become part of western life styles
- Western science is intellectual
- TK is spiritual, practical, experiential
- Western science is predictive, based on abstractions of nature into models
- TK is also predictive but is usually based on indirect relationships

Differences

- **Western Science accumulates knowledge by physical records**
- **TK records through oral traditions such as stories, songs, practices, dance**

- **Western science results in an understanding of the physical universe**
- **Traditional knowledge is a way of understanding all universes**

Differences

- **TK classifies animals and plants based on use and spirit**
- **Western science classifies based on genetic ties**

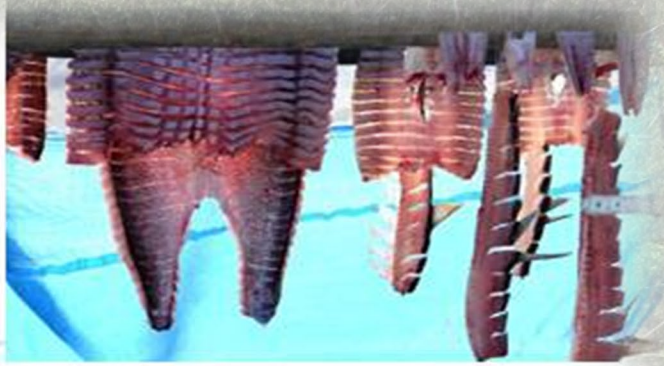
- **TK is all-encompassing (holistic) and tends to be focused on integrating information**
- **Western science is analytical and tends to be focused on teasing out the influence of individual variables**

Differences

- **Western science is not practical by nature but yields knowledge, techniques, and technology that can be practical**
- **TK is practical knowledge**

- **TK includes variables that can be derived from spiritual understanding and beliefs**
- **Western science variables are not intended to be based on belief systems**

Differences



- **Western science strives to avoid moral or spiritual value statements and the inclusion of such values in results**
- **TK is a value system and embodies values in the results**

- **Western science requires extensive and diverse infrastructure**
- **TK requires extensive and diverse protocols**

Example Concepts in TK not in WS

Earth as "Mother"

"We love Deh Cho…it shelters us when it storms and feeds us when there is hunger. It takes care of it's children, the Dene"

Joachim Bonnetrouge

Example Concepts in TK not in WS

Relationship based in love and respect

"When you start tearing up the land, I feel as if they are cutting my own flesh because this is the way we feel about our land, it is our flesh"

Georgina Tobac

Example Concepts in TK not in WS

Everything is connected

"We never played around with food from the land…how you treat something from the land affects everything else"

Caroline Bonnetrouge

Example Concepts in TK not in WS

Knowledge shared by animals

"Raven had the ability to foretell the future and find game for people"

George Blondin

Example Concepts in TK not in WS

Medicine has spirit

Offerings are made to the spirit of plants that are picked for medicine.

WS "Uncertainties" with TK

- **Distrust of non-scientific data**
- **Uncertainty of accuracy of data and repeatability of derived relationships**
- **Uncertainty about how to deal with a mix of secular and sacred information**
- **Stereotyping of TK as data-level information only**
- **Dismissal of non-familiar indicators of change in biological systems**

Working Together

- The two knowledge systems complement each other in many ways
- Working with both knowledge systems empowers both the indigenous and non-indigenous peoples
- The sum of the two knowledge systems is a much greater base of information at the data, relationship and predictive model levels
- Using both systems reduces rather than increases complexity of working with indigenous communities
- Helps to avoid poor decisions


MAHSI CHO THANK YOU