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Role of IPR in Promoting Indigenous Innovations

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ABSTRACT

Indigenous innovation is essentially an innovator's mindset. In which he put his/her skills and personality traits to efficient use. Indigenous innovations are commonly the most cost-effective way to complete a job or a specific task. In India, there is a huge problem of unemployment in both rural and urban areas. Indigenous innovations are a new opportunity for those youth who have innovative ideas and are eager to work. It provides self-employment to the youth in their own areas or regions and contributes to India's inclusive development. Astounding indigenous innovations can be found in India that can be turned into marketable goods and thus aid in value creation. These could be instrumental in guiding a country like India toward becoming an innovation-driven economy. As a result, the future belongs to commodities that fulfil the consumer's physical and mental needs while also taking into account the region's conventional, socioeconomic, cultural, and ecological aspects. They should be made locally, but they should be of global quality in terms of appearance, reliability, and performance. As a result, in order to be culturally appropriate and economically viable, the products/solutions would need to be rooted in the local context. This necessitates community involvement and the use of indigenous knowledge. Organizations and nations have been driven ever further to focus on building their own in-house / local solutions, including indigenous technologies, as a result of strict IPR norms have been framed.

I. EXECUTIVE SUMMARY

Indigenous innovation is essentially an innovator's mindset. In which he put his/her skills and personality traits to efficient use. Indigenous innovations are commonly the most cost-effective way to complete a job or a specific task. In India, there is a huge problem of unemployment in both rural and urban areas. Indigenous innovations are a new opportunity for those youth who have innovative ideas and are eager to work. It provides self-employment to the youth in their own areas or regions and contributes to India's inclusive development. Astounding indigenous innovations can be found in India that can be turned

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into marketable goods and thus aid in value creation. These could be instrumental in guiding a country like India toward becoming an innovation-driven economy. As a result, the future belongs to commodities that fulfil the consumer's physical and mental needs while also taking into account the region's conventional, socioeconomic, cultural, and ecological aspects. They should be made locally, but they should be of global quality in terms of appearance, reliability, and performance. As a result, in order to be culturally appropriate and economically viable, the products/solutions would need to be rooted in the local context. This necessitates community involvement and the use of indigenous knowledge. Organizations and nations have been driven ever further to focus on building their own in-house / local solutions, including indigenous technologies, as a result of strict IPR norms have been framed.

The Definition of Indigenous *is-* of or relating to the earliest known inhabitants of a place and especially of a place that was colonized by a now-dominant group.

“indigenous Originally’ ’meant "local" or "folk" or "informal knowledge" when applied to knowledge.

Due to the marginalisation and degradation of ethnic groups', the word "indigenous," when applied to information and knowledge, has come to be perceived as "non-western" or "anti-western" knowledge².

Definition of Innovation.

MAHATMA GANDHI: Innovation can be defined as the application of knowledge to create additional value and wealth. Innovation involves using knowledge to find new ways to create and bring about change for the better³.

II. DIFFERENCE BETWEEN INVENTION AND INNOVATION

This concept of innovation has consequences for the types of practises that can be considered creative within businesses. To begin with, innovation does not always necessitate the use of technology or technical expertise. Any form of expertise can be used to create successful innovation, as long as the implementation adds value and wealth. Second, innovation is not the same thing as invention. It's possible that innovation doesn't even necessitate the development of new knowledge, whether for the planet or for the business. It does, however, necessitate the inspired application of experience and knowledge in order to generate

² Antweiler, C. Local Knowledge and Local Knowing: An Anthropological Analysis of Contested Cultural Products in the Context of Development, 1998.

