

## INTELLECTUAL PROPERTY RIGHTS REGIME VIS-A-VIS FOOD SECURITY- IRONING OUT THE CREASES

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### Abstract

*One of the most prodigious issues raised by current debates on intellectual property rights particularly in the context of their influence on developing nations are the aftermath of the legislation protecting such rights on food security.*

*The author strongly feels that indentifying policy, economic and legal linkages between food security as a goal on one hand and intellectual property rights (IPRs) as an instrument to promote and enhance human creativity and overall social well-being at the other, is not a an easy task, but the connections do exist. Food security has always been a part of the basic human right to food, broadly defined as timely access to sufficient and nutritious food. It is inextricably linked to the right to health and further linked to intellectual property (IP) inasmuch as plant variety protection (PVP; also known as plant breeders' rights) and patents, as applied to genetic resources, biodiversity components and biotechnological processes, may be limiting the possibilities of cultivators to freely grow certain crops, and of people to consume resulting agricultural products.*

*This article aims to identify some of the connections and linkages between food security and Intellectual Property (IP), including but not limited to how the right to food as a human right may become affected through policy and legal restrictions and limitations imposed by the very nature of Intellectual Property.*

*The author further desires to indentify economics, legal linkages and policy between food security as a goal and intellectual property rights as an instrument to promote and enhance human creativity and overall social well-being, thereby making an effort to iron out the creases that exist in implementation of the IPR regime and the very concept of food security.*

**Keywords-** Biological Diversity, Food Security, Genetically modified, Intellectual property, right to food.

### Introduction- The Right to Food and the Debate on Food Security

Article 21 of the Constitution of India guarantees to every citizen a fundamental right to life and liberty. The term 'Life' in this Article has been given a varied interpretation by the Hon'ble Apex

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Court to mean a life with human dignity and not mere animal existence<sup>2</sup>. In the light of this, the State is obliged to provide for all those minimum requirements which must be satisfied in order to enable a person to live with human dignity, such as just and humane conditions of work, protection against exploitation, right to medical aid, education etc. In the view of the aforesaid interpretation the Right to Food is inherent to a life with dignity, and Article 21 when read with Articles 39(a) and 47 brings into limelight the obligations of the State in order to ensure the effective realisation of the same. The reading of Article 21 along with Articles 39(a) and 47, places the issue of food security in the rightful perspective, thus moulding the Right to Food a guaranteed Fundamental Right, enforceable under Article 32. The requirements of the Constitution are in fact in consonance with the obligations of the State under the International Covenant of the Economic, Social and Cultural Rights, 1966 to which India has been a signatory, which in Article 11, in express terms recognises the right of everyone to an adequate standard of living, including adequate food.

The concept of food security is not just limited to ensuring that an adequate amount of food is cultivated or available through the market but also embraces within its ambit the question of whether citizens can afford to buy enough food to satisfy their basic nutritional requirements? And if the answer to the same is a negative, as is frequently the case throughout the developing world, then one can argue that if not absent food security is definitely inadequate. Identifying economics, legal linkages and policy between food security as a goal and intellectual property rights as an instrument to promote and enhance human creativity and overall social well-being, is not an easy task. But connections do exist. Moreover, food security is part of the basic human right to food, broadly defined as timely access to sufficient and nutritious food.<sup>3</sup> It is linked to intellectual property inasmuch as plant variety protection and patents, as applied to genetic resources, biodiversity components and biotechnological processes, may be limiting the possibilities of cultivators to freely grow certain crops, and of people to consume resulting agricultural products.

The inception of IPRs in plant varieties is justified by the need to proselytize food security in the long-term. Similarly, it has been argued in favour of a more open system where private IPRs are not enforced and the same is based on the rationale that this will contribute to food security. At present, IPRs in agriculture have been and are being introduced in developing member nations of the World Trade Organization. This is taking place in reference of food insecurity being a central concern for a majority of developing nations where large proportions of the population do not have access to adequate good quality food. Further, varied conceptual and practical issues ought to be addressed in the context of the paradigm shift from a system seeking to foster food security on the basis of free exchange of knowledge on one hand, to a system seeking to achieve the same goal on the basis of the private appropriation of knowledge, on the other. This is not only due to the fact that IPRs

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<sup>2</sup> Kharak Singh Vs. State of U.P. reported in AIR 1963 SC 1295

<sup>3</sup> See Article 25 of the Universal Declaration of Human Rights (Paris, 10 December 1948), G.A. Res. 217A (III), (1948), UN Doc. 810 (1948)

provide different kinds of incentives for inventiveness than a system based on the free sharing of knowledge but also because some of the new plant varieties are the product of genetic engineering. The latter bring in other environmental and socio-economic dimensions to the subject considered. This article thus seeks to draw a distinct link between food security and intellectual property rights for sustainable development and thereby examine the issue of food security from the straitened perspective of intellectual property rights.

