

*“Biopiracy related to Traditional
Knowledge & Patenting issues”*

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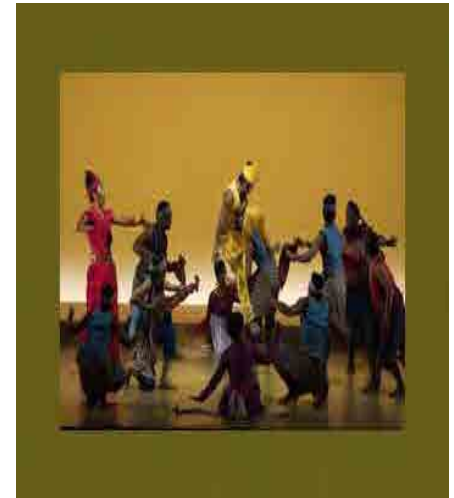
INDIA as a Traditional Knowledge HOTSPOT

- The indigenous people of the world possess an immense knowledge of their environments, based on centuries of living close to nature
- Traditional knowledge (TK)- knowledge system held by indigenous communities, often relating to their surrounding natural environment like
- ✓ Agriculture knowledge, scientific knowledge, technical knowledge, ecological knowledge, medicinal knowledge

- “expressions of folklore” in the form of music, dance, song, handicraft designs, stories, art work, biodiversity conservation, food techniques
- Tradition based literary works
- Information and all other traditional- based innovations
- Healing knowledge

Ex.

- ✓ Aspirin, derived from salicylic acid discovered in meadowsweet
- ✓ The saliva of the vampire bat of South America opens clogged arteries faster



Traditional Knowledge:

When an elder dies, a library burns.

- It is practical common sense based on teachings and experiences passed on from generation to generation
- It is knowing the country. It covers knowledge of the environment - snow, ice, weather, resources - and the relationships between things
- As the elders die, the full richness of tradition is diminished, because some of it has not been passed on and so is lost

key Characteristics of TK:

- are preserved and transmitted in a traditional context from GENERATION TO GENERATION
- pertains to a PARTICULAR TRADITIONAL OR INDIGENOUS PEOPLE OR COMMUNITY
- are not static, but rather EVOLVE as communities respond to new challenges and needs
- are COLLECTIVE/Individual in nature



- About 370 million indigenous and tribal people all around the world are the real custodian and holders of traditional knowledge
- Up to 80% of the world's population depends on traditional medicine for its primary health care
- This knowledge is indispensable for the poorest segments of society
- TK also prevents land and soil degradation, fisheries depletion, biodiversity erosion and deforestation

INDIA IS A BIOLOGICAL DIVERSITY HOTSPOT

- Biodiversity: refers to all sort of variability occurring in all living biological forms available on earth (including animals, birds, insects, microbes, plants)
- Approximately 90% of the world's Biodiversity is concentrated in tropical and sub-tropical regions within developing countries, specifically in:
 - Mexico, Brazil, India, Indonesia, Australia, The Democratic Republic of Congo
- An estimated 90 percent of the world's biodiversity lies within the territories of indigenous peoples

