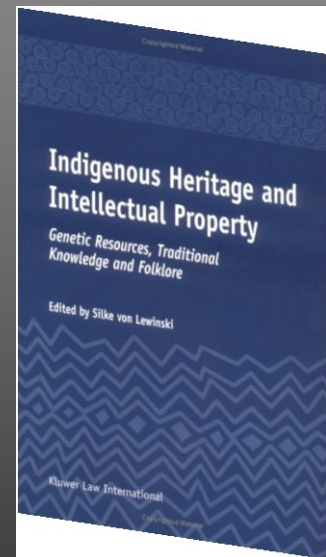
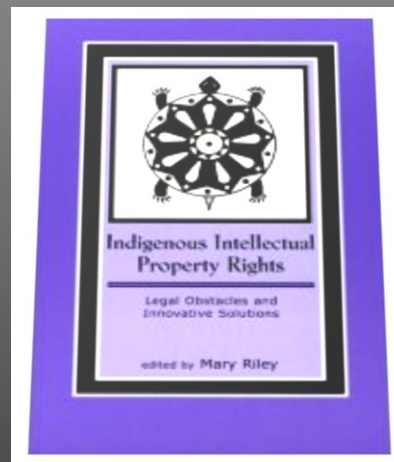
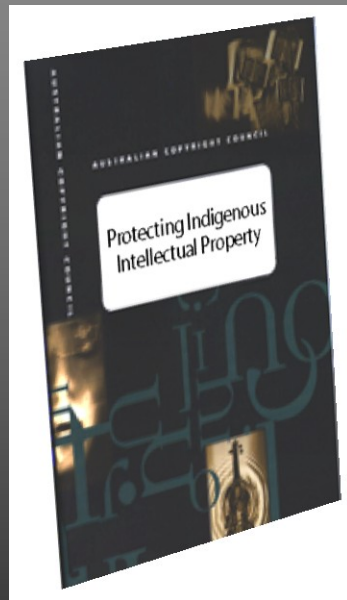


Protection of Traditional Knowledge & Medicine



**Prepared by:
Raymond Obomsawin - M. Sc., Ph.D.**

Traditional Knowledge Defined

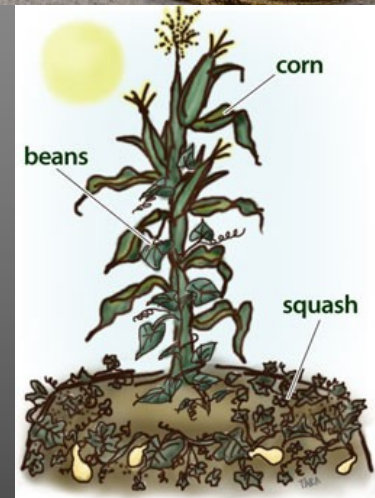


- ▶ *Traditional Knowledge* (TK) represents the collective experience, wisdom & know-how unique to human social cultures & communities living in an intimate, symbiotic, & balanced relationships with their local environments.
- ▶ Such knowledge is adaptive & innovative. It serves as the basis for individual, family & community-level decision making in areas such as: governance; food provision & security; human & animal health; childhood development & education; natural resource management; & other vital socio-economic activities.

TK is Adaptive & Dynamic

First Nations continue to innovate & create knowledge within their own value systems & traditions. In this they:

- ▶ Seek recognition for their past & continuing contributions to humanity's social, cultural & intellectual heritage;
- ▶ But may see innovation & creativity as a community or collective endeavor, & not necessarily an individual one; &
- ▶ Seek appropriate respect for their *Customary Laws* & values as the basis for a partnership of trust.



Traditional Knowledge for Human Survival

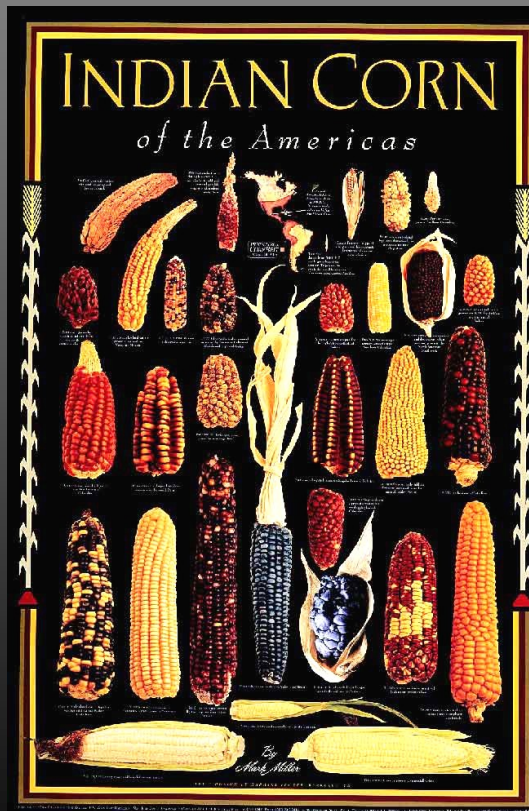
At least half & as many as two thirds of the world's peoples today could not survive without the foods that have been & are being provided to humanity thorough *Traditional Knowledge* of plants, animals, insects, & agricultural systems.



Ref: UNDP Civil Society Organizations & Participation Program Document & RAFI, "Conserving Indigenous Knowledge: Integrating Two Systems of Integration", 1995.

Traditional Agricultural Knowledge

Traditional agriculturists in the *Andean region* of South America have been able to maintain not hundreds, but thousands of varieties of corn (maize) & potatoes which were scientifically adapted to a wide range of soils, topographies, climates, & altitudinal conditions. Pre-contact trading of food seeds extended from South America all the way into Eastern Canada.

