A Study of Rights of Farmers with Reference to IPR and Laws Relating the Seed in India

RUCHI TIWARI

Research Guide

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1. Introduction

Agriculture plays a key role in India's economy both from the point of view of employment generation as well as its share in Gross Domestic Products. Mahatma Gandhi said, "India lives in villages and agriculture is the soul of Indian economy". Nearly two-thirds of its population depends directly on agriculture for its livelihood. Agriculture is the main stay of India's economy. Since independence, India has made immense progress towards food security. Indian population has tripled, but food-grain production has increased more than quadrupled and thus there has been substantial increase in availability of food-grain per capita.[1]

Biodiversity is on which our planet as well as the foundation human civilization is built. Traditionally the societies all around the world have rich ethno biological knowledge that is particularly linked to the biological resources around them. India is among those developing countries that are rich in biodiversity and indigenous knowledge. The Earth's biological resources are vital to humanity's economic and social development. As a result, there is a growing recognition that biological diversity is a global asset of tremendous value to present and future generations. At the similar instance, the danger to species and ecosystems has by no means been as immense as it is today. Species disappearance caused by human actions continues at a frightening velocity.[2]

The chief threat to environment and people today comes from centralizing and monopolizing power and control. Diversity not made the logic of production there will be a no chance for sustainability, justice and peace. Cultivating and conserving diversity is no comfort in our times: it is essential for survival.[3] Indigenous peoples possess internationally recognized knowledge in areas as diverse as conservation and agricultural practices, classification systems, land use practices and sustainable management of natural resources, healthcare practices, and medicinal properties of local species. Because of the value of this knowledge, both indigenous peoples and commentators have been concerned about its exploitation by non-indigenous peoples; the same concerns apply to the diverse genetic resources found on

[1] R.B.Singh, P.Kumar, et.al., *Small Holders Farmers in India: Food Security and Agricultural Policy* (Bangkok Thailand 2002).
[2] Convention on biological diversity, *available at:* https://www.cbd.int/convention/articles/default.shtml?a=cbd-02
[3] Vandana Shiva, *Monsanto vs. Indian farmers, available at* : http://vandanashiva.com/?p=402 (News, Press Release, March, 2016).

indigenous lands. These concerns have led to calls for the protection of indigenous or traditional knowledge (TK) and calls for sharing of the benefits derived from the exploitation of TK. How protection and benefit sharing are to be accomplished, however, is a highly divisive and controversial topic, dividing resource-rich developing countries from those with advanced industrial and research capacity.[4] It is widely argued that biodiversity associated traditional knowledge must remain in the public domain to enrich the private domain. It is also argued that the new IPR regime that promotes monopoly proprietary rights is likely to lead a steady transfer of the "ownership" of intellectual "products" from the developing world to the developed world.[5]

While the question of the relationship between intellectual property and genetic resources associated with traditional knowledge has been internationally discussed since the adoption of the Convention of Biodiversity t the early 90s, the debate on this issue received a significant boost to its political profile starting with the review of article 27.3b of the TRIPS Agreement and the events leading to and at the WTO Seattle Ministerial Conference in 1999. The similar time, the issue gained reputation in WIPO in the context of the Substantive Patent Law Treaty (SPLT) diplomatic conference which resulted into the ultimate formation of the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC). Since then, the issue has been discussed in many forms and there are a number of important processes underway to deal with this question ranging from the WTO discussion on TRIPS and Convention of Biodiversity and issues around disclosure, prior informed consent (PIC) as well as the question of Access Benefit Sharing.[6]

Developing countries demanded the insertion of a provision in the TRIPS agreement "that mandates patent applicants for inventions that use biological resources and traditional knowledge, to disclose the source of origin of such resource and knowledge, as well as to provide evidence that they have obtained the necessary prior informed consent (PIC), and complied with national laws on benefit sharing." On the other, the US appears to maintain that the traditional knowledge should be removed from the agenda of the TRIPS Council.

[4] Kerry ten Kate & Sarah A. Laird, *The Commercial Use of Biodiversity: Access to Genetic Resources and Benefit Sharing* (London, UK: Earthscan, 1999).
[5] Salvin Paul, *Politics of Intellectual Property Rights: A Study on Patenting Biodiversity, Traditional Knowledge and Geographical Indications with Special reference to Kerala* (School of International Relations And PoliticsMahatma Gandhi University Kottayam, 2009).
[6] ibid

Besides, US and Japan opposed the checklist arguing that there is no conflict between the CBD and the TRIPS Agreement and hence no need to amend the TRIPS Agreement.[7]