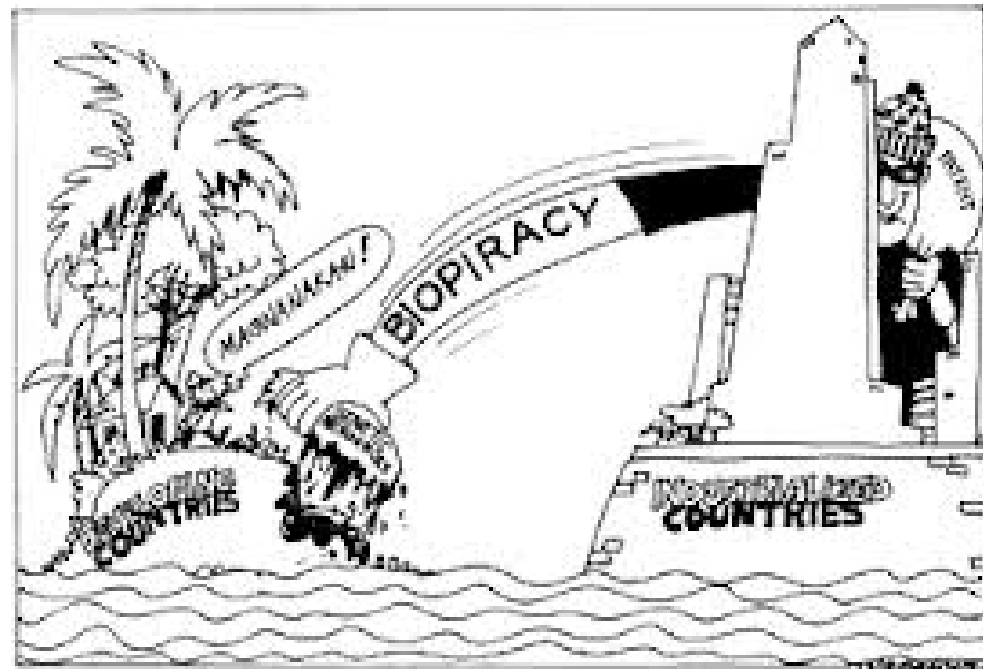
- Around 583 plant species are reported to be cultivated in India
- Around 334 species wild relatives of crop species
- Country ranks 10th among the plant rich nations of the world & 4th amongst the countries of Asia
- ranks 7th in plant diversity
- ranks 10th in endemic higher vertebrates
- India has 7% of world mangrove
- 95% of medicinal products being used in India are plant based

Research based on biodiversity on Top now a days

- Due to:
 - Demand for medicinal plant is Increasing;
 - Rising appreciation of natural products;
 - Being non-toxic
 - Having no side effects
 - Easily available and affordable



- Acts as an important input into many modern industries like pharmaceuticals, cosmetics and agribusiness.
- Mainly, TK based on biological resources is threatened by **Biopiracy** (**theft of biological resources**) by big multinational companies and pharmaceutical companies.



What is Bio-piracy?

- A situation where indigenous knowledge of nature, originating with indigenous people, is used by others for profit, without permission from and with little or no compensation or recognition to the indigenous people themselves
- Developed countries are exploiting developing countries genetic resources and indigenous communities traditional knowledge in the name of patents on the inventions derived from those genetic resources;
- This leads to bio piracy



- Biopiracy operates through unfair application of patents to genetic resources and traditional knowledge
- Biopiracy is the theft or usurpation of genetic materials especially plants and other biological materials by the patent process

example: use of indigenous knowledge of medicinal plants for patenting by medical companies without recognizing the fact that the knowledge is not new, or invented by the patenter,

And thereby the piracy deprives the indigenous community to the rights to commercial exploitation of the technology that they themselves had developed

Threats posed by biopiracy:

- that knowledge and /or genetic resources belonging to a region, community or country is stolen or claimed as one's own
- that the use of this knowledge or genetic resource in the area of its origin or traditional usage may be hampered
- that the patent holder will unfairly profit from the patent
- that the patent claimed and awarded illegally and unethically is bound to disturb an established system somewhere in the world

Effects of Biopiracy:

- **causes depletion of Biodiversity**

Examples:

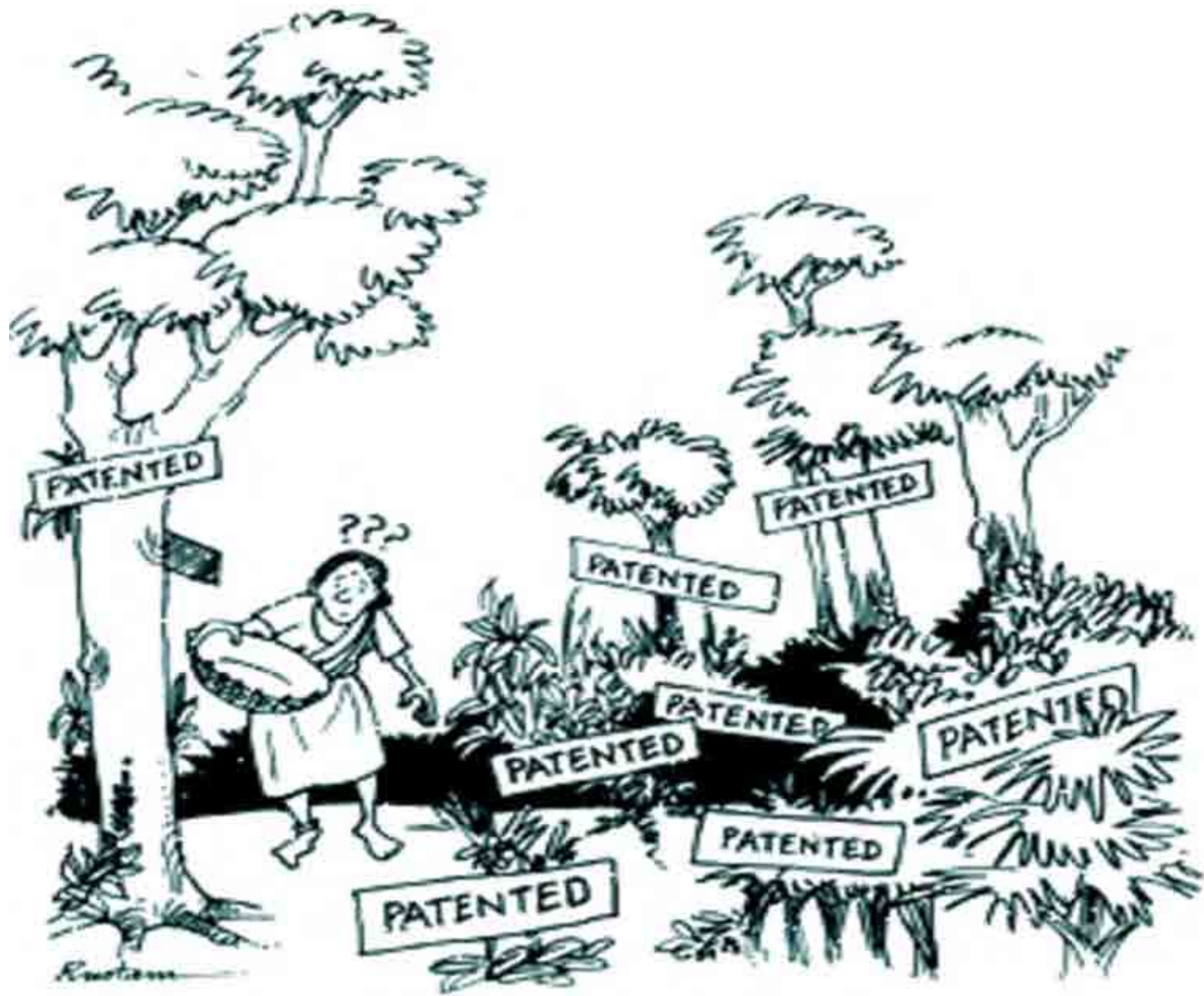
Asia: Use to have more than 100,000 varieties of rice in 20th century

Now: less than a dozen are planted in 70% of land being cultivated for Rice

India: 30,000

Now: 10 varieties

- **Srilanka:** 2000 varieties
Now: only 5 varieties
- Depletion in wildlife diversity decreases the interaction of beneficial wild life pathogens to humans
- Loss of biodiversity is Irreversible
- Biodiversity provides various goods that is the bed & butter for a large community population



Recent cases of Bio-piracy

Neem Patent:

- US patent office granted patent on a fungicidal product derived from seeds of the Neem
- India opposed the patent by claiming that the fungicidal properties of the Neem tree had been public knowledge in India for many centuries
- The oil from neem has been used traditionally by farmers to prevent fungus. It was neither a novel idea nor was it Inventive.
- The Patent was finally revoked by the European Patent Office.

Haldi patent-

- In December 1993, a patent was filed by the University Of Mississippi Medical Center, Mississippi
- Applicants received US patent 5,401,504 for the use of turmeric powder as a wound-healing agent by
- Indian Government objected to the patent
- The turmeric patent failed to satisfy the criteria of **novelty** in view of the cited turmeric's qualities documented in ancient medical textbooks



Basmati patent-

- Rice Tec (US Co.) obtained a patent (US 5663484) on a type of rice produced by crossing a strain of Indian basmati rice with an American variety;
- The patent claimed rights in respect of basmati-like rice grown anywhere in the Western Hemisphere. It also claimed future rights on any new varieties produced by crossing the new variety with existing Asian varieties

- ✓ The farmers argued that an American rice producer should not be allowed to use the name 'basmati'. Basmati rice is a valuable export crop earning India approximately US\$800 million a year.
- ✓ As a result of a worldwide citizen campaign against RiceTec Basmati patents, USPTO struck down large sections of the Basmati patent.