³ Sanjeet Singh; Gagandeep Shmarma; Mandeep Mahendru, Jugaad Technology Indigenous Innovations a Case Study of Indian origin APJRBM Volume 2, Issue 4 (April, 2011) ISSN 2229-4104.

additional value. Given this, equating market creativity with business R&D spending is problematic. R&D involves the creation of new knowledge, which can be useful but is not required in the innovation process. Furthermore, R&D is linked to the development of a particular form of knowledge, while creative and innovative activities can include the creation and application of a broader variety of knowledge. Although R&D indicates the development of scientific knowledge, it says nothing about how that knowledge is used to generate value and wealth⁴.

‘Innovation = invention + implementation/commercialization’. While invention is defined as the first demeanour of an idea for a new product or process, innovation is defined as the first attempt to put it into operation. The emphasis here is on the idea's "newness." Rather than new knowledge, innovation generates new value. Science and technology are not the same thing as innovation. It's all about business. In general, innovations are divided into three broad categories: incremental innovations, new-to-the-market/society innovations, and breakthrough innovations. The majority of innovations occur in stages. Bottom-up innovation is possible, as is top-down sponsorship. Each approach will have advantages and disadvantages⁵.

INDIGENOUS INNOVATIONS

Indigenous innovation has the same meaning as traditional innovation, rural people's innovation, farmer's innovation, local innovation, and community innovation, among other terms. In general, the term innovation refers to a new or perceived new or altered idea. If the new idea or resource improvement is accomplished using traditional methods or knowledge systems, it is referred to as indigenous innovation⁶. When compared to scientific innovations, indigenous innovations are frequently more environmentally friendly and sustainable⁷. While local or indigenous technology or practise is known as a traditional knowledge that has already been adopted and commonly used, innovation is seen as something different that may have evolved from existing practises but is not necessarily the same.

Indigenous technologies are largely focused on their evolution and implementations – in the sense of the community. Individuals, groups of interested people from the same community

⁴Sanjeet Singh; Gagandeep Sharma; Mandeep Mahendru, *Jugaad Technology Indigenous Innovations a Case Study of Indian origin APJRB* Volume 2, Issue 4 (April, 2011) ISSN 2229-4104.

⁵ Gaynor, Gerard, *Innovation by Design: What it takes to Keep Your Company on the Cutting Edge*. New York: AMACOM, 2002.

⁶ Shashank Mehta, Ravi Mokashi-Punekar: *EXPLORING INDIGENOUS INNOVATIONS: Ascertaining the Scope for Design Interventions for their Successful Commercialization.*, <http://www.shashankmehta.com/Research%20Papers%20pdfs/Exploring%20Indigenous%20Innovations%20-%20Ascertaining.pdf>

⁷ Goh, Andrew, *Towards an Innovation-Driven economy through Industrial Policy – Making: An Evolutionary Analysis of Singapore*, *The Innovation Journal: The Public Sector Innovation Journal*, 2005.

create these solutions/innovations on an informal, unorganised, and experimental basis. Since the ideas arose out of necessity – to solve the problems at hand – rather than for any commercial gain, they would have inherent flaws in terms of reproduction, production, and/or commercialization. They will also be limited in their ability to migrate from one culture or tradition to another. These solutions would be most successful within the particular context/boundary, both in terms of suitability and sustainability. Indigenous technologies, if promoted and supported properly, can provide tremendous business opportunities in a diverse and densely populated country like India, which is also large in scale. The concept of indigenous developments for contemporary Asian economies would be more inclusive and appropriate: "independent, self-reliant, and indigenous."

INNOVATION DEPENDS ON FOUR MAJOR ELEMENTS:

- Resources,
- infrastructure,
- culture, and
- process
- These all play a vital role in innovation. Culture, or the personality of a group or collective, plays an important role in innovation⁸.

THE THREE MAIN PHASES OF THE INNOVATION PROCESS ARE:

- producing ideas,
- harvesting ideas, and creating and
- implementing these ideas⁹.

THE TYPES OF INNOVATIONS

The term "innovation" refers to a much broader range of interventions than the use of new technologies. can be broadly classified into the four categories listed below.

1. Technology innovation: Technology innovations are primarily generated in laboratories and then transferred to users such as farmers, advisory services, and policymakers.