## Food Security in Developing Countries

Food security still remains a major concern for developing nations, despite the fact that some of the developing nations virtually eradicated hunger. As often acknowledged, food security is a function of availability, access and distribution of food.<sup>4</sup> A number of other links are also relevant such as the links between food security, property rights, agriculture and environmental management. The latter remain fundamental in a context where a majority of the active population is in the agricultural sector and where agriculture provides directly or indirectly the basic food needs of about 70% of poor and undernourished people.<sup>5</sup>

Food security can be understood at different levels, from the household to the international level. While the overall availability of food at a global level is not a major concern at present, food availability in specific regions of the world and access to food by specific individuals remain a major concern in most parts of the South. Further, population growth in countries where undernourishment is already a problem and diminishing arable land availability make food insecurity one of the most important policy challenges of coming years.<sup>6</sup>

Food security is not only dependent on the availability of food but also on effective access and appropriate distribution of existing foodstuffs. Food availability will be an increasing concern in future if food production does not keep pace with population growth. At present, however, the problem of undernourishment is more often linked to the problem of lack of access to food and maldistribution of food stuffs than the problem of unavailability. In India, overall food availability has been more than sufficient for a number of years but the numbers of undernourished keep rising.<sup>7</sup> Food security at an individual level implies that people must either have a sufficient income to purchase food or the capacity to feed themselves directly by growing their own food. There is therefore a direct link between poverty and food security.<sup>8</sup>

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<sup>4</sup>The State of Food Insecurity in the World 2002. Rome: FAO, 2002

<sup>5</sup>Jacques Diouf, 'Vaincre la faim', *Le Monde diplomatique* (June 2002), p. 23.

<sup>6</sup>Jose Falck-Zepeda et al., *Biotechnology and Sustainable Livelihoods – Findings and Recommendations of an International Consultation* (ISNAR, Briefing Paper No. 54, September 2002)

<sup>7</sup>FAO, *The State of Food Insecurity in the World, 2002* (Rome: FAO 2002)

<sup>8</sup>MahbubulHaq Human Development Centre, *Human Development in South Asia 2002- Agricultural and Rural Development 98* (Karachi Oxford University Press, 2003)

One of the major debates with regard to food security is the contribution that agro-biotechnology can make to meeting the food needs of the world's population. This happens in a context where it is expected that most of the increase in food production will continue to come from further intensification of crop production where part of this increase will come in the form of higher yields and part in the increase of multiple cropping and reduced fallow periods.

There have been various attempts at the international level to define food security. At present the most widely accepted definition which focuses more on the question of global increase in food production than on the issue of household access to food is the one given at the World Food Summit. Food security was defined in the 1974 World Food Summit as:

*“Availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices”<sup>9</sup>*

The aforesaid definition has been criticised because it does not go far enough in so far as it does not include a rights dimension.

At the Doha Ministerial Conference, the WTO emphasised that special and differential treatment was necessary to allow developing countries to take into account their development needs, highlighting among them food security. Similarly the plan of action adopted by the World Summit on Sustainable Development<sup>10</sup> singles out among the goals for poverty eradication the necessity to increase food availability and affordability as well as the need to substantially reduce the number of people suffering from hunger.

## **IPR and Food Security**

The links between IPRs and food security can be numerous. In general, IPRs such as patents or plant breeders' rights seek to give incentives, mainly to private sector players, to develop seeds that either produce higher yields or have specific traits which will improve food security and agro-biodiversity management.

IPRs have for a long time been underdeveloped in the context of agriculture. Firstly, in many countries and at the international level, agricultural management was premised on the basis of the free exchange of germplasm and knowledge, a system wherein IPRs could not fit well. Number of developed countries adopted over time a form of intellectual property protection for plant varieties, plant breeders' rights which is derived from the patent model. Secondly, in the context of the development of genetic engineering, the progressive introduction of patents over life forms has constituted a major incentive for the overall growth of agro-biotechnology. At present, the TRIPS

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<sup>9</sup>United Nations 1975. *Report of the World Food Conference, Rome 5-16 November 1974*. New York.

<sup>10</sup>World Summit on Sustainable Development- Plan of Implementation, 4 Sept 2002, UN Doc.A/CONF.199/20.