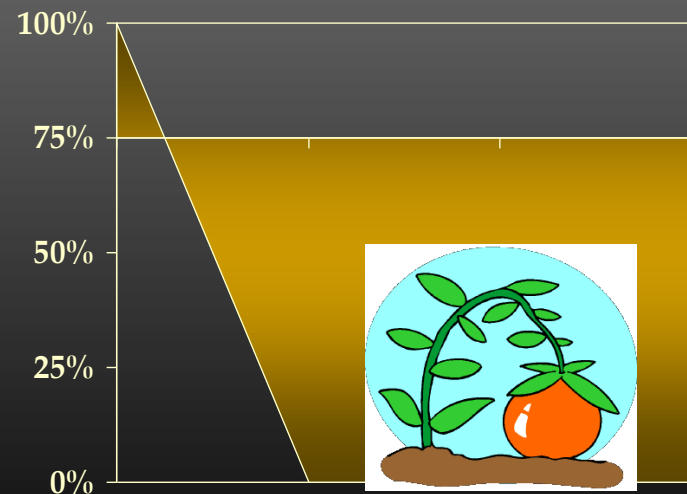


Agribusiness Methods & Food Crop Diversity Losses

Massive scale mono-cropping worldwide, has lead to loss of three fourths of the genetic diversity of the world's 20 major food crops from farmer's fields; massive soil erosion; destruction of natural soil mineral & fertility levels; & a significant weakening of biological pest controls.

TK polyculture systems ensure *plant diversity, soil regeneration, & use of non-toxic pest controls.*

■ Genetic Diversity Lost From World's Major Food Crops



The High Costs of Ignoring Indigenous Knowledge

A *World Bank* study of 121 rural water projects in 49 countries found that:

- ▶ **70 percent** of projects succeeded when the experience & knowledge of local peoples were inputted into the project design;
- ▶ Only **10 percent** of projects succeeded when such *Local Knowledge* inputs were ignored by outside water experts.



Ref: World Bank paper "Indigenous Knowledge for Development: A Framework for Action" Nov. 4, 1998, p.3.

Traditional Legend

Creator's Gift of Medicines

Many winters past an old man entered an Iroquois village in weariness & hunger. He was ignored by all except an old woman of the Bear clan who offered him food & lodging. The next day, He grew sick with a fever, & told the woman to go into the forest & gather a certain plant & explained how to prepare it as a medicine. On taking this medicine the old man recovered. Over many days He grew ill with different sicknesses, each time getting well as He sent for & used different healing plants.



Traditional Legend

Creator's Gift of Medicines

One day, the old woman was about to enter her home when she saw a great light shining in her lodge where a handsome young man stood at the entrance, His face shining like the sun. He said: *"Fear not, good woman. I am the Creator. I came here as an old man & only you sheltered & fed me. For that reason, I became ill many times & have taught you cures for all of the sicknesses known to your people. This knowledge is to be passed down to your children, from generation to generation."*

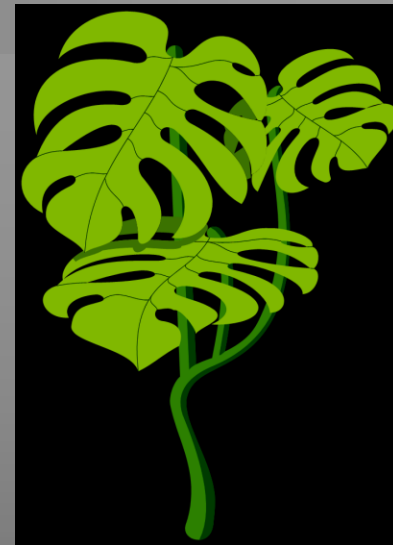


Small Sampling of Traditional Medicines



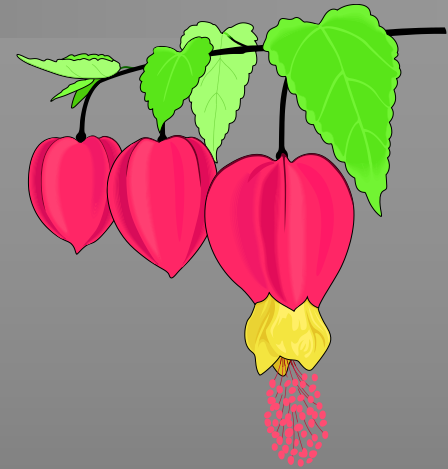
- ▶ The conifers (including Juniper & Yew which bear berries & not cones) are used to treat colds, wounds, inflammations, burns, sore eyes, rheumatism, headaches & insect bites;
- ▶ Willow Bark is used to help lower fevers & lessen pain;
- ▶ Cherry bark is used as a sedative; &
- ▶ Yellow-Spined Thistle is employed to treat burn injuries.

Small Sampling of Traditional Medicines



- ▶ Yarrow, Milkweed, Calamus, & the mint family are each used for a wide variety of ailments throughout North America.
- ▶ Horsemint is used to alleviate back pain, and to reduce fever, inflammation & chills.
- ▶ American Ginseng is an adaptogen used to reduce stress & to aid in healing infections like the flu. First introduced from Americas into China & its medicine system in the 1700s.

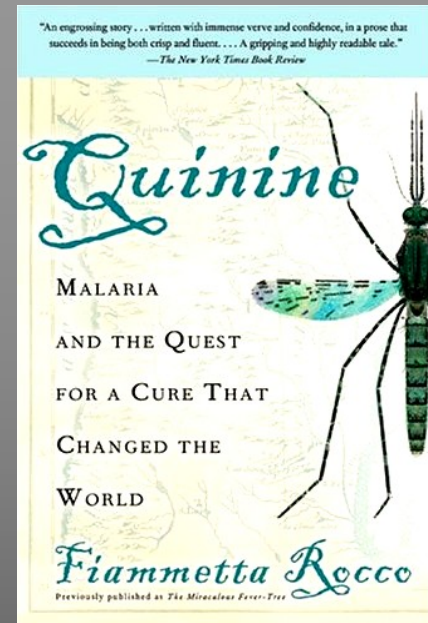
Contributions of Traditional Medicine



- ▶ Canadian discoverer of insulin, Frederick Banting, credited North America's indigenous healers with the “pharmaceutical” spade work which led to his discovery. *Ref: <http://www.yvwiiusdinvnohii.net/articles/medroots.html>*
- ▶ Early European settlers were impressed by the mildness & efficacy of cascara sagrada from traditional healers use of the bark of the buckthorn tree. It is today the most widely used cathartic in the world. *Ref: <http://cms.herbalgram.org/herbalgram/issue34/article970.html>*

Quinine & Malaria

- ▶ The alkaloid quinine, found in the bark of the cinchona tree, has been used throughout the world to treat malaria, extending from the early 1600s until the 1940s.
- ▶ The literature states that it was discovered by Jesuits in the Andes. However, what the priests actually discovered was its therapeutic use by the local Quechua people.