2. Know-how innovation: Innovations in knowledge-based methods and practises are frequently the result of participatory research that crosses the traditional divide between knowledge producers and users; it makes "tacit knowledge" explicit and frequently combines

⁸ Mehta, S. Services that Sustain, Visions of possible world, Italy, 2003, December.

⁹ Mehta, S. Sustainability: The Indian Context, Design Networks Asia, Japan, 2003, September.

new and traditional knowledge.

3. Organizational innovation: This type of innovation is associated with changes in management and collaboration among actors (e.g., researchers, extension services, farmers, retailers, consumers, civil society)

4. Social innovation: Social innovations are changes in the behaviour of groups in larger society, allowing people and societies to better cope with complexity¹⁰.

III. INDIGENOUS INNOVATIONS AND ECONOMY

According to Nobel Prize-winning economist Robert Solow's Growth Theory, technological progress and innovation are the most powerful engines of economic growth. According to studies, the industrial policies of the world's developed nations place a premium on the strategic role of innovation in generating new business ideas that will lead to increased economic growth. It is therefore essential for any country aspiring to become a developed nation to transition to an innovation-driven economy¹¹.

Market Trends That Are Changing Market trends have been observed to shift from 'globalised' to 'regionalized' and then to 'localised.' The rising cost of energy and transportation has compelled industries to shift their focus from mass production at a central site to batch production at multiple locations, which solves the problems of logistic support and product sale in multiple locations. Scarcity of materials, combined with an ever-increasing concern for the environment, has pushed industries to further localise and personalise their products. Due to the fierce market competition, industries have been forced to localise and customise their products in order to penetrate every segment of the market, including the rural segment. As a result, companies are being forced to shift their focus away from mass production and toward mass customization of their products. As a result, the future belongs to products that satisfy the physical and mental needs of the consumer while also incorporating traditional, social, cultural, and ecological aspects of the region. They should be manufactured locally, but they should be of world-class quality in terms of appearance, efficiency, and performance¹². As a result, the products/solutions must be based on the locally acceptable and financially feasible. This necessitates local participation and the use of

¹⁰Rajesh K Rana Rajbir Singh A K Thakur V P Chahal A K Singh, *Contemplating Agricultural Growth through Farmers' Frugal Innovations*, 2019.

<https://atariz1.icar.gov.in/pdf/Farmers%20Frugal%20Innovations.pdf>

¹¹ Goh, Andrew, *Towards an Innovation-Driven economy through Industrial Policy – Making: An Evolutionary Analysis of Singapore*. The Innovation Journal: The Public Sector Innovation Journal, 2005.

¹² Shashank Mehta, Ravi Mokashi-Punekar: *EXPLORING INDIGENOUS INNOVATIONS: Ascertaining the Scope for Design Interventions for their Successful Commercialization*, <http://www.shashankmehta.com/Research%20Papers%20pdfs/Exploring%20Indigenous%20Innovations%20-%20Ascertaining.pdf>.

indigenous knowledge. Stringent IPR norms have pushed organisations and nations to place a greater emphasis on developing their own in-house / local solutions, i.e., indigenous innovations.

Criteria to qualify as an indigenous innovation:

Criteria for Choosing Indigenous Innovations Because indigenous innovations are not clearly defined, it is difficult for field/extension workers to distinguish them from traditional practises or technological advances. These indigenous innovations/solutions could take the form of innovative modifications/value additions to existing/traditional products/processes/applications, or they could be entirely new innovations that have emerged locally or have been transferred from elsewhere. These criteria for selecting indigenous innovations aid in prioritising these innovations based on context, understanding the level of innovation, and determining the need for and type of additional interventions required

Characteristics of successful indigenous innovations.