The traditional knowledge base of indigenous and local communities in India is perhaps the richest in the Third World and hence appears to have the potential to capture the world drug and pharmaceutical markets, provided the country strives to bring in substantial improvement and value addition to the existing traditional knowledge base through appropriate scientific and technological intervention and policy support. Using some form of IPRs or sui generis systems for protection of TK based on prior informed consent and benefit sharing are likely to supplement the efforts available for the prevention of bio-piracy. It is argued that a uniform international system for protection of biological resources and associated TK would not cater to the requirements of individual country[8]

Seed is the basic and most critical input for sustainable agriculture. Seed is foundation of farming. "Subeejam Shushereto Jaayaty Sapadayaty" means the good seed in a good field produces abundantly. The answer of all other inputs depends on eminence of seeds to a large extent. Thus it is extremely essential that the farmers should use unadulterated healthy seeds as per the minimum certification standards which have standard germination proportion. The high quality seeds are those which have genetic clarity, physical purity, health standards, germiniability and moisture percentage in accordance with the minimum seed certification standards.[9]

Seed is the most unassuming potent gift in the life of the farmer to make his life fruitful. Right to good food and right to safe food are the slogans of the day and the same can be achieved by attaining food sustenance and food security. Seed is the kernel of the life itself, the source of our food, when contaminated have an adverse effect on our health and also health of our planet. India is a country mainly relied upon agriculture and for boosting up agricultural output availability of good quality of seeds to farmers is inevitable.

[7] Salvin Paul, *Politics of Intellectual Property Rights: A Study on Patenting Biodiversity, Traditional Knowledge and Geographical Indications with Special reference to Kerala* (School of International Relations And PoliticsMahatma Gandhi University Kottayam, 2009).
[8] ibid
[9] J S Lal, *"Importance of Seeds", available at:*www.vnrseeds.com/.../Article_Importance%20of%20Seed.pdf

In compare, the governing legislation today, related to seed, is in whole infringement of the Law of the Seed and independent processes without any basis in jurisprudence or science. An armory of legal instruments are steadily being invented and obligatory that criminalize age-old farmers' seed breeding, seed saving and seed sharing. And this armory is being shaped by the handful of corporations who first introduced toxic chemicals into agriculture, and are now controlling the seed through genetic engineering and patents.[10]

The developments in the seed industry in India, particularly in the last 30 years, are very significant[11]. Ever since the late 1980s, technological advances and policy reforms have opened up new opportunities for expansion in India's seed and agricultural biotechnology industries. Since most of the farming community is illiterate or semi- literate, it is the responsibility of the Government to frame rules that govern the production and distribution of quality seeds to the farming community[12]

Global food demand is forecasted to be at least double by the year 2050 and the world population is expected to reach from the current 6.3 billion to 9.3 billion, of which about 90 percent will reside in Asia, Africa and Latin America. The jump in the price of global food grains, naturally posed challenges to food security in India. Food grains production in India has not kept pace with the growth in population and demand. There are some reasons because of which the farmers in India failed to get optimum benefit from genetically modified crops. There is lack of irrigation, limited awareness, higher cost, illegal adoption of the genetically modified, old method of production etc. For example failure of Bt cotton cultivation, not only the farmers are responsible but also the authority of both states and Central government which are not providing adequate information and facility to the farmers so as the technology is new for them.

In a country like India where the farming community provides more than 80% of the country's annual requirements of seed, it is fundamentally important for the farmer to sell seed. If a farmer does not have the right to sell seed, it implies that each time the farmer wishes to grow a new crop, he or she has to turn to the market to procure seeds. Such dependence on the market for seeds is not economically feasible for farmers in India and

[10] Vandana Shiva, the law of seed, (RISMA Tipografia, Firenze, 2013).
[11] Indian Seed Sector, India, *available at:* seednet.gov.in/material/IndianSeedSector.htm
[12] Dr. K. Rammamoorthy, Dr. K. Sivasubramaniam, et.al., *Seed Legislation in India* (Jodhpur, 2006).

hence will have hindrance in livelihood. Further, if farmers do not have the right to sell seeds, it will weaken the overall seed market in India because there will be less competition for the private seed companies. Food security can be ensured only if there is a control over seeds by the farmers. In circumstances where the harvested material can be used as a seed, without any kind of processing, the significance of farmers having control over seeds cannot be ruled out. And future national and global food security is inseparable from their right on seeds - the right to save, sow, exchange, share and sell seeds.

GM seeds is neither full-scale adoption nor full-scale rejection is a viable option. The technology may be more appropriate for farmers that have difficulty spraying pesticides and herbicides. GM seeds may work well for farm areas that are inaccessible to tractors or close to water bodies, or in places where winds are high. Conversely, GM seeds may be least appropriate for farmers who are particularly reliant on a stable market. The uncertainty surrounding consumer acceptance of GM products, particularly in foreign markets, is a risk that may simply be unacceptable to some farmers.