Contributions of Traditional Medicine

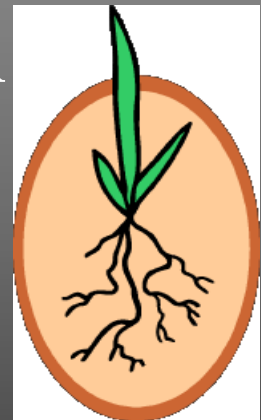


- ▶ Many Aboriginal medicines made their way into various pharmacopoeias of the Western world.
- ▶ In all 220 plant substances used by North American Indigenous peoples were added to the US Pharmacopoeia in the 19th century, with 41 new substances added since the year 1890.

Contributions of Traditional Medicine

- ▶ Environment Canada notes that of the top 150 prescription medicines, 118 came from life forms, mostly traditional medicinal plants. *Ref: <http://www.ec.gc.ca/apa-abs/quoi-what/default.cfm?lang=eng>*

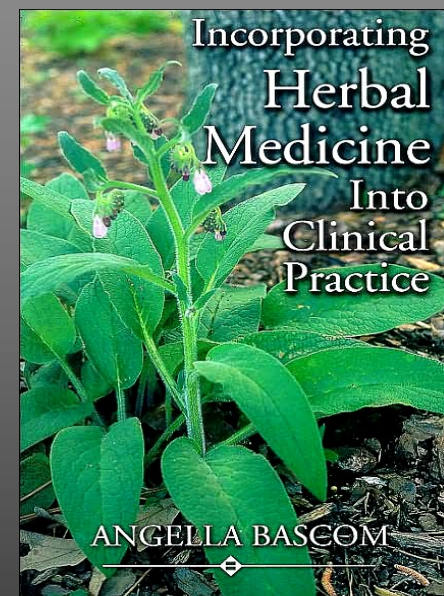
- ▶ The **WHO** cites research showing that out of 119 plant-derived modern pharmaceutical medicines, about 74% are used in ways that correlate directly with their traditional uses as plant medicines by Indigenous cultures.



Modern Usage of Traditional Plant Medicines

Due to growing concerns over serious adverse events & mortality from physician prescribed synthetic pharmaceuticals, millions in the Western World are today turning to natural approaches to medicine.

Annually, natural plant substances in drugs generate more than \$75 billion in sales for the pharmaceutical industry, & another \$35 billion in herbal sales.

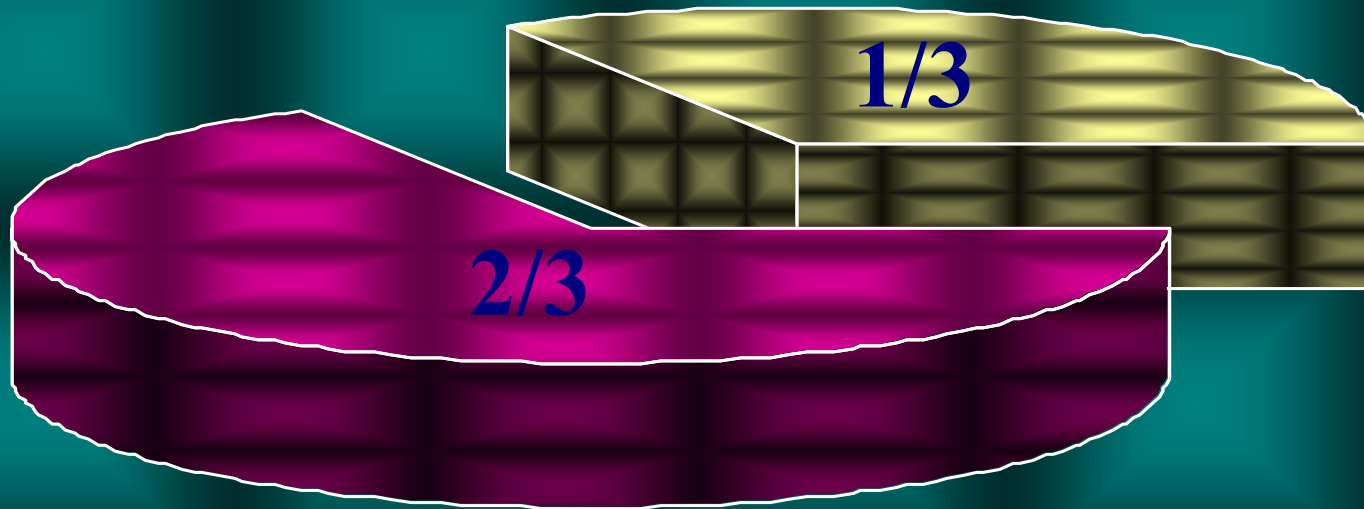


WHO Global Survey on Traditional Medicine

- ▶ In 2001 the World Health Organization (WHO) launched a global survey on *National Policies on Traditional Medicine & Complementary Alternative Medicine* (TM/CAM) & the *Regulation of Herbal Medicines*.
- ▶ Responses were provided by 141 countries, of the WHO's 191 member states. The global survey results were published in the year 2005.