According to Paula Puffer, successful indigenous innovations quickly become permanent community knowledge¹³. Paula Puffer derived some of the features that she discovered were common in these innovations from her study of several such innovations. These benefits include its low cost, ease of access, and reduced risks. According to her, a successful innovation generates income while also saving labour. It should be simple to understand and easily integrated into current practises. These innovations yield visible results in a reasonable amount of time¹⁴. They meet the user's/multiple community's needs and are supported by evidence from a variety of sources, including those most trusted in the community. These innovations consider various factors such as taste preferences, nutritional beliefs, and so on. As a result, innovators, designers, and organisations can try to incorporate as many of these features as possible in order to improve/refine their indigenous innovations and thus increase the potential of their acceptability and thus success. According to the UNESCO/MOST publication titled 'Best Practices Using Indigenous Knowledge,' the best/successful solutions demonstrate Individuals, groups, or communities have a positive and tangible impact on their living conditions, quality of life, or environment. They are creative in their solutions to common local problems. These solutions have long-term effects in terms of poverty eradication, social exclusion, and so on, particularly through participatory involvements. They also serve as a source of inspiration for others and a model for developing policy

¹³ Puffer, Paula, *The Value of Indigenous Knowledge in Development Programs Concerning Somali Pastoralists and their Camels*, 1995.

¹⁴ Puffer, Paula. *The Value of Indigenous Knowledge in Development Programs Concerning Somali Pastoralists and their Camels*, 1995.

initiatives.

These the few important characteristics:

- Adopt zero based solution approach
- Co-creation
- Design the prototypes and maximize the use of locally available resources.
- Market tests
- Sustainable and eco friendly

IV. INTERVENTIONS FOR INDIGENOUS INNOVATIONS IN INDIA

Rural Innovation Network, RIN, Kerala; Rural Incubator, Hyderabad; Grassroots Innovation Augmentation Network, GIAN, Ahmedabad; and others are examples of Indian organisations that are currently engaged in similar development and support for indigenous innovations. These organisations assist the innovator with market research, product refinements, resource sourcing, including capital, and intellectual property protection, among other things. They provide a platform for collaborations, partnerships for further development, and, if necessary, the identification of a potential entrepreneur/company to eventually pass on the innovation in exchange for a royalty.

a Crucial Component of Interventions These organisations' interventions/supports would primarily be in the field of marketing – to conduct initial market research in order to understand market and business potential, and/or to market new products; planning and management of resources, finance; technology – product refinements, modifications, product testing, and production/replication; capacity building through training. Aside from these, the organisations assist innovators in documenting and protecting their innovations, promoting and disseminating innovation and knowledge to a wider audience, interacting with government, academia, and industry, and so on.

The Grassroots Innovation Design Studio, GRIDS, established at the National Institute of Design, NID, in collaboration with GIAN, Ahmedabad, assists local innovators and organisations by providing critical design intervention support.

V. ROLE OF INTELLECTUAL PROPERTY IN PROMOTING INDIGENOUS INNOVATIONS

If the new idea or resource improvement is accomplished using traditional methods or

knowledge systems, it is referred to as indigenous innovation¹⁵. WIPO has developed legal regimes that would protect traditional knowledge and in turn indigenous innovations.

The current international system for intellectual property protection was conceived during the Western industrialization era and evolved in response to the perceived needs of technologically advanced societies. However, in recent years, indigenous peoples, local communities, and governments, primarily in developing countries, have demanded that traditional knowledge systems be granted the same level of protection.

WIPO members established an Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge, and Folklore (IGC) in 2000, and in 2009 they agreed to create an international legal instrument (or instruments) to provide effective protection for traditional knowledge, genetic resources, and traditional cultural expressions (folklore). An instrument of this type could range from a recommendation to WIPO members to a formal treaty binding countries that ratify it¹⁶.

Traditional knowledge is difficult to protect under the current intellectual property system, which typically grants limited protection to inventions and original works by named individuals or companies for a limited period of time. Because of its living nature, “traditional” knowledge is difficult to define.