Agreement provides a number of specific minimum levels of protection that all WTO member states must respect.<sup>11</sup>

A number of justifications can be offered for the introduction of IPRs for attaining growth of food security in developing countries. In general, the legal protection offered by IPRs is one of the most important incentives for private sector involvement in agro-biotechnology.<sup>12</sup>

IPRs are thus primordial in ensuring the participation of the private sector in the development of improved plant varieties. Improvements that can be brought about by agro-biotechnology include plant varieties that produce higher yields by enhancing the capacity of the plant to absorb more photosynthetic energy into grain rather than stem or leaf, varieties that have the capacity to combat pests/viruses and varieties modified to grow faster through enhanced efficiency in the use of inputs such as fertilisers, pesticides and water.<sup>13</sup>

From a food security point of view, another potentially interesting feature of agro-biotechnology is the possibility to modify varieties to improve their nutritional value, such as in the case of the pro-vitamin-A rice.<sup>14</sup>

## **International Law and Food Security**

The international legal framework for food security can be found in varied treaties and instruments belonging to completely different areas of international law. Firstly, treaties and institutions dealing with food security from the point of view of agriculture and secondly IPRs treaties though not dealing with food security directly but the implementation whereof has tremendous impact for food security in developing countries. Thirdly, several environment related treaties may have important implications for food security and lastly human rights treaties focussing on the right to food or related rights, may also play a major role. Alternative arguments to the same can be potential of IPRs in developing countries to increase foreign direct investment, increase technology transfers and R&D by foreign companies while at the same time giving domestic actors incentives to be more innovative.

### **A. Legal Instruments Sponsored by FAO (Food and Agriculture Organization of the United Nations)**

The FAO, in consonance with its role as the central UN organisation dealing with agriculture, has played a primary role in defining the food security related legal framework. In fact, the two major instruments adopted in the FAO context, the 1983 International Undertaking for Plant Genetic Resources (International Undertaking) and the 2001 International Treaty on Plant Genetic

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<sup>11</sup> Agreement on Trade-Related Aspects of Intellectual Property Rights, Marrakech, 15 Apr. 1994.

<sup>12</sup> Neil D. Hamilton, 'Legal Issues Shaping Society's Acceptance of Biotechnology and Genetically Modified Organisms', 6 Drake Journal of Agricultural Law 81 (2001).

<sup>13</sup> Sachin Chaturvedi, 'Agricultural Biotechnology and New Trends in IPRs Regime – Challenges before Developing Countries', 37 Economic & Political Weekly 1212 (30 March 2002).

<sup>14</sup> R. David Kryder et al., The Intellectual and Technical Property Components of pro Vitamin A Rice Golden Rice

Resources for Food and Agriculture (PGRFA Treaty) clearly showcase the advancement of the overall legal system in this area. The significance of the International Undertaking and the PGRFA Treaty derives from their focus on the legal status of agricultural plant genetic resources, the focus on farmers' rights and at least an attempt to provide a intelligible system taking into account the varied interests at stake, from the imperative of access to food to agro-biodiversity management and the granting of incentives to commercial breeders through IPRs. It ratifies the principle that plant genetic resources are a heritage of mankind which ought to be made available without restrictions. This not only covers traditional cultivars and wild species but also varieties developed by scientists in laboratories. However, the emphasis on the free availability of PGRFA proved to be unacceptable to some developed countries which already had interests in genetic engineering. Broader acceptance of the International Undertaking was only achieved after the FAO Conference passed interpretative resolutions in 1989 and 1991.

These resolutions endorse the need to balance the rights of formal innovators as breeders of commercial varieties and breeders' lines on the one hand, with the rights of informal innovators of farmers' varieties on the other. Resolution 4/89 recognises that plant breeders' rights, as provided for in the UPOV Convention, are not inconsistent with the Undertaking, and simultaneously recognises farmers' rights as defined in Resolution 5/89. Resolution 3/91 further recognises the sovereign rights of nations over their own genetic resources.