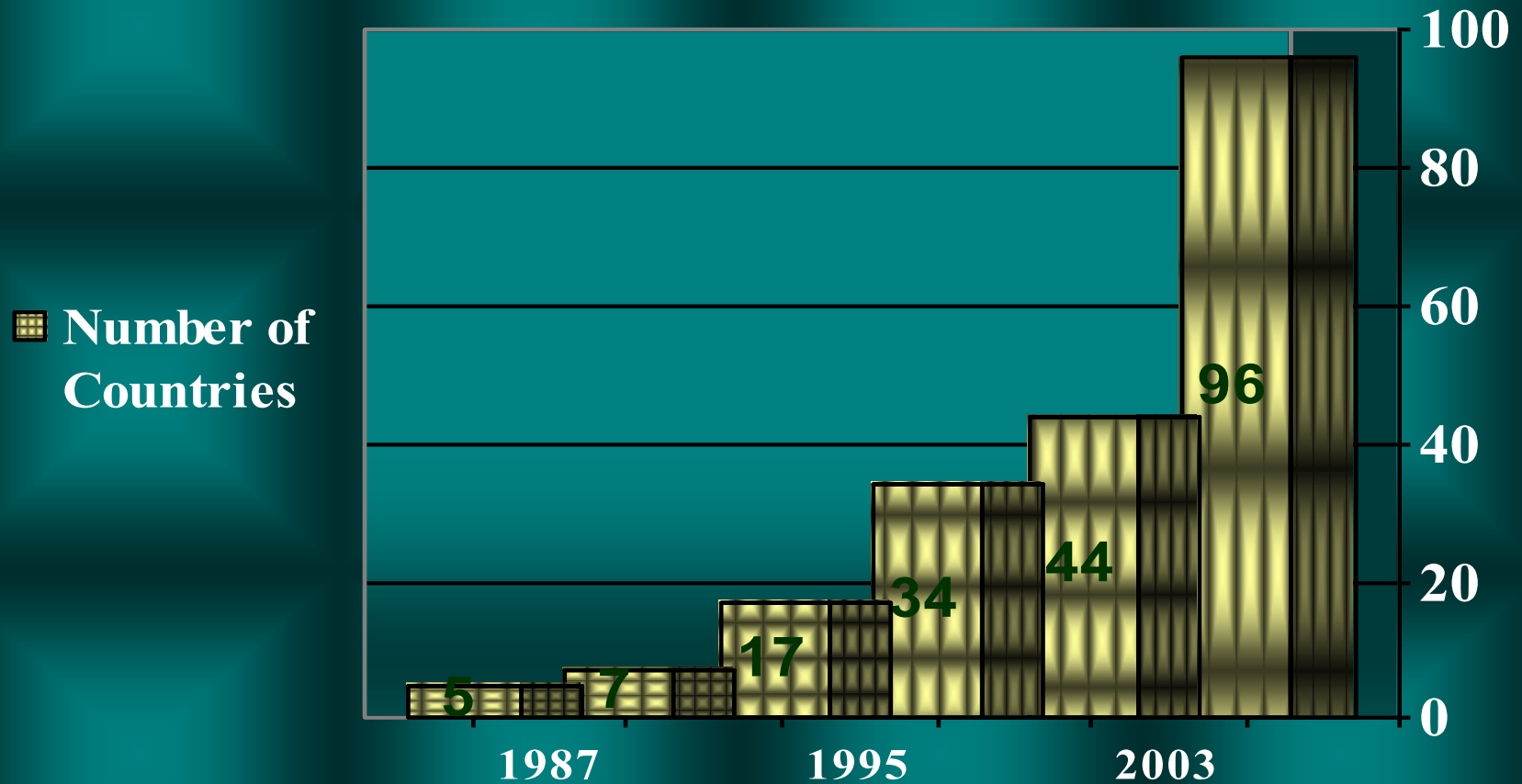
Global Reliance *Traditional Medicine*



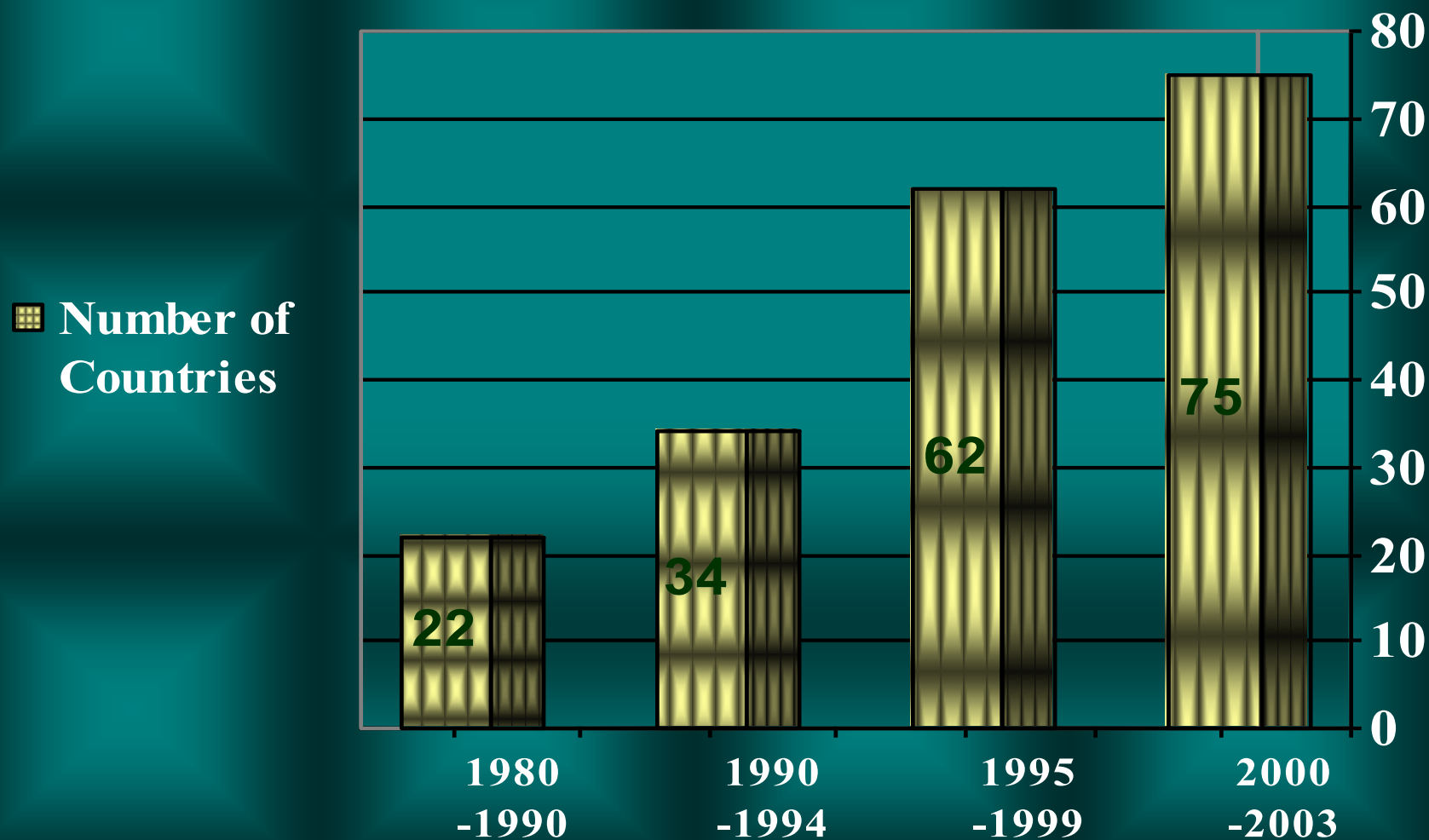
■ Traditional Medicine ■ Western Allopathic Medicine