WIPO's work on traditional knowledge focuses on three distinct but interconnected areas: traditional knowledge in the strict sense (technical know-how, practises, skills, and innovations related to, say, biodiversity, agriculture, or health); traditional cultural expressions/expressions of folklore (cultural manifestations such as music, art, designs, symbols, and performances); and genetic resources (genetic material of actual or potential value found in plants, animals and micro-organisms)¹⁷.

VI. HOW TO PROTECT TRADITIONAL KNOWLEDGE?

There are two ways to protect Traditional knowledge: **a) Positive Protection and b) Defensive Mechanism**. Positive protection entails safeguarding TK through the enactment of laws, rules, and regulations, access and benefit sharing provisions, royalties, and so on. Steps taken to prevent the acquisition of intellectual property rights over traditional knowledge are

¹⁵Shashank Mehta, Ravi Mokashi-Punekar: EXPLORING INDIGENOUS INNOVATIONS: Ascertain the Scope for Design Interventions for their Successful Commercialization <http://www.shashankmehta.com/Research%20Papers%20pdfs/Exploring%20Indigenous%20Innovations%20-%20Ascertain.pdf>.

¹⁶ https://www.wipo.int/pressroom/en/briefs/tk_ip.html.

¹⁷ https://www.wipo.int/pressroom/en/briefs/tk_ip.html.

referred to as defensive mechanisms¹⁸.

Following the well-known case of the USPTO, wherein a patent was granted on the healing properties of turmeric and CSIR proved the prior existing knowledge of such properties of turmeric with the help of numerous ancient scriptures and documents, India, for example, has adopted a Defensive mechanism to protect its traditional knowledge by way of establishing a Traditional Knowledge Digital Registrar.

When members of the community innovate within the traditional knowledge framework, they may seek to protect their innovations through the patent system. Traditional knowledge, on the other hand, which has ancient roots and is often informal and oral, is not protected by traditional intellectual property systems. This has prompted some countries to create their own *sui generis* (one-of-a-kind) systems for safeguarding traditional knowledge.

VII. IMPORTANT INTERNATIONAL CONVENTIONS

The CBD and the Nagoya Protocol of 2010 establish international recognition and protection for traditional knowledge. Article 8(j) of the CBD requires parties to respect and preserve indigenous communities' knowledge, as well as to promote broader application of TK based on fair and equitable benefit-sharing. Article 16 recognises TK as a "key technology" for effective conservation and sustainable use of biodiversity, with procedural requirements for access to genetic resources established in Article 15, including those based on prior informed consent and mutually agreed terms. The Nagoya Protocol expands the CBD's provisions on access and benefit-sharing¹⁹.

VIII. TRADITIONAL CULTURAL EXPRESSIONS AND GENETIC RESOURCES

Traditional cultural expressions (folklore) are seen as essential to indigenous and local communities' cultural and social identities, embodying know-how and skills and transmitting core values and beliefs. Protecting folklore promotes economic development, encourages cultural diversity, and aids in the preservation of cultural heritage.

Existing systems, such as copyright and related rights, geographical indications, appellations of origin, trademarks, and certification marks, can sometimes protect traditional cultural expressions. Contemporary adaptations of folklore, for example, are copyrightable, whereas performances of traditional songs and music may fall under the purview of the WIPO.

¹⁸ Ms.vatsala singh, IPR vis a vis traditional knowledge, 5th oct 2018., <https://www.khuranaandkhurana.com/2018/10/05/ipr-vis-a-vis-traditional-knowledge/>

¹⁹ Ms.Vatsala Singh , IPR vis a vis traditional knowledge , 5th oct 2018.
<https://www.khuranaandkhurana.com/2018/10/05/ipr-vis-a-vis-traditional-knowledge/>

Trademarks can be used to identify authentic indigenous arts, as Te Waka Toi, the Maori Arts Board in New Zealand, has done. Folklore is also protected by special legislation in some countries. Panama has established a registration system for traditional cultural expressions, and the Pacific Regional Framework for the Protection of Traditional Knowledge and Expressions of Culture grants “traditional owners” the right to authorise or prohibit the use of protected folklore and receive a share of any commercial exploitation²⁰.