Further revision of the International Undertaking was prompted by the growing importance of biological and genetic resources at the international level. In 1992, Agenda 21 called for the strengthening of the FAO Global System on Plant Genetic Resources, and its adjustment in accordance with the outcome of negotiations on the Biodiversity Convention.<sup>15</sup>

The only rights that are recognized are the residual rights to save, use, exchange and sell farm-saved seeds. Different types of benefit sharing mechanisms are provided for under the Treaty: These include the exchange of information, access to and transfer of technology, capacity building, and the sharing of the benefits arising from commercialisation.<sup>16</sup> Concerning technology transfer, the Treaty provides only a general obligation to facilitate access to technologies for the conservation, characterization, evaluation and use of PGRFA which is further qualified by the fact that access to such technologies is subject to applicable property rights. In the case of developing countries, specific mention is made of the fact that even technologies protected by IPRs should be transferred under 'fair and most favourable terms. Overall, the Treaty which constitutes the outcome of many years of negotiations is noteworthy for linking the conservation of PGRFA, their use, the rights of farmers over resources and knowledge and finally the IPRs system. It provides an interesting, though inconclusive, attempt to link these different elements.

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<sup>15</sup>Dr. Philippe Cullet, *The International Treaty on Plant Genetic Resources for food and agriculture*, IELRC Briefing Paper 2003.

<sup>16</sup> Article 13(1) of the PGRFA Treaty

## **B. The Consultative Group on International Agricultural Research, 1971**

Since the time of its institution in the year 1971, the CGIAR has played a pivotal role in the management of genetic resources for meeting food needs and in defining property rights policies in that regards. The CGIAR brings together a network of Consultative Group on International Agricultural Research (IARCs) which has important ex situ germplasm collections. The CGIAR has it objective to alleviate poverty, achieve food security and assure sustainable use of natural resources.<sup>17</sup> It has traditionally sought to fulfil its mandate through the development of freely accessible ex situ collections and the production of freely available improved varieties. However, in keeping with the revolutionary move towards the establishment of sovereign and private property rights over biological and genetic resources, the CGIAR has eventually adapted its stance concerning real and intellectual property rights. In the past decade an array of significant developments have taken place- Firstly, in 1994, the Centres had ratified agreements placing their collections held in trust for humankind under the auspices of the FAO and further restricting themselves from claiming IPRs over designated germplasm or related information.<sup>18</sup>

Secondly, the CGIAR and the IARCs progressively developed new guiding principles on intellectual property with a view to harmonise the CGIAR's core principles that designated germplasm is held in trust for the world community with the recognition of various forms of property rights, including sovereign rights, farmers' rights and IPRs.<sup>19</sup>To-date, the Centres do not normally apply intellectual property protection to their designated germplasm and require recipients to observe the same conditions. While the guiding principles on intellectual property generally seek to contain to an extent the monopoly elements of IPRs such as patents, plant breeders' rights are specifically welcomed. Recipients of germplasm can apply for plant breeders' rights as long as this does not prevent others from using the original materials in their own breeding programmes. Thirdly, the PGRFA Treaty will further change the conditions under which the CGIAR operates. In future, guidance concerning the management of CGIAR collections will come from the Treaty's Governing Body.<sup>20</sup>

## **C. Convention on Biodiversity**

In the context of food security and IPRs, the Biodiversity Convention makes several distinct contributions. Firstly, the specific role and importance of agro-biodiversity has been recognised by the Conference of the Parties and a special programme on agro-biodiversity was established in

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<sup>17</sup>Declaration and Plan of Action for Global Partnership in Agricultural Research adopted by the Consultative Group on International Agricultural Research, 31 Oct. 1996, available at <http://www.cgiar.org/gforum/globfor.htm>.

<sup>18</sup> Agreement between the IPGRI/INIBAP and the FAO Placing Collections of Plant Germplasm under the Auspices of FAO, 26 Oct. 1994

<sup>19</sup> Consultative Group on International Agricultural Research, CGIAR Center Statements on Genetic Resources, Intellectual Property Rights, and Biotechnology (Washington, DC: CGIAR,1999)

<sup>20</sup> See Article 15 of the PGRFA Treaty

1996.<sup>21</sup> It generally aims to promote the positive effects and mitigating the negative impacts of agricultural practices on biological diversity in agricultural ecosystems and their interface with other ecosystems. Further, it seeks to promote the conservation and sustainable use of genetic resources of actual or potential value for food and agriculture. Secondly, the Biodiversity Convention provides one of the few existing statements on the relationship between the management of biological and genetic resources and IPRs. Article 16 clearly indicates that IPRs should not undermine the working of the Convention. Thirdly, the Biodiversity Convention has also made its own contribution to the development of access and benefit sharing schemes, effort supplemented with the adoption by the Conference of the Parties of the Bonn Guidelines on access and benefit sharing.<sup>22</sup>

The Convention attempts to provide a framework which respects donor countries' sovereign rights over their biological and genetic resources while facilitating access by users. Access must therefore be provided on 'mutually agreed terms' and is subject to the 'prior informed consent' of the country of origin.<sup>23</sup> Benefit sharing as conceived under the Convention and the Bonn Guidelines can take the form of monetary benefits or non-monetary benefits such as the sharing of research and development results, collaboration in scientific research and access to scientific information relevant to conservation and sustainable use of biological diversity. Fourthly, the Biodiversity Convention also provides in general terms for the conservation of traditional knowledge, a question that is closely linked to the fulfilment of basic food needs and to the protection of agro-biotechnology through IPRs.<sup>24</sup>

## Developments in India in Context of IPR and Food Security

India is an interesting case study because it has been through different shifts in policy over food security policies in the context of IPRs since independence.