http://jpubhealth.oxfordjournals.org/cgi/pdf_extract/4/2/129

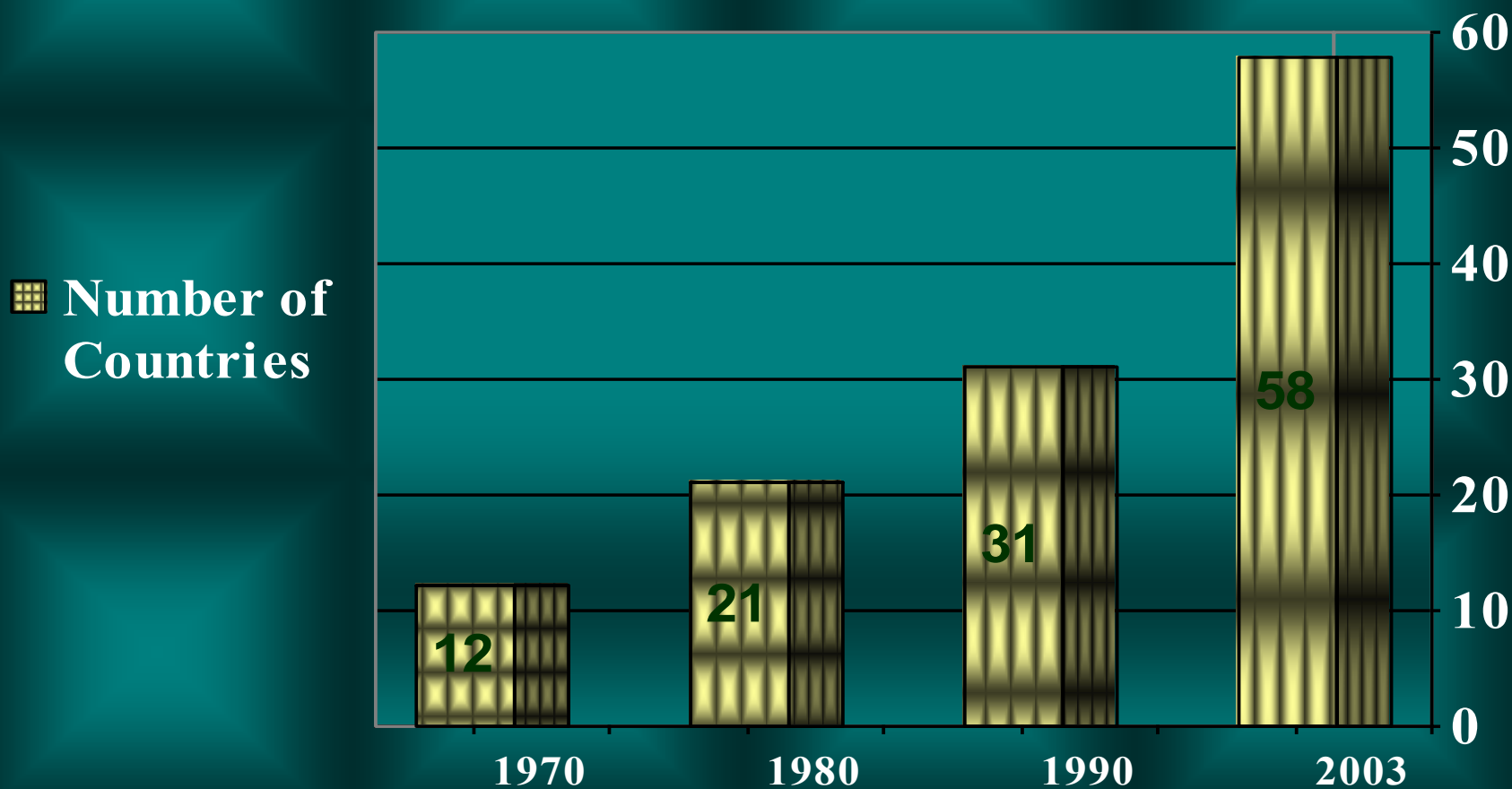
Expansion in Countries With Traditional Medicine Policies