Genetic resources are not intellectual property (they are not the product of the human mind) and thus cannot be directly protected as such. Inventions based on or developed using genetic resources (whether associated with traditional knowledge or not) may, however, be patentable or protected by plant breeders' rights. WIPO's work on intellectual property aspects of genetic resource use complements the international legal and policy framework defined by the Convention on Biological Diversity (CBD) and its Nagoya Protocol, as well as the United Nations Food and Agriculture Organization's International Treaty on Genetic Resources for Food and Agriculture²¹.

IX. SCENARIO IN INDIA

Unlike other categories of intellectual property rights, India lacks a substantive act or law to protect traditional knowledge; however, other IP acts contain provisions pertaining to traditional knowledge, such as the Patents Act, 1970, Sections 25 and 64, which lists traditional knowledge as one of the grounds for revocation of a patent application. The Copyright Act of 1957 makes no specific mention of protecting traditional cultural, literary, or artistic work or folklore, but Section 31A provides for protection of unpublished Indian work. Nonetheless, Copyright protection is for a limited time period and also requires certain criteria to be met, so under this IP as well as protection of traditional knowledge doesn't have much scope²².

In recent years, India has actively participated in TK conventions and made efforts to protect its TK at the international level. Access to Indian TK is available at the USPTO and EPO, and the CSIR is working to improve the efficiency of the TK database on a daily basis.

SUI GENERIS PROTECTION AND ITS AWARENESS

Since IP protection has its own drawbacks and loopholes, there has been an increase in

²⁰ https://www.wipo.int/pressroom/en/briefs/tk_ip.html.

²¹ https://www.wipo.int/pressroom/en/briefs/tk_ip.html.

²² Ms. Vatsala Singh, IPR vis a vis traditional knowledge, 5th oct 2018.

https://www.khuranaandkhurana.com/2018/10/05/ipr-vis-a-vis-traditional-knowledge/?utm_source=Mondaq&utm_medium=syndication&utm_campaign=LinkedIn-integration.

demand for Sui Generis systems of protection for traditional knowledge. Sui Generis is a Latin phrase that means "of its own kind." Sui generis instruments shall provide a legal framework for the protection of traditional knowledge, the enforcement of indigenous communities' rights, the prevention of misuse and control of traditional knowledge, the provisions of the ABS (access and benefit sharing) system, and so on.

In addition to the TKDL system, India can take a more proactive approach, primarily to raise awareness and understanding among people who are currently completely unaware of or have very limited knowledge of Intellectual Property Rights and the term. 'traditional knowledge'²³.

X. DEVELOPING AN INTERNATIONAL LEGAL INSTRUMENT

Because the current international intellectual property system does not adequately protect traditional knowledge and cultural expressions, many communities and governments have called for an international legal instrument that provides sui generis protection. For example, communities may wish to exert control over all uses of their traditional cultural expressions, including works inspired by them even if they are not direct copies. Copyright law, on the other hand, allows for the creation of new works based on the work of others as long as there is sufficient originality. The legal instrument's text must define the distinction between legitimate borrowing and unauthorised appropriation.

Countries agree that intellectual property protection and biodiversity conservation should be mutually supportive, but they disagree on how this should be accomplished and whether any changes to current intellectual property rules are required.

The WIPO Voluntary Fund assists representatives of indigenous and local communities in attending the WIPO talks, and their active participation will continue to be critical for a successful outcome. WIPO members have agreed to speed up their work in order to decide whether to hold a diplomatic conference in late 2012 to finalise the adoption of one or more international instruments.