### A. Patents

India inherited at independence a patent law which was deemed inappropriate to realise the economic development goals of the country because the colonial act had failed to stimulate invention by Indian citizens and to encourage the development and exploitation of new invention for industrial purposes in the country. The resulting Patents Act, 1970 retained the western model of intellectual property but provided a number of exception with a view to foster and specifically precluded the patentability of methods of agriculture or horticulture. Further while allowing process

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<sup>21</sup> See Decision III/11, 'Conservation and Sustainable Use of Agricultural Biological Diversity', Report of the Third Meeting of Conference of the Parties to the Convention on Biological Diversity, Buenos Aires, 4-15 Nov. 1996, UN Doc. UNEP/CBD/COP/3/38.

<sup>22</sup> Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization The Hague, 7-19 April 2002, UN Doc. UNEP/CBD/COP/6/20

<sup>23</sup> Article 15 of the Biodiversity Convention

<sup>24</sup> Article 8(j) CBD.

patents on substances intended for use as food, medicine or drug, the Act rejected the possibility of granting patents in respect of the substances themselves.

It is only after the ratification of the TRIPS Agreement that substantive changes to the Act have been made in this area. A number of changes that have been introduced as part of the three amendments to the Patents Act in the past decade will have direct impact on agriculture and food security. These restrictions were in direct conflict with Article 27 of the TRIPS Agreement. However, under Article 65.4 of TRIPS, developing countries that did not previously offer patent protection to certain areas of technology (such as agriculture) were allowed an additional five years to provide product patent protection in these areas. India therefore had until 2005 to provide patent protection to pharmaceutical, food and agrochemical products. Three amendments to the principal 1970 Act have been passed in order to comply with TRIPS: the first in 1999, the second in 2002 and the third in 2005. Introduction of both process and product patents in the food and agrochemical sectors for a duration of 20 years.<sup>25</sup>

The 1970 Indian Patents Act prohibited product patents for food, drugs or medicines, including insecticides, germicides, fungicides and herbicides. Article 27.1 of the TRIPS Agreement, on the other hand, required that patents should be available for any invention, whether products or processes, in all fields of technology. Furthermore, WTO members that did not previously provide patent protection to pharmaceutical, agricultural and chemical products were obliged to establish a mailbox system enabling inventors to file patent applications.

## **B. Biological Diversity Act, 2002**

Biodiversity Act is also important because the regulation of biodiversity management has direct impacts on food security and because the Act directly links biodiversity management and IPRs. The main focus of the Act is on the question of access to resources. Its response to current challenges is to assert the country's sovereign rights over natural resources. It therefore proposes to put stringent limits on access to biological resources or related knowledge for all foreigners. The Act's insistence on sovereign rights reflects current attempts by various countries to assert control over the resources or knowledge they control. While the Act focuses on preserving India's interests vis-à-vis other states in rather strong terms, its main impact within the country will be to concentrate power in the hands of the government. Indeed, Indian citizens and legal persons must give prior intimation of their intention to obtain biological resources to the state biodiversity boards.<sup>26</sup>

The Act is even more stringent in terms of IPRs since it requires that all inventors obtain the consent of the National Biodiversity Authority before applying for such rights. It also authorizes the Authority to allocate a monopoly right to more than one actor. Further the Authority is also entitled to oppose the grant of intellectual property rights outside India. The Act also seeks to address the

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<sup>25</sup>Section 4, Patents (Amendment) Act, 2005 providing for the omission of Section 5 of the Act.