Expansion in Countries with Regulations on Plant Medicines

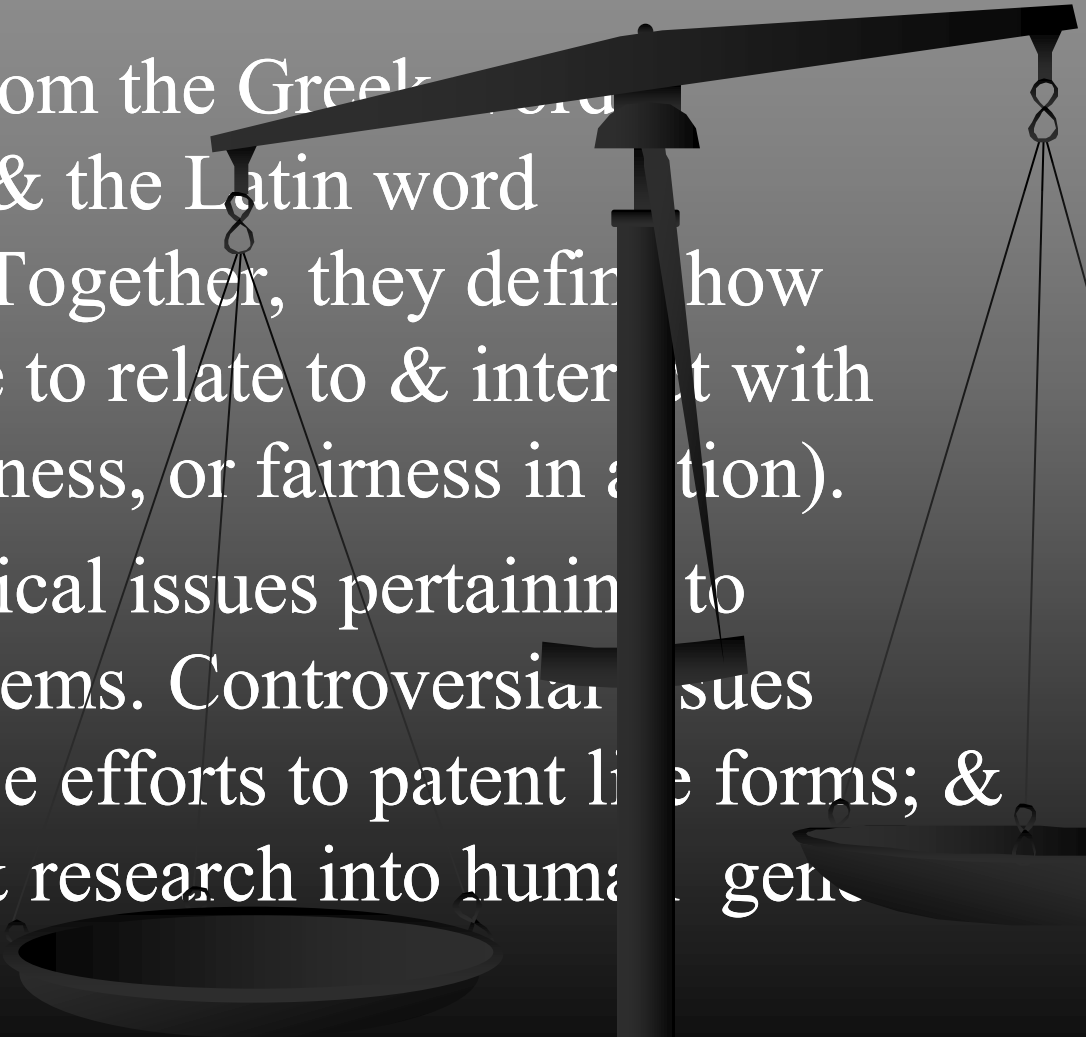


Expansion in Countries with National Traditional Medicine Research Institutes



Intellectual Property Rights (IPR)

Terms Defined

- 
- ▶ ***Ethics*** - derived from the Greek word *ethos* (character), & the Latin word *mores* (customs). Together, they define how individuals choose to relate to & interact with one another (goodness, or fairness in action).
 - ▶ ***Bioethics*** – all ethical issues pertaining to biological life systems. Controversial issues include for instance efforts to patent life forms; & the collection of & research into human genetic materials.

IPR Terms Defined

- ▶ *Bioprospecting* - the commercially motivated search, organization & usage of new sources of chemical compounds, genes, proteins, microorganisms & other products that hold present or potential market value.
- ▶ *Biopiracy* - the unethical appropriation & monopolization of *Traditional Knowledge* about usages of flora & fauna - by foreign entities (e.g. corporations, universities & governments), without profit sharing agreements.



Legal Expansion of Intellectual Property System

- ▶ In recent decades major industrialized countries have expanded their intellectual property system - originally geared to mechanical inventions & synthetics - to cover most fields of innovation, including: chemical & pharmaceutical products & processes; microbials; & virtually all plant & animal varieties.
- ▶ It is projected that a third of all industrial materials could soon be derived from plant sources.

Ref: CIDA Policy Branch Policy Statement & Background Paper on: Indigenous Knowledge & Sustainable Human Development, Dec. 2002, p.2.



Photo: Birchwood Chemical, UK

Why is Biopiracy* Rapidly Growing?

*Term first used on Oxford Dictionary - 2005



- ▶ A UN Development Program/ RAFI study showed annual biopiracy profits of \$5.4 billion.

Ref: UNDP Civil Society Organizations & Participation Program Document & RAFI, "Conserving Indigenous Knowledge: Integrating Two Systems of Integration", 1995.

- ▶ The World Trade Organization (WTO) brokered *Trade-Related Aspects of IPR* (TRIPS), encourages globalization of patents & trademarks. It grants companies legal protection for their patents in the 153 WTO member countries.

Patents - Who Profits?

- ▶ A University of Utrecht researcher identified 600 different patents where some form of indigenous knowledge had been incorporated into the patented product.
- ▶ One example of an indigenous community using its biodiversity & traditional knowledge, for economic development is the food marketing of 'bush tucker' worth A\$1.4 million in 1996, but expected to grow to A\$100 million.

Ref: <http://www.ocs.mq.edu.au/~cjone005/Conference%20Report.doc>



Photo: Isaacs, J. (1987).

Bypassed by Western Patent Schemes

- ▶ Indigenous peoples traditional knowledge & use of plants as medicinal or healing agents do not “qualify” for patent rights because they generally use whole plants & not extracts therapeutically, & also they do not employ a western “scientific” understanding of how or why a given medicinal plant, or combination of plants work.



Science's Limited Knowledge of Plants For Food & Medicine



Although all plant species contain complex & dynamic biological compounds, only a fraction of 1% of plants have been adequately investigated by western science.

In the late 20th century, M. Balick, of the N.Y. **Institute of Economic Botany** noted that only 1,100 of the earth's 265,000 species of plants had been thoroughly studied by western scientists, but as many as 40,000 plants likely hold medicinal or nutritional value for humans.

Global Commerce Sees TK as a Vastly Untapped Resource

Indigenous peoples hold 80% to 90% of human cultural diversity, & inhabit nearly 80% of earth's eco-regions.

Such peoples thus maintain a substantial repository of the usefulness of thousands of plant & animal species.