Yoga Patent

- A US-based NRI, Bikram Choudhary's applied to get copyright for his method of teaching yoga;
- He applied for the patent of yoga also;
- Yoga enthusiasts and gurus ---move is unjustified as yoga belongs to the entire human race.
- USPTO has reportedly issued 150 yoga-related copyrights, 134 trademarks on yoga accessories and 2,315 yoga trademarks.
- India has taken a strong view against the granting of copyrights and patents to Yoga postures by the USPTO and is preparing to oppose patents



Revocation of patent for the Indian variety of wheat “Nap Hal”:

- MONSANTO, was assigned a patent (EP 0445929 B1) on the Indian variety of wheat “Nap Hal” under the simple title “plants”.
- On January 27th 2004 Research Foundation for Science Technology and Ecology (RFSTE) along with Greenpeace and Bharat Krishak Samaj filed a petition challenging the patent rights.
- The patent was resultantly revoked in October 2004.

Ayahuasca case

- In 1986, Ayahuasca, a vine native to the Amazon Rain Forest, was patented by Loren Miller, an American scientist and entrepreneur;
- The plant has been used by healers and religious leaders to treat sicknesses, contact spirits, foresee the future throughout the Amazon tribes for generations;
- The council for the tribe applied and obtained a rejection of the ayahuasca patent from the U.S. Patent and Trademark Office.

Colgate case:

- Colgate was accused of stealing 1,000-year-old Indian toothpaste recipe
- Colgate obtained a US patent for the tooth powder composition comprising rust-like red iron oxide, clove oil, camphor, black pepper and spearmint ;
- Indian activists are accusing Colgate of 'biopiracy' for allegedly stealing and patenting a 1,000-year-old folk recipe for toothpaste.
- All the ingredients date back to antiquity. They have been used by the common Indian man for thousands of years.
- Efforts are going on from India for building 34 million webpages document for substantiating that the ingredients were known in the art.



Criticism of Biopiracy

- Unfair, Unethical and a threat to the existence of indigenous cultures;
- Companies that take genetic resources from indigenous communities and develop product based on that knowledge and having patent on it;
- Indigenous communities are so barred from using or exporting their biological resources and traditional knowledge that they have developed. Eventually causes traditional knowledge to become extinct;

Why do we need to protect traditional knowledge

- Legal recognition of the rights of the holders of the TK who are mainly the tribal and indigenous people of India is the need of the hour.
- The indigenous and tribal people who is conserving biodiversity by adopting sustainable method deserves to be recognized and compensated goes without saying.
- We need to sensitize the people on these issues as the public awareness about TK is very low.

- India was the first to raise the fundamental issue at the World Intellectual Property Rights Organisation (WIPO) as to why the traditional knowledge-based system should not be treated at par with the industry-based system.
- Until and unless the very own traditional knowledge of our is protected, the country would have to fight for patents claimed by other countries as in the case of Haldi, Neem and Basmati .

Bioprospecting

- The search for biological resources & accompanying indigenous knowledge for the purpose of commercial exploitation;
- A process of appropriation and commercialization of natural products ranging from plants and animals;
- Bioprospecting could be a useful tool in economic conservation;

Bioprospecting or Biopiracy

- Bioprospecting involves “the exploration, extraction and screening of biological diversity and indigenous knowledge for commercially valuable genetic and biochemical resources” .
- Unfortunately, indigenous people are all too often unaware of the value of their knowledge.
- Legislation has attempted to prevent such unrestricted bioprospecting or what is often referred to as “biopiracy.”



- Bioprospecting or collecting biological samples,
 - can help medical and other scientific research;

- while Biopiracy or illegal collection, can:
 - infringe on the sovereign rights of nations
 - decrease the economic health of indigenous communities
 - deplete or destroy species

- **Why companies choose Biopiracy instead of Bioprospecting?**
- To be at the top in the competition in obtaining the patent over the biological material;
- Companies don't have time to collect the sample legally;

Need for legal Protection and preservation of Traditional Knowledge

- The loss of language leads to loss of knowledge, the process accelerated by cultural change and globalization;
- The most common reason given for why TK protection should be granted is the claim that Northern companies are exploiting the biodiverse South by patenting “their” knowledge.