<sup>26</sup> Sections 6 and 7 of the Biological Diversity Act, 2002

question of the rights of holders of local knowledge by setting up a system of benefit sharing. The benefit sharing scheme is innovative insofar as it provides that the Authority can decide to grant joint ownership of a monopoly intellectual right to the inventor and the Authority or the actual contributors if they can be identified.<sup>27</sup>

However, the sharing of IPRs is only one of the avenues that the Authority can choose to fulfil its obligation to determine benefit sharing. It is also in the Authority's power to allocate rights solely to it or a contributor such as a farmer contributor. Other forms of benefit sharing include technology transfers, the association of benefit claimers in research and development or the location of production, research and development units in areas where this will facilitate better living standards to the benefit claimers.<sup>28</sup>

On the whole, the Biological Diversity Act effectively condones the introduction of IPRs in the management of biological resources provided for in the TRIPS Agreement but does not specifically seek to ensure that IPRs are supportive of the goals of the Biodiversity Convention. The different legislative changes introduced in India will have profound impacts on the development of IPRs based industries such as agro-biotechnology and on food security. From a legal point of view, the adopted regime is noteworthy for attempting to reconcile to a certain extent India's international obligations with its domestic priorities. However, on the whole, it is unsure whether India has managed to provide a balance which puts food security concerns at the forefront and serves its interests. This is, for instance, illustrated by the apparent tension in the Biological Diversity Act between the emphasis on India's claim over its biological resources and an acknowledgment that India cannot control the use that is made of related knowledge because it cannot control patent applications in other parts of the world. Further, with regard to the development of agro-biotechnology, existing studies seem to indicate that neither the public nor the private domestic sector have been until now in a Permission of the National Biodiversity Authority must be obtained before the sealing of the patent but can be obtained after the acceptance of the patent by the patent authority knowledge by setting up a system of benefit sharing. The benefit sharing scheme is innovative insofar as it provides that the Authority can decide to grant joint ownership of a monopoly intellectual right to the inventor and the Authority or the actual contributors if they can be identified<sup>29</sup> in position to take advantage of the opportunities to appropriate benefits of the new IPRs regime.<sup>30</sup> It also authorises the authority to allocate a monopoly right to more than one actor. Further, the authority is also entitled to oppose the grant of intellectual property rights outside India.<sup>31</sup> The Act also seeks to address the question of the rights of holders of local knowledge by setting up a system of benefits sharing. The benefit sharing scheme is innovative in so far as it provides that the authority can decide to grant joint ownership of a monopoly intellectual right to the inventor and the authority or the actual contributors if they can be identified.

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<sup>27</sup>Section 21(2)a of the Biological Diversity Act, 2002.

<sup>28</sup> Section 21(2)b-f of the Biological Diversity Act, 2002

<sup>29</sup> Section 21(2)a of the Biological Diversity Act, 2002.

<sup>30</sup>AnithaRamanna, 'Policy Implications of India's Patent Reforms-Patent Applications in the Post-1995 Era'.XXXVII Economic & Political Weekly 2065 (2001).

<sup>31</sup>Section 18(4) of the Biological Diversity Act, 2002.

With regard to food security at the individual level, the Plant Variety Act makes a determined attempt to adopt a balanced legal regime which gives incentives to the private sector seed industry but also protects individual farmers and farming communities. In practice, however, the proposed farmers' rights regime is unlikely to be effective. Further, the effectiveness of the adopted regime is likely to be hampered by the lack of coordination between the three acts. Potential problems range from the lack of institutional coordination to the definition of different benefit sharing schemes under the Plant Variety protection Act and Biodiversity Act. Finally, the adopted legal regime fails to take into account a significant proposal by the Indian Law Commission linking biodiversity management, food security and plant variety protection. The Commission proposed its own draft Biodiversity Bill in which it introduced a provision which stated that no IPRs should be granted on species used for alimentary or medicinal purposes. This was meant as an attempt to integrate the right to food with the exceptions allowed in the TRIPS Agreement. On the whole, the Indian legal framework constitutes a good starting point for a regime seeking to comply with all relevant international obligations in the field of food security and IPRs. However, it remains inadequate in important areas like farmers' rights and the protection of traditional knowledge. This may be explained to an extent by the fact that these are new areas and that the development of appropriate legal frameworks is a lengthy exercise. In the context of long-term policy objectives, including the ratification of the PGRFA Treaty and discussions taking place in WIPO on the protection of traditional knowledge, it seems important to further pursue the development of the legal framework even in a country like India which has gone through substantial legislative effort in recent years. In any case, the current legal regime needs at the very least adjustments to make the different pieces of the puzzle work together harmoniously. This is a challenge that many other countries face because most countries tend to give authority for the implementation of different acts with different focuses to different ministries even if there are strong links between them, such as in the case of the Biodiversity Act, the Plant Variety Act and the Patents Act in India.