Global Commerce Sees TK as a Vastly Untapped Resource

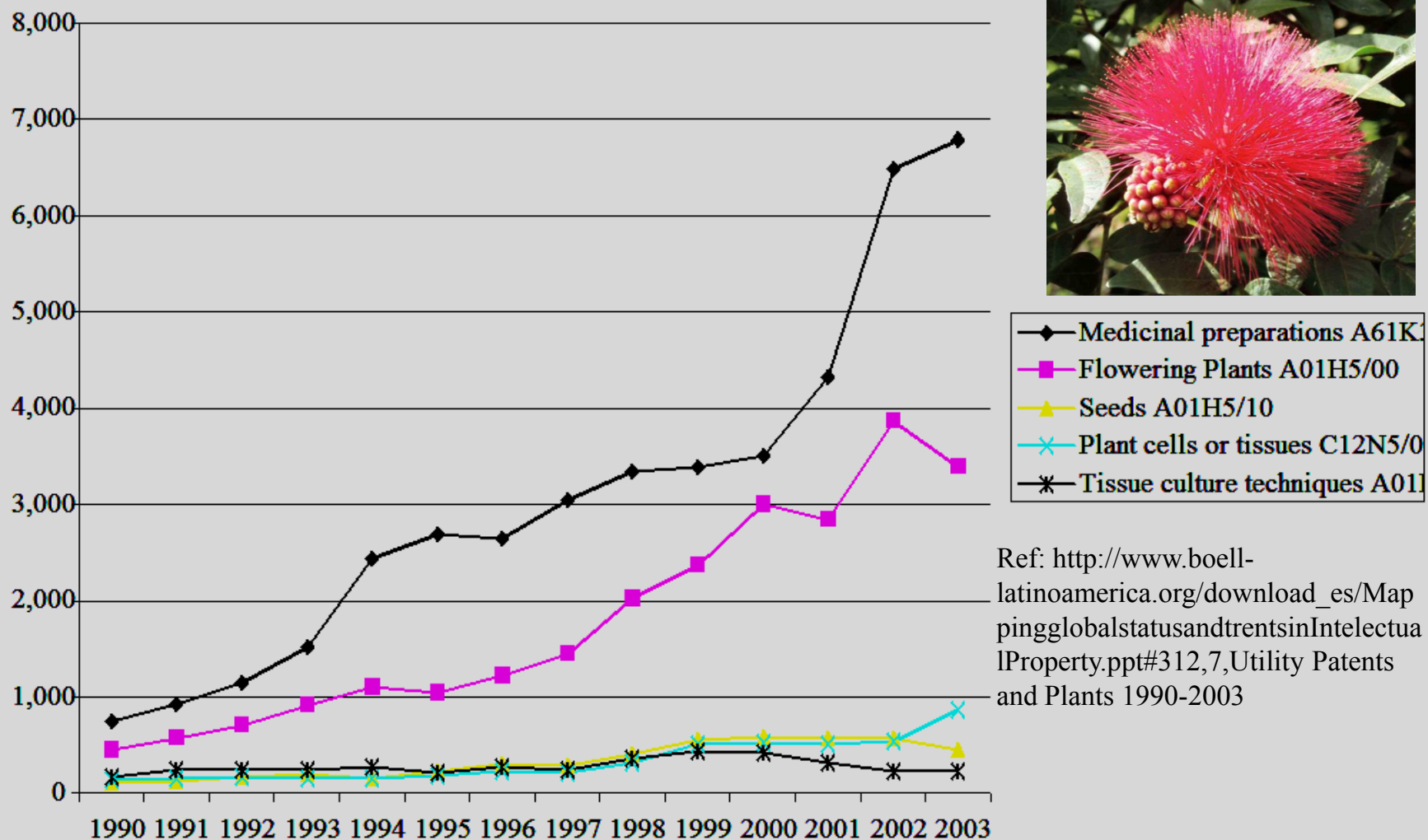
Many previously assumed “*natural*” ecosystems, are in fact “*cultural landscapes*”.

For example, the Kayapo of Brazil effectively manage more than 600 distinct plant species in a complex agro-forestry system that is intensive, diverse & sustainable.

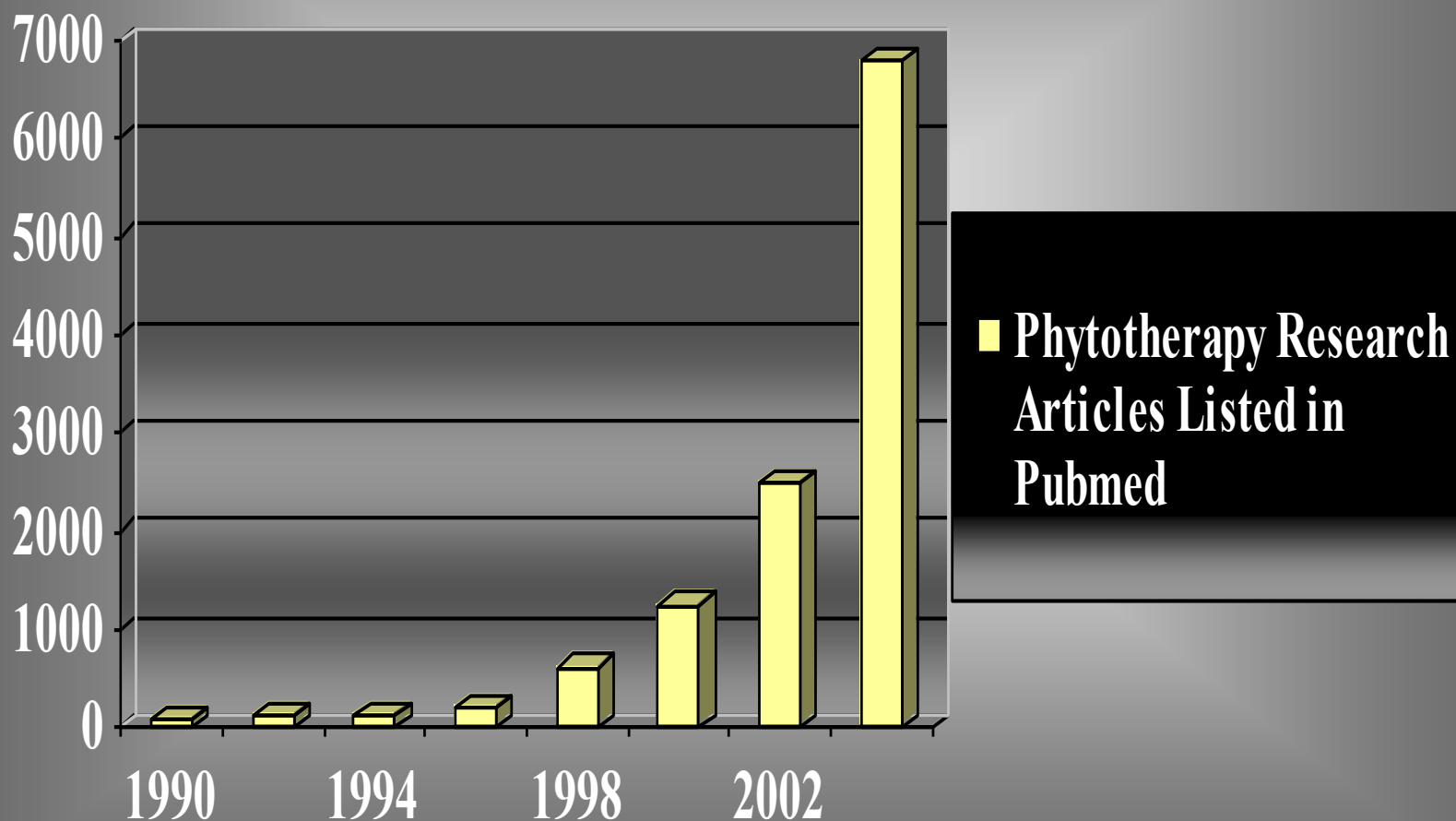


Ref: Prance, G.T., What is ethnobotany today?, Presented at First Intl. Congress on Ethnopharmacology, Strasbourg, France, 5–9 June, 1990.