Certainly, GM seeds are a revolutionary technology in the agricultural industry. Certainly, too, the potential benefits of these seeds promise to be considerable. But an uneducated acceptance of this technology by farmers is not the proper response. The technology of GM seeds and the attendant legal issues raise concerns that may work against an individual farmer. The best response of every farmer is to educate him about this technology and to carefully read all legal documents before deciding to plant GM seeds.

Hence, the title of this research is as follows:

A STUDY OF RIGHTS OF FARMERS WITH REFERENCE TO IPR AND LAWS RELATING THE SEED IN INDIA.

2. Rationale of the study

The rationale of the study is summarised under the following points:-

1. Decade of biodiversity 2011-2020.
2. Year of soil 2015
3. The New Seed Bill 2004 introduced is anti-farmer.
4. Bill will benefit only to industries and professional breeders.
5. New IPR laws are forming monopolies over seeds and plant genetic resources.

6. The Seed Bills has one only one objective of stopping farmers from seed saving, seed exchange and seed reproduction.
7. The objective about Seed Bills clearly states that is aimed in replacing farmers saved seeds with seeds from private seed industries.
8. The Seed Bills forgets to prevent private seed industry.
9. The Seed Bills aims to regulate the quality of seeds sold and replaces the Seed Act, 1966.
10. Farmers are exempt from registering their seed varieties but the seeds have to follow standards prescribed for commercial seeds. Farmers may find it difficult to obey to the standards required of commercially sold seeds.
11. The Seed inspectors can take samples from anyone selling purchasing or transporting seed. They have the power of search and seizure without a warrant.
12. It is not clear whether the Bill bans certain genetic engineering technologies such as "genetic use restriction technology" and "terminator technology." These technologies preserve intellectual property rights by either requiring specific additives, or by making the next generation seeds sterile.
13. The Seed Bill in its present form stipulates no adequate safeguards to protect against 'terminator' seeds. It paves the way for GM (transgenic) seeds being researched and marketed by MNC seed monopolies, without putting in place any adequately stringent procedures for verifying bio-safety or safety for human consumption.
14. The Bill does not provide for any time-bound mechanism for farmers to get a hearing for their complaints, nor does it set out any terms for compensation.
15. The Seed Bill, including many of the latest amendments, show signs that powerful commercial interests and seed companies are exerting pressures for the formation of the new act.

3. Object of the Study

The main purpose of this research is to study rights of farmers with reference to IPR and laws relating to the seed in India. While finding out this the researcher also conducts the study with the following objectives:

1. To analyze Nagoya Protocol on Access and Benefit sharing approaches towards protecting the interest of indigenous farmers in traditional knowledge.
2. To study the effect of Intellectual Property Rights on rights of farmers.
3. To analyze the existing laws pertaining to the seed in India.
4. To examine the Seed Bills with reference to farmer rights relating to seeds.
5. To examine the effect of genetically modified seed on Indian farmers.

4. Scope and Delimitation of the study

1. The scope of the study includes determining that the Traditional Knowledge, Genetic Resources and Seed Law of developed countries like U.S.A, CANADA and EUROPE have being effected by Patent Law.
2. To analyze the existing Indian Seed Law and pending Seed Bill with covering the aspects of Traditional Knowledge and Genetic Resources.
3. The researcher has been limited to the Indian Farmer rights on the Seed Law with taking general historical backdrop of different developed countries

5. Hypothesis/Research Questions formulated to conduct the research

The main purpose of this research is to study the rights of farmers with reference to IPR and laws relating to seed in India. The research was conducted on the basis of the following hypothesis:

1. Was the existence of Nagoya Protocol call of time or international regulatory framework imposed by the developed countries?
2. Are patented seeds creating war with the nature which is going to affect the biodiversity in long run?
3. Does Benefit sharing as envisaged under the current Seed Bills contribute to strengthening the rights of farmers or offers only financial compensation?
4. Does some provisions of the Seed Bills contradict and overlap with the Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPVFR Act).
5. Can this Seed Bill in its present form protect farmers from exploitative pricing or hoarding of seeds?

6. Is relationship between Genetic Resources, Traditional Knowledge and Intellectual Property Rights the most controversial agenda items in the negotiations of several international organizations?

6. Research Methodology

The study is based qualitative research where in both primary as well as secondary data is used. The primary data would be collected from semi-structured close ended questionnaire via homogeneous purposive sampling and secondary data would be library based, collected from the various research, journals, articles, books and publications. It would usually be unfeasible to study an entire population, for example when doing a personal interview hence homogeneous purposive sampling method has been used for primary data collection. Farmers of Vadodara district, who use different seeds, have been selected for homogeneous purposive sampling and that allowed the researchers to infer information about a population, without having to investigate every farmer. Reduced numbers of individuals in the study reduced the cost and workload, and made it easier to obtain high quality information, and that also has balanced against having a large enough sample size with enough power to detect a true association.