### **C. IPR's and The Seed Bill, 2004**

The introduction of Seed Bill in 2004, needs to be assessed in the context of the simultaneous introduction of the 3rd Patent (Amendment) Act. Our 1970's Patent Law has been changed under the coercive pressure of WTO in spite of the overdue mandatory TRIPS review. Patents will now be granted for seeds, plants, micro-organisms, cells and even GM's and animals. The Seed bill, 2004 has one and only one objective of stopping farmers from seed saving, seed exchange and seed reproduction. The objective clearly states that it is aimed at replacing farmers saved seeds with seeds from private seed industries. The repeated reference to 'barter' in the Seed bill will prevent farmer's exchange, a necessary aspect of maintaining high quality seed supply at the community level. The regulatory system governing GM crops is in the process of being revamped with the National Biotechnology Development Strategy.<sup>32</sup> It is clear from the draft strategy that the government will be

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<sup>32</sup> National Biotechnology Development Strategy <http://dbtindia.nic.in/biotechstrategy.htm> , last visited at 12.07.2017 at 3.15 am

supporting the further introduction of GM crops. The new Seeds Bill follows this same line and does not prohibit the registration of GM seeds. Registration of transgenic seeds is however subject to environmental clearance under the Environment Protection law. However, in a gesture to keep critics quiet, the Seeds Bill does ban the use of Terminator seeds.<sup>33</sup>

There is growing concern that the Bill will ease entry of GM crops with the possible contamination of traditional varieties with GM agriculture. Further the compulsory registration<sup>34</sup> of seed combined with the power of seed inspectors to enter and search premises is tantamount to creating a 'Seed Police' to terrorize farmers who are conserving biodiversity and practicing a sovereign self-reliant agriculture. The fine for seed exchange and barter of unregistered seed (thousands of farmers varieties has a fine of up to Rs. 25000). While criminalizing farmers who consume biodiversity and traditional varieties, the Seed Act fails to do one thing it should have done, which is to regulate and hold liable private seed industry for seed failure and genetic contamination from GM's.<sup>35</sup> For Example the failure of maize seeds in Bihar last year cost more than 1000 crores to Bihar farmers<sup>36</sup> and the constant failure of Bt. cotton annually is costing more than a billion dollars to Indian farmers. Many believe that seed prices will go up. Private companies would need to recover the costs of registration which would be passed onto farmers.

In the new Seed bill farmers can only claim compensation under the Consumer Protection Act. This option is in any way is available to the farmers presently and the brutal power of the Central Authority, which acts to prevent farmers from growing own seeds, provides no safety and remedy to our farmers from untested and hazardous seeds MNCs are selling in the Indian market.

The Seed bill has also undermined the role of the State governments. The Central Seed Committee in the Seed Act, 1966 has representatives nominated by the government of each State. Now only 5 State will be represented in the Central Seed Committee and even these will be nominated not by the State governments but by the Centre.

The Seed Bill, 2004 has nothing positive to offer to farmers of India but offer a promise of a monopoly to private seed industries, which has already pushed thousands of our farmers to suicide through dependency and debt caused by unreliable, high dependency and non-renewable seeds.

The Seed Act of 1966 has served the country well and should continue to provide the framework for seed testing and seed certification. Farmer varieties and indigenous agro-biodiversity is already been registered by Local Biodiversity Committee through Community Biodiversity Registers (CBRs). We do not need a Centralized Seed Authority with police power which uses compulsory registration to prevent farmers from growing, saving and exchanging their own seeds. It is the MNCS seed industry that need regulation and not the small farmers of our country without whose seed freedom of the country will have any food sovereignty and food security.

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<sup>33</sup> Terminator Seeds - Plants genetically engineered to produce sterile seeds, forcing farmers to buy new seeds each year from a company

<sup>34</sup> Section 13(1) of the Seeds Bill, 2004

<sup>35</sup> Section 15 of Seed Bill 2004

<sup>36</sup> <http://farmer.gov.in/FarmerHome.aspx>, last visited at 13.07.2017 at 12.07 pm

Methods of agriculture and plants were excluded from patentability in the Indian Patent Act, 1970 to ensure that the seed, the first link in the food chain, was held as a common property resource in the public domain. In this manner, it guaranteed farmers the inalienable right to save, exchange and improve upon the seed was not violated.

But recently, two amendments have been made in the Patent Act, 1970. The 2nd Amendment makes changes in the definition of what is not an invention. This has opened the flood gates for the patenting of genetically engineered seeds. Patents on seeds are a necessary aspect of the corporate deployment of GM seeds and crops. When combined with the ecological risks of genetically engineered seeds like Bt. cotton, seed patents create a context of total control over the seed sector, and hence over our food and agricultural security.