XI. CHALLENGES IN PROMOTION INDIGENOUS INVENTIONS:

Indigenous peoples are regarded as one of the most vulnerable and impoverished groups on the planet, with little hope for survival and development other than their immediate natural

²³Ms.vatsala singh , IPR vis a vis traditional knowledge , 5th oct 2018.
<https://www.khuranaandkhurana.com/2018/10/05/ipr-vis-a-vis-traditional-knowledge/>

environment²⁴.

There are an estimated 370 million indigenous peoples living in over 70 countries around the world. They represent a rich diversity of cultures, religions, traditions, languages, and histories, but they remain one of the world's most marginalised population groups²⁵.

However, indigenous peoples have suffered and cried out against discrimination and marginalisation at the hands of various governments through the policies they formulate and implement at the national and international levels over the years. As a result, it appears that the international community is increasingly recognising the close relationship between indigenous peoples and their environment, as well as the need to protect their interests in this regard at the international level through binding and non-binding regimes²⁶.

The primary goal of indigenous invention protection is not only to prevent commercial exploitation of knowledge whose rightful owner is the indigenous community as a whole, but also to preserve the sanctity of the tradition both within and outside the tribe. People who embezzle or legally steal what rightfully belongs to indigenous people not only deprive the community of all commercial, proprietary, and monetary rights, but they also offend the indigenous people's culture²⁷.

Corporations and institutions gain exclusive ownership rights by utilising traditional knowledge and resources and obtaining IPRs over specific products and processes. The use of those very resources by traditional society is then deemed illegal and an infringement of the patent holder's rights. It is perplexing how the tools of western law develop this circuitous route by which “rights” (IPRs) become “anti-rights” (anti indigenous peoples' rights).²⁸

The Convention on Biological Diversity has three goals: conservation of biological diversity, sustainable use of its components, and equitable sharing of benefits resulting from the use of genetic resources. The Nagora Protocol was incorporated into this convention to provide access to genetic resources as well as fair and equitable sharing of benefits resulting from their use. The Protocol aims to create incentives for the conservation of biological diversity, the sustainable use of its components, and the enhancement of biological diversity's

²⁴ ²⁴ ETC Group. 2002. Biopiracy + 10: Captain Hook awards 2002 (No.75).

www.captainhookawards.org/content/download/118/604/file/Biopiracy+10Comm.pdf.

²⁵ <https://www.un.org/en/>

²⁶ Thora Martina Herrmann, Thibault Martin Indigenous Peoples' Governance of Land and Protected Territories in the Arctic, 2016. <https://link.springer.com/book/10.1007%2F978-3-319-25035-9>.

²⁷ 1 NUJS L Rev 109: Sacred but Vulnerable: A Critical Examination of the Adequacy of the Current Legal Framework for Protection of Tribal Sacred Traditional Knowledge (2008).

²⁸ Swaireeta dutta, The Turmeric Patent is just the first step in stopping Biopiracy, <http://www.nabard.org/nrmc/pdf/nabard%20turmeric%20survey.pdf>.

contribution to sustainable development and human well-being.²⁹.

XII. INDIGENOUS INNOVATIONS AND INDIA

With its rich tradition of over 5000 years of civilization, India possesses an infinite treasure of indigenous knowledge and practised wisdom that is constantly used and practised in daily life. Creativity was recognised as a quality as essential and ordinary as breathing in each of the culturally cohesive Indian societies..., observed Dr. Kapila Vatsayan, a noted historian, during her convocation address at NID in 1989. Over seventy percent of India's population now lives in over 550, 000 villages spread across thirty-five states³⁰.

Because agriculture and crafts are their primary sources of income, the use of indigenous knowledge and indigenous innovations is a necessity and thus a common practise. In terms of Indian industries, the majority of them are SME's (Small and Medium-Scale Enterprises) (SMEs). The fierce competition among these more than 3.57 million SMEs and auxiliary units drives constant innovations – indigenous innovations – for product and process refinements and upgrades. Furthermore, the vast majority of the country's population is made up of people from the rural and middle-income groups. Indigenous innovations are a necessity for them in their daily life³¹.