A purposive sample is a non-probability sample that is selected based on characteristics of a population and the objective of the study. Purposive sampling is also known as judgmental, selective, or subjective sampling. This type of sampling can be very useful in situations when you need to reach a targeted sample quickly, and where sampling for proportionality is not the main concern. There are seven types of purposive samples, each appropriate to a different research objective, out of which homogeneous sampling is being adopted by the researcher.

7. Review of Related Literature

Millions of years farmers breeding and saving or sharing the seeds was in there free going culture. So in order to have the clear insight of farmers rights to the laws prevailing to seed in India the researcher has gone through sources available

like books, documents, journals, research work and tried to obtain the findings related to this topic.

Shiva (2017) in her study on seeding the future, seeding freedom, one seed at a time the part of the ferocious dictatorships. Basically they distribute us from the Earth and also our capacity to generate from the Earth, so we are forced to purchase the way they want are food and clothing, knowledge and information, friendships and "happiness". They divide us from ourselves, crippling our capacities to think free, be free, live free, our capacity to create and produce. Oneness is our being, our source of power. Our power to co-create, non-violently. Swadeshi is self-making, based on local resources, indigenous knowledge, and community. It allows the expression of our fullest creativity as human beings and as Earth Citizens. In Swadeshi, we are co-creative with nature's intelligence, creativity, and regenerative potential, and the creativity and intelligence of our fellow human beings. Co-Creativity with nature combines production with conservation. It is not extractive, polluting, degrading to the planet and to human communities. It is the foundation of sustainability. It is the core of economic democracy. It is the source of Real Wealth, of wellbeing and happiness for all.

Carew, Florkowski&Meng (2017) in their study they have studied how horticultural crops have conquered the Plant Breeders' Rights Office (PBRO) application proposals. They have observed initially the application pattern of plant breeders' rights (PBR) for horticultural crops succeeding the enactment of the Canadian Plant Breeders' Rights Act (PBRA) in 1990. Furthermore, measure whether robust intellectual property rights (IPR) are needed to increase plant variety development. Canadian Food Inspection Agency (CFIA) plant breeders' rights applications and grants data from 1992 to 2014 are employed to observe how PBR applications by public and private institutions have changed in reply to decrease in R&D funding for horticultural crop research by Canadian public institutions and changes to plant variety protection policy. They have exposed bulk of PBR applications are for ornamental crops concerning mostly 'rose' and 'pelargonium' and invent from European and U.S. corporations. The PBR system allows farm-saved seed or propagating material use, while plant breeders can use germ plasm material in new line breeding activities. Robust IPR and royalty

gathering systems may endorse greater private plant breeding and commercialization of new varieties for the heterogeneous Canadian horticultural crop industry.

Peschard(2016) In his interview with Indian and Brazilian farmers' rights activists, lawyers, agronomists and plant breeders, has intended at restored understanding how farmers' rights are protected on paper and implemented on the ground in these two countries. Brazil and India propose significant case studies because they are biologically mega diverse countries, and since small farmers signify an imperative section of the rural economy. He showed that India has adopted an ownership approach to farmers' rights, while Brazil leans towards a custodian approach. Based on an inspection of the development made in enforcing these rights, he further argue that the stewardship model adopted by Brazil is more favorable to the understanding of farmers' rights, and explored why this is the case. Finally, he show how farmers' rights provisions in the Brazilian and Indian legislations represent fragile gains that could be shortened by numerous bills presently under conversation in the field of seed and plant variety protection.

Marc & Adrien (2016) in their study exploration of factors of Plant Breeders Rights (PBRs) are sui generis IPRs intended to promote plant variety creation. Two characteristics distinguish PBRs from patents: the research and the farmers' exemptions. They attempted to assess the impact of these exemption rules on the private value of PBRs. For this purpose, a micro-econometric model of PBRs renewals is developed and estimated. The model extends previous models of patents renewals by allowing the use of PBRs-specific variables. It was argued that simple tests on the coefficients associated to key PBRs-specific variables can provide insights into the impact of the two exemption rules. Implementation to PBRs in France over the period 1973-2011 for six major crops suggests that neither the farmers' exemption nor the research exemption have a clear cut effect on the private value of PBRs. They concluded no evidence to argue in favor of a reform of PBRs.