Efforts toward curbing Biopiracy

- Curbing biopiracy is about ensuring that indigenous populations receive justice and fair compensation for the use of the knowledge and genetic materials;
- Individual countries must change their laws to reflect the need for fair compensation for indigenous populations;
- Empowering indigenous peoples will yield positive results;

- There are international laws in place to regulate bioprospecting such as Convention on Biological Diversity and Nagoya Protocol;
- Access to genetic resources in exchange for fair and equitable sharing of benefits;
- sharing of benefits through technology transfer, research results, training and profits can contribute to poverty reduction and sustainable development in biodiversity rich developing countries;
- The Convention on Biological Diversity, 1992 imposes obligation to conservation, sustainable use, sharing of information on, and equitable sharing of benefits derived from biodiversity;
- But the method of achieving the objective is left to individual nations

In India:

- *Traditional Knowledge Digital Library - A tool for prevention of misappropriations of traditional knowledge*
- TKDL records our age old traditional knowledge;
- TKDL contains more than 2.60 lakh formulations from the texts of traditional medicine systems of India which are Ayurveda, Unani and Siddha.
- The Library gives access to non-patent literature databases on traditional knowledge of India.

- TKDL covers Indian Systems of Medicine, viz., Ayurveda, Unani, Siddha and Yoga available in public domain.
- The abstraction is done by the subject experts.
- The database will provide information on modern as well as local names in a language and format understandable to Patent Examiners;
- Acts as a bridge between formulations existing in local languages and a Patent Examiner at a global level;
- Fusion of country's traditional knowledge with modern science.

- Library collects the information on traditional knowledge from the literature existing in local languages such as Sanskrit, Urdu, Arabic, Persian and Tamil in digitized format.
- Information will be available in five international languages: English, German, Spanish, French and Japanese.
- It will be mandatory for patent examiners to refer to this database before granting a patent now.

Success story of TKDL

- Uniliver (Netherland) have withdrawn their application EP1607006 for "Functional berry composition" dated 04 August 2009 after submission of TKDL prior art evidence(s).
- Jumpsun Bio-Medicine (Shanghai) Co. Ltd, China have withdrawn their application no EP 1889638 for "Medicaments and food for treatment or prevention of obesity and/or diabetes containing cicer arietinum extract"
- Industrial Research Limited and Otago Innovation Limited / New Zealand have withdrawn their application no. EP 1750809 for "Citrus Fruit Skin extract for Angiogenesis promotion" based on the TKDL evidences.

- Amcod Limited, Mombasa, Kenya have withdrawn their application no EP1807098 for "Herbal compositions for treatment of diabetes"
- GW Pharma Limited Porton Down Science Park Salisbury Wiltshire SP4 0JR / Great Britain [2010/16] have withdrawn their application no EP2175848 for "Therapeutic uses of Cannabigerol"
- Nestec S.A. Avenue Nestlé 55 1800 Vevey / Switzerland, have withdrawn their application no EP2263481 for "Green tea extracts of improved bioavailability"
- EP1849473 "relating Chinese traditional medicine composition for treatment of avian influenza/Bird Flu" has been refused claims on use of Kalamegha (Andrographis) and Pudina (Mint) for the treatment of Avian Influenza.

Biopiracy and Patent

- Patents on illegally acquired biological source materials are considered acts of biopiracy.
- Natives own the intellectual property rights to their traditional knowledge.
- **A negative impact:**
 - Many patents either deny economic compensation to indigenous groups entirely or they prevent indigenous groups from using specific plant materials altogether.
- The patent holder will unfairly benefit from the obvious result of nature rather than a product of human efforts or skill.

Efforts to bar granting of patent on biological material:

- Provision for mandatory disclosure of source and geographical origin of the biological material.
- The non- disclosure and wrongful disclosure of the biological material is a ground for patent opposition and Revocation.
- Traditional Knowledge, whether written or oral, treated as prior art in determining patentability.