Indians are highly enterprising by nature, and they find ingenious and amazing ways to make the most of whatever resources and skills they have at their disposal to earn a living. In India, design is a way of life. As a result, India has a rich resource of indigenous innovations that could be the future.

XIII. CONCLUSION

The very nature of Indian society – primarily an agrarian and service economy, a large middle income and rural segment, crafts and SMEs as the main industry sectors – all encourage the development of indigenous and inventive ways to earn a living. Its rich resource of indigenous knowledge, which has evolved over time, is constantly used and practised in their efforts to survive and progress. As a result, amazing innovations – solutions that may have been developed/innovated to meet and solve the specific needs and requirements of the person or region – would be encountered. Because of the nature of their development, these ideas/innovations will incorporate many ecological and sustainability considerations. As a result, there is a lot of room for developing these ideas, as well as

³⁰ Sanjeet Singh; Gagandeep Shmarma; Mandeep Mahendru, Jugaad Technology Indigenous Innovations a Case Study of Indian origin APJRB Volume 2, Issue 4 (April, 2011) ISSN 2229-4104.

³¹ Mehta, S. Sustainability: The Indian Context, Design Networks Asia, Japan, September, 2003.

traditional knowledge, into modern applications for local solutions. This would benefit the large number of people who live in the area while also creating job opportunities.

These indigenous innovations/ideas/knowledges could thus form a significant resource that can be developed into marketable products, thereby assisting in the creation of business successes and, as a result, providing a vital direction for a country like India to transition into an innovation-driven economy. The evolution of creative leaders requires indigenous design and development capabilities in order to gain a competitive advantage.

Indigenous innovation, by definition, is one that emerges locally, utilising local knowledge and locally available materials, skills, and resources to solve common local problems. It must be acceptable to the community on both a cultural and economic level. The locality/boundary region's will be flexible and may include a region, states, or countries, depending on the type of solution/s and its applications. These solutions could take the form of unconventional use of a given product, local improvisation/modification with replication potential, or a combination of the two. a new application of the product/materials, a combination of traditional skills and contemporary needs and markets, a foreign technology/solution modified/value added to suit the local context, or a completely new innovation It is typically carried out to add value, extend the life-cycle or usage of available resources and/or products, reuse or recycle available products/materials, create new opportunities, and, above all, improve the quality of life of those involved. Because of the nature of their development, these solutions/ideas would have built-in considerations for many of their usability, practicality (in terms of production/fabrication), and so on. ecological, cultural, and sustainability aspects of design

These solutions, because they will primarily take the form of appropriate modifications/refinements or improvements to existing products, will be classified as incremental and 'bottom-up' innovations. Because of the nature of these innovations, they will all necessitate additional, critical interventions and hand-holding efforts to ensure their protection in terms of IPR, promotion, and development. Because the current international intellectual property system does not adequately protect traditional knowledge and cultural expressions, many communities and governments have called for an international legal instrument that provides sui generis protection. For example, communities may wish to exert control over all uses of their traditional cultural expressions, including works inspired by them even if they are not direct copies. Copyright law, on the other hand, allows for the creation of new works based on the work of others as long as there is sufficient originality. The legal instrument's text must define the distinction between legitimate borrowing and

unauthorised appropriation.

Countries agree that intellectual property protection and biodiversity conservation should be mutually supportive, but they disagree on how this should be accomplished and whether any changes to current intellectual property rules are required

Connecting the innovator's informal and indigenous knowledge to the formal knowledge of researchers/academics/industry requires delicate and empathetic handholding. As a result, the government and non-governmental organisations (NGOs) involved in these tasks must be willing to share these risks and be prepared for long-term involvement. Furthermore, innovation is primarily a collaborative effort that thrives in creative environments and a culture that encourages experimentation and constructive criticism.