Paul (2014) ***"Politics of Intellectual Property Rights: A Study on Patenting Biodiversity, Traditional Knowledge and Geographical Indications with Special reference to Kerala."*** His study reveals about Traditional Knowledge and biodiversity but did not make an attempt on seed patenting law. The central objective his study has been to examine the issues and concerns associated with the new IPR regime as well as to identify the underline politics. Specifically, the focus of the study was on the experience of the developing countries like India on matters related to the protection of biodiversity associated traditional knowledge. The Indian experience in this regard has been examined at the micro-level of the Kani Tribe in Kerala. Here it's observed that the political nature of entire process right from the very inclusion of TRIPS as new themes in the Uruguay Round GATT negotiations, the manner in which negotiations were conducted then and there after as well as the arbitrary manner the agreement was enforced on world nations.

Shareef (2014) ***"Use of Genetically Modified Seeds in India: Problems and Prospects"*** Has studied Global food demand is forecasted to be at least double by the year 2050 and the world population is expected to reach from the current 6.3 billion to 9.3 billion, of which about 90 percent will reside in Asia, Africa and Latin America. World production of cereals has remained stagnant (around 2,100 million tons) after 1996, whereas world population has been increasing by about 78 million per year. However, it is also argued that the use of genetically modified crops resulted in increase in number of suicide of Indian farmers.

Richerzhagen (2014) "***The Nagoya Protocol : Fragmentation or Consolidation"*** tried to find out whether a protocol on Access and Benefit-Sharing (ABS) of genetic resources was adopted, the so-called Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity. Before the adoption of the Nagoya Protocol, the governance architecture of Access And Benefit-Sharing was already characterized by a multifaceted institutional environment. The use of genetic resources is confronted with many issues (conservation, research and development, intellectual property rights, food security, health issues, climate change) that are governed by different institutions

and agreements. The Nagoya Protocol contributes to increased fragmentation. However, the question arises whether this new regulatory framework can help to advance the implementation of the Access And Benefit-Sharing provisions of the Convention on Biological Diversity (CBD). This paper attempts to find an answer to that question by following three analytical steps. First, it analyzes the causes of change against the background of theories of institutional change. Second, it aims to assess the typology of the architecture in order to find out if this new set of rules will contribute to a more synergistic, cooperative or conflictive architecture of Access And Benefit-Sharing governance. Third, the paper looks at the problem of "fit" and identifies criteria that can be used to assess the new Access And Benefit-Sharing governance architecture with regard to its effectiveness.

Shiva (2013) ***'THE LAW of the SEED'*** In the said book the author has made very well efforts to explain laws on seed and how the commercialization is being tried to be done through making various new laws. The Law of the Seed as an instrument to help shape laws related to the seed, putting the obligation of protecting biodiversity, farmers' rights and overall ecological productivity as the superior objectives, and to strengthen laws governing their patent offices to keep seed in the public domain. The Law of the Seed reminds and urges national governments of their obligation to complete the mandatory review of Article 27.3(b) of the TRIPS Agreement of WTO as well as to commit themselves to their constitutional obligations to protect biodiversity and reverse patents on life and patents on seed.

Hedge (Dec 2013) ***"Developing Countries and The Evolving Regime of Intellectual Property Rights"*** In his study a comparison is portrayed between developing countries and an emerging trends which are coming in IPR. International patent system has two basic objectives around which it moves. First, it seeks to recognize the efforts of the inventor. Second, it attempts to balance the interest of the inventor with public interest. The process of evolution of the patent system has furthermore established the fact that there is a close correlation between the level of the economic, industrial and technological development of a country on the one hand, and the nature and extent of patent protection granted by

it on the other. Finally, it should be stated that the evolving regime of IPRs has been raising many important issues which directly concern the developing countries. In other words, the Final Act Embodying the Results of Uruguay Round Multilateral Trade Negotiations envisages not only increased obligations on the developing countries, but also admits of no derogations there from. If there are any derogation, the dispute settlement mechanism provides a stringent process of resolution sanctioned by "cross-sector retaliations". In this macro-level view, the thesis had made a reserved attempt to identify and place the various issues concerning patents in their proper perspective particularly taking into account the priorities of developing countries.

Ray (2012) ***"THE SEED UNDERGROUND: Growing a revolution to save seeds"***. In this book author has tried to study the life and stories of farmers, gardeners and organizations who have saved certain seeds: the conch cowpea, preacher beans, keener corn, various sweet potato and tomato varieties, must province pumpkins, Stanley corn. Author in closing words are "Look around, so many people have put their shoulders into the load. Find a place to push. Pick up a tool." Become a local hero, increase your circle of influence. Claim food sovereignty, preserve local seeds. "Have the courage to live the life you dream. There is nothing greater than this." This book fueled new ideas to enhance the research to structured direction.