Patents on Plant Derived Materials 1990-2003



Rapid Growth in Phytotherapeutic Research



Ref: eCAM Vol. 4 (S1) p. 42, 2007; Univ. of Messina, Italy

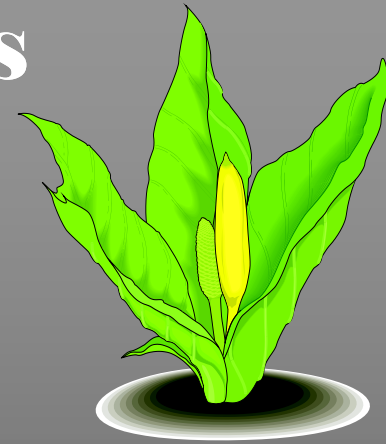
Sample Acts of Biopiracy

- ▶ A Chinese Based company secured 466 patents on traditional Chinese medicinal herbs by simply turning traditional plants into fine powders with particles under 100 nanometres & claiming this as a new “invention”.
- ▶ A Canadian based company won a “*Captain Hook 2004 Biopiracy Award*” for its efforts to patent a Hepatitis C medicine based on the traditional plant medicines of the Suni-Mirano people (Peruvian Amazon), who have not been consulted, acknowledged, nor considered as direct beneficiaries.



ETC Group, Ottawa

How Biopiracy Deprives Indigenous Peoples



- ▶ It creates false claims to novelty & invention, even though *Traditional Knowledge* has evolved since pre-colonial times as part of a peoples collective intellectual heritage.
- ▶ It divests scarce biological resources to the monopolistic control of mega-corporations, depriving local communities of benefits of use.
- ▶ It creates market monopolies which exclude the original discoverers & innovators from their rightful share to local, national & global markets.

Traditional Knowledge & Values At Odds With Global IPR?

Trade-Related Aspects of IPR (TRIPS):

- ▶ Imposes an IP atomistic, private, individual straitjacket on traditional cultures, overriding the collective values of indigenous peoples & communities;
- ▶ Focuses on demands of “mainstream” technology & commerce, leading to the commodification of TK;
- ▶ IPR based patents encourage unfair exploitation & misappropriation of TK;
- ▶ IP is a legal formulation which focuses on inventions & innovations, not on socially-based knowledge traditions.



Cultural Property & Copyright Law



- ▶ *Cultural Property* refers to Aboriginal people's traditional legends, stories, histories, music, songs, art, handicrafts, tools, buildings, geographic names, knowledge & methods.
- ▶ In Canada some Aboriginal groups have used copyright law protections, however this solution has its limits since it may not always be possible to “legally” identify the creator or creators of traditional cultural property. Furthermore, copyright only lasts for a limited period of time.

Establishing Protective Research Guidelines



- ▶ 1999 - Dene Cultural Institute submitted *Ethical Guidelines on Conducting Research in Indigenous & Local Communities* to the Convention on Biological Diversity (CBD) for global usage.
- ▶ 2003 - Noojmowin Teg Health Centre on Manitoulin Island established formal *Guidelines for Ethical Aboriginal Research* in its service area, enforced by a Research Review Committee.
- ▶ 2007 - CIHR's Ethics Office & the Institute of Aboriginal Peoples Health (IAPH) issued *Guidelines for Health Research Involving Aboriginal Peoples*

World Intellectual Property Organization

Intergovernmental Committee on Intellectual Property & Genetic Resources, Traditional Knowledge & Folklore

- ▶ In recent years the IGC has extensively reviewed legal & policy options for the protection of Traditional Knowledge, which has led to the development & progressive updating of a strategic document entitled: “*Provisions for the Protection of Traditional Knowledge: Policy Objectives & Core Principles*”. The latest draft was reviewed by the IGC on Feb. 25-29, 2008.



Draft IGC Policy Objectives Related to Traditional Knowledge

- ▶ Promote conservation & preservation of TK
- ▶ Empower holders of TK, while acknowledging the distinctive nature of TK systems
- ▶ Help safeguard TK, repressing unfair & inequitable uses
- ▶ Ensure prior informed consent & exchanges based on mutually agreed terms, & equitable benefit-sharing
- ▶ Promote community development
- ▶ Preclude granting of improper IPR to unauthorized parties
- ▶ Accord with relevant international agreements & processes



Convention on Biological Diversity

CBD - 190 Countries (168 Signatories)



In Article 8 (j) nation state parties seek to:

- ▶ Respect, preserve & maintain traditional knowledge relevant to the conservation & sustainable use of biological diversity
- ▶ Promote its wider application with the approval & involvement of the holders of such knowledge & encourage the equitable sharing of benefits

Access & Benefit Sharing (ABS)



- ▶ Despite good intentions, the **CBD** actually facilitates the plunder of diversity because it legitimates IPR on life forms & fails to fully recognize collective indigenous rights, including customary (sui generis) forms of knowledge & diversity exchange.
- ▶ Worldwide governmental development & implementation of ABS regulations & laws has been poor. Also there is an absence of compliance and verification mechanisms to monitor & enforce the CBD's ABS provisions. This means traditional indigenous knowledge systems remain vulnerable to biopiracy.

The Challenge Ahead

- ▶ First Nations need to strengthen, preserve & safeguard their Traditional Medicine Knowledge systems as a vital resource for current & future generations
- ▶ This calls for the development of both legal & practical measures embedded in First Nations administered public policy, which would support & safeguard traditional healers &/or communities at such times as they may wish to negotiate equitable benefit sharing arrangements in the sharing of such knowledge.



Questions: You be the Judge



- 1. Should Traditional First Nations & Mainstream Medicine be “integrated” or function as separate streams of care?**
- 2. As products of nature Traditional Medicines cannot be patented, so how can this knowledge be protected & yet conveyed to & used by the coming generations?**
- 3. Should Traditional Medicines & Medicine Practice be self-regulated by Traditional Healers & First Nations Health Authorities, with support of federal legislation?**
- 4. Is the revitalization of a Traditional Medicine System that can benefit all First Nations both desirable, & possible in the 21st century?**