Naresh(2012) ***"Intellectual Property Rights with Special Reference to Biodiversity Management and Sustainable Development"*** had done study on a broad sustainable development, intellectual property rights that relate to a number of aspects of a country's social and economic development. Its impact can be felt in industrial, agricultural, health, education, food security, environmental, biodiversity and related traditional knowledge**.** Here the study first relates to the use of the flexibilities that exist in the international system to design Intellectual Property regimes that respond to the particular policy objectives of the country in question; and secondly, the related policies that can mitigate the potential costs of implementing a highly harmonized Intellectual Property system in line with the parameters of more technologically developed societies. In the last, like all property rights, intellectual property rights are not God-given but evolve over

time and have always depended on governments to legislate for them and to determine their extent. These rights must be seen in the pursuit of the objectives of sustainable development or advancement of a nation**.**

Kumar (2011) "***SEED BILL 2010: An Analytic View*****"** had studied Seed Bill 2010 with considerable work in the line of seed bill 2004 and the amended Seed Bill 2010 seems to be more Commercial Seeds (Regulation) Bill 2010 as it compacts with the commercial production, sale and distribution of good quality of the seeds by the seed companies and the public and private sector agencies and provides protection to the seed producers rather than farmer community. As a substance of element, the farmers as well as the informal seed saving and cultivation system is kept outside its purview. So he projected amendments made to the Seed Bill 2004 does not serve any determination to the farmers since they favor private seed companies and corporations at the expense of the farmers. Definitely, it is not farmer friendly. The Bill does not care to do anything to the farmers to provide food security for their better survival.

Kuriakose (2010) ***"Legal Analysis of International Policy Response to the Protection of Traditional Knowledge"*** In her study the ongoing debate on the protection of TK in international law reveals how Traditional Cultural Expressions (TCEs) are perceived within the context of general protection of TK. The Indian Traditional Knowledge Digital Library (TKDL) reveals both the strengths and weaknesses in the use of documentation as a defensive tool for protecting TK. A conclusion on the usefulness of "defensive" IPR tools has to be backed with both theoretical and practical case study. The few case studies done on the use of defensive measures like trademarks and certification in Australia and New Zealand, show that the effect of these measures were dependent upon the strength of the indigenous movement, awareness of both producers and consumers and the ability of producers to renew and pay the fees necessary to keep their trademarks alive. Similarly, the use of documentation and inventories for the protection of TCEs, being advocated both at the UNESCO and WIPO, as a "defensive" form of protection also has some serious problems. In conclusion, though the scope for modifications in existing IP law for protecting TCEs appear

increasingly slim, yet the options within IP law and elsewhere remain open for use in protecting different categories of TCEs.

Ahuja (2008) "***Intellectual Property Rights And The Politics Of Knowledge: Questions Of Knowledge, Property And Rights"*** It has been the aim of this thesis to consider the moral arguments that support, as well as those that deny the proposition that intellectual property rights, in their current conception, have a moral basis. Rights must necessarily have moral premises and moral dimensions for they address fundamental issues related to the human good, which in itself is an aggregate of a number of equally fundamental ethical aspects. This study has regarded IPRs as fundamentally an ethical and moral issue for their ability to supplement or confront existing human rights. For example, much of what happens with the unauthorized exploitation of indigenous and traditional peoples' resources is contrary to international law and ethical practice. It is also contrary to the practice of liberal democracy which is increasingly trying to extend the grammar of political claims making from claims of social equality to claims for group differences. Whether rights exist as claims for individual liberty, or as claims for social equity, or for cultural autonomy and group differences, rights are inevitably linked to normative issues. There is always a matter of ethics involved, whether they align themselves with issues of life, liberty and property, or with issues of equity and human rights. So study claimed the moral premises of Intellectual Property Rights.

Aoki (2008) ***'SEED WARS'*** here author gives an overview of the developments in the past, the current trends, and discusses future directions in this acrimonious issue of intellectual property rights (IPRs) on plant genetic resources and does provide an excellent analysis of the issues, but his focus is more on case law in the US and Canada, and the development of an IP regime for plants and seeds in the US.

Pant (2008) ***"Protection and Empowerment of Indigenous Plant Breeder Communities in India"*** studied the protection of the knowledge of indigenous plant breeder community is of utmost concern to meet both local as well as global needs. There is need to grant rights of self-determination to these communities

especially at a time when decentralized self-governance is being perceived as a panacea to the social and economic disparities. Indigenous plant breeder communities and especially women members who engage in nearly 80% of the farming activities should be given more responsibilities in the policy and decision-making processes. Support of or partnerships with civil society organizations and other nongovernmental organizations are imminent to strengthen and build the capacities of the indigenous plant breeder communities in order to protect their knowledge and their Collective Bio-Cultural Heritage.

The focus of this study has been on the knowledge of indigenous plant breeders and largely on the varieties conserved by them through use and transmission of knowledge from one generation to another. Though the field work for this study was done particularly in Kalimpong region of the Eastern Himalaya, experiences from other parts of the country have also been considered. These experiences vary from place to place especially with regards to the size of farmers and their assimilation with the markets. Besides, some of the IP laws and in particular the laws relating to protection of new varieties are new and their true implications and repercussions are yet to felt in India. Any future works in this area of protection of the rights of indigenous plant breeder communities, their innovations and genetic resources, should look into the repercussions of such laws and feed into the national and international law making processes.

Manjunath (2003) ***"A Decade Of Commercialized Transgenic Crops – Analyses Of Their Global Adoption, Safety And Benefit"*** In his nationwide survey he indicated that the Bt-cotton growers in India were able to obtain, on an average, a yield increase by about 29 percent due to effective control of bollworms, a reduction in chemical sprays by 60 percent and an increase in net profit by 78 percent as compared to their non-Bt counterparts. These benefits were in tune with those obtained in other countries with Bt-cotton and also with other transgenic crops. Further, transgenic crops have proved to be safe and there has not been any untoward incident with regard to safety or pest resistance so far. Despite their proven safety and benefits, there has been an unending debate and unsubstantiated allegations on the safety and benefits of transgenic crops. This calls for greater efforts towards biotech awareness and education to mobilize

wholehearted support for this remarkable technology which has the potential to revolutionize sustainable agriculture and benefit the farmers and consumers alike.

Khadi (2002) ***"Impact of Bt-cotton on Agriculture in India"*** In his study he examined Bt cotton was approved for commercial cultivation in India in March 2002 after strict assessment for bio safety and profitability. Several concerns were expressed by NGOs and farmers from time to time. Some of them are: 1. Enhanced sucking pest damage in Bt-cotton. 2. Increase in secondary pests such as mired bugs and Spodoptera on Bt-cotton. 3. Bollworm survival on Bt-cotton and 4. Wilt and low yields in Bt-cotton in some regions.

Shiva (2002) ***"Stolen Harvest"*** In her book author has explicates "Industrial agriculture has not produced more food. It has destroyed diverse sources of food, and it has stolen food from other species to bring larger quantities of specific commodities to the market using huge quantities of fossil fuels and water and toxic chemicals in the process." In her book author focuses on three major changes in food production: The Green Revolution, which used industrial methods to get more human food out of crops on land; the Blue Revolution, which used aquaculture to raise fish catches fourfold in the last 40 years, and the White Revolution, the feedlot approach to dairy and meat farming which has raised milk and meat yields. She observed each "revolution" has come at tremendous cost. One result of the Green Revolution in India has been replacing locally grown mustard oil with imported soybean oil, or with soybean oil produced domestically but from seeds sold by agricultural giant Monsanto. She explains what used to be the norm of mustard oil production before "Soy Imperialism: "Yet the book is a valuable look at how Western corporate agribusiness, which strips away animal and crop diversity by growing monocultures of soy, wheat, shrimp and cows, is also reducing the human diversity of the world by making traditional food raising costly or impossible. As consumers of rice, non-labeled genetically engineered soybean oil, and frozen shrimp, in Israel we certainly enjoy the fruits of industrialization in India and around the world. Stolen Harvest shows that this has come at great cost.

Shiva (2001) ***"Protect or Plunder?"*** Author tries to understand Intellectual Property Rights had tried to find out whether Intellectual property rights, TRIPS, Patents - they sound technical. Yet what kinds of ideas, technologies, identification of genes, even manipulations of life forms can be owned and exploited for profit by giant corporations is a vital issue for our times. She shows how the Western-inspired and unparalleled widening of the concept of intellectual property does not in fact stimulate human creativity and the generation of knowledge. Instead, it is being exploited by transnational corporations to increase their profits at the expense of the health of ordinary people especially the poor, and the age-old knowledge of the world's farmers. Intellectual protection is being transformed into corporate plunder. Little wonder popular resistance is rising around the world to the World Trade Organization that polices this new intellectual world order, the pharmaceutical, biotech and other corporations which dominate it, and the new technologies they are foisting upon us.

8. Implication of the Reviewed Literature for the Present Study

On the base of the review of the related literature the researcher has come to the conclusion that there is a need to know whether the existing laws, enactments and regulations dealing with New Seed Bills in India is going effective and well developed to provide remedies and wrap up to the farmers rights. Therefore, the researcher through present study wants to make an attempt to highlight and bring forth the lacunas in the present Seed laws in India when compared with the present Seed Act 1966 and pending Seed Bills. For the purpose to study the present position of Seed Law, Genetic Resources and Traditional Knowledge the researcher will analyze the laws, reports and enactments on all and which shall include the following mainly- Convention on Biological Diversity 1992, The Biodiversity Act 2002, Nagoya Protocol, Intellectual Property Rights with context to Patent law, The Protection of Plant Varieties and Farmers Rights Act 2001, The Seed Act 1966 and various Seed Bills.

9. Chapter Structure

The Traditional knowledge is the very base of the indigenous and the local communities in the India, and being the developing country perhaps India is the

richest in having combination of traditional knowledge with scientific and technological intervention. Seed is the most unassuming potent gift in the life of the farmer to make his life fruitful. Right to good food and right to safe food are the slogans of the day and the same can be achieved by attaining food sustenance and food security.

This research dealt with Traditional Knowledge, Genetic Resources and Seed. The scope of the study includes determining that the Traditional Knowledge, Genetic Resources and Seed Law of developed countries like U.S.A, CANADA and EUROPE have being effected by Patent Law. The scope of the study also includes overview of the laws and regulations of India covering Seed and the important cases laws on the same.

Seed being an important for nature survival and the researcher has limited the study only to analyze the existing Indian Seed Law and pending Seed Bills with covering the aspects of Traditional Knowledge and Genetic Resources.

CHAPTER 1: INTRODUCTION

This chapter discussed about the introduction or the synopsis for the research which was carried out. This included General introduction of the research topic, object, scope, significance and utility and hypothesis.

CHAPTER 2: GENESIS OF GENETICALLY MODIFIED CROPS AND TRADITIONAL KNOWLEDGE: INTERNATIONAL PERSPECTIVE

In the beginning of the chapter the researcher discussed on Traditional Knowledge, Genetic Resources and Seed of some of the developed countries like USA, CANADA and EUROPE. That helped to understand the very important to know the gradual development and history of these countries and the systems and various laws being adapted by them for the betterment of the agricultural biodiversity and how the same would be helpful in codifying the laws in India. This chapter discussed the historical background and evolution genetically modified crops worldwide. It is very important to know the gradual development and history of genetic modification and to understand the various developments on the same and to examine the necessity to codify laws pertaining to it in India.

Researcher then concentrated on the present scenario of these countries after adapting the Laws pertaining to the betterment of agricultural modification of seeds.

CHAPTER 3: LAWS OF THE SEED: AN ANALYSIS

In this chapter the researcher studied the various enactments and provisions involving various laws revolving around the seed. The researcher has interpreted the codified enactments, provisions, Laws and Bills on the Seed. Further analyzed whether there is the need of New Laws or the present Act available on the Seed is sufficient with some of the amendments to be made.

CHAPTER 4: RIGHTS OF FARMERS

This chapter dealt with highlighting the scenario of the farmer's rights. Covering the Laws like Intellectual Property Rights with context to Patent Law, TRIPS-27(3)(b), Convention on Biodiversity 1992 with Nagoya Protocol and International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) under international perspective and Biodiversity Act 2002, Protection of Plant Varieties and Farmers Rights Act 2001 and 3(j) under Patent Act,1970 with the context to benefit sharing and seed under Indian perspective. The purpose of this chapter was to find the law in force; but also on a wider scale, to find out how the different principles has been balanced against each other and if the current legislation allows a shift in this balance.

CHAPTER 5: JUDICIAL APPROACH

This chapter dealt with the important case laws highlighting the benefits of a well codified and comprehensive legislation on seed law. Case laws were important to discuss because they showed the actual face and implication of the prevailing law of the land. The purpose of this chapter was to find the law in force; but also on a wider scale, to find out how the different principles of the previous chapter had been balanced against each other and if the current legislation allows a shift in this balance. In this chapter the researcher studied various judicial pronouncements deciding in the case laws regarding seed law and the provisions relating to the various laws seed laws.

CHAPTER 6 DATA ANALYSIS

This chapter dealt with the analysis and interpretation of data collected during the research work based on the semi structured questionnaire via homogeneous purposive sampling of various farmers of the Vadodara district. Tool of face to face conversation was used for interviewing farmers. By that data of farmers of Vadodara district, who use different seeds, have been collected for homogeneous purposive sampling and that allowed the researcher to infer information about a population, without having to investigate every farmer.

CHAPTER 7: CONCLUSION AND SUGGESTIONS.

This chapter will deal with a summary of all that is mentioned in the various chapters and suggestions would be made on the basis of analysis of data. An attempt will be made to reach to conclusions to the hypothesis made in the introductory chapter. Later portion of the chapter will deal with all possible suggestions to provide a better legal tool to Seed Laws in India.

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