Looking with closer analysis, the 2nd Amendment and 3rd Amendment of the Indian Patent laws have jeopardized our seed and food security, and hence our national security. Firstly, it allows patents on seeds and plants through sections 3(i) and 3(j). Patents are monopolies and exclusive rights which prevent farmers from saving seeds; and seed companies from producing seeds. Patents on seeds will transform seed saving into an "intellectual property crime". Secondly, genetic pollution is inevitable. Multinational Companies like Monsanto will use the patents and pollution to claim ownership of crops on farmers' fields where the BT. gene has reached it through wind or pollinators.

In the case of, *J.E.M. Ag. Supply, Inc. v. Pioneer Hi-Bred Int'l, In c.*,<sup>37</sup> the court has confirmed the patentability of plants and seeds, which emphasized that "the relevant distinction was not between living and inanimate things, but between products of nature, whether living or not, and human-made inventions." Accordingly, the Supreme Court upheld the patentability of hybrid corn seed and newly developed plant breeds and also limited these reciprocal rights.

In *Asgrow Seed v. Winterboer*, the U.S. Supreme Court<sup>38</sup> in effect narrowed the seed-saving exemption to farmers who saved seeds to plant their own crop. An Iowa couple had saved the second generation of the Plant Variety Protection Act patented seeds originally bought from Asgrow Seed Company and sold them to a third party, claiming protection under the exemption; through the courts, the large seed company successfully stopped this practice. This case, and others like it, eroded the farmer's common law right to save seeds in the United States. It should be noted that US is not a part the ITPGR, therefore the aforesaid judgment can be justified. The Supreme Court of US has rightly delivered a good judgment in the case of Liberty Link Rice,<sup>39</sup> which protects the farmer's rights in promoting organic farming.

## Genetically Modified Seeds and Farmer Suicides

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<sup>37</sup> *J.E.M. Ag. Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 130 (2001).

<sup>38</sup> *Asgrow Seed v. Winterboer*, 513 U.S. 179 (1995).

<sup>39</sup> *Liberty Link(R) Rice (LL 601)*

This concentration of seeds in a few hands can already be witnessed. Monsanto has patents over GM cotton all over the world and they own the patent on Bt. cotton. Monsanto in partnership with Indian based Mahyco Company is the owner of the four varieties of Bt cotton approved for use in India.<sup>40</sup> The company asserted that the Bt. variety of cotton seed can result in higher yield than the hybrid indigenous variety of cotton seeds. Further, Monsanto said that by using Bt. cotton variety farmers may no longer have to expend on spraying pesticides to ward off pests and this in turn would save them significant costs. Thus, cotton farmers in India shifted gradually to Bt. cotton variety.<sup>41</sup> Initially Bt. variety planted since 2002 in some parts of India resulted in higher yield. Consequently more Indian farmers took to Bt. variety of cotton seeds. But with the Bt. variety of cotton seeds, farmers could no longer save seeds and re sow them on their lands. The farmers had to buy new cotton seeds from Mahyco-Monsanto each year at a price fixed by the company, and that price has gone up. As more and more farmers began to use Bt. cotton seeds from Monsanto, they were no longer left with their own indigenous variety of cotton seeds. And as a result of increased demand for Bt. cotton variety, seed dealers have moved to sell more Bt. cotton seeds than local or non-Bt variety of cotton, thus reducing the options for farmers, and jeopardizing long-term biological diversity. While Bt. variety of cotton seeds resulted in high yield in the initial years of its introduction, the yields gradually started to taper off and failed miserably in later years. The main reason for this is that Bt. cotton seeds were not suited to varied weather conditions prevalent in India.

Further the Bt. cotton variety in the long run resulted in higher use of pesticides as it was unable to ward off the various pests that infest the cotton plants in India: throughout the country, Bt cotton crops have been attacked by "Lalya" or "reddening," a disease unseen before, which affected the GM acreage more than the non-Bt cotton crop.<sup>42</sup> This resulted in a vast majority of cotton farmers spending substantial amount of money buying seeds and pesticides. Besides, controlling the price of patented transgenic seeds, companies selling GM seeds typically require farmers to sign an agreement with the company. Such agreements contain provisions that allow the farmer to use only the company-prescribed fertilizer in order to get a good yield and may also prohibit the farmer from saving and re-sowing the transgenic seeds.

In the times when Indian farmers are committing suicide due to rising costs of farming and lower price for their produce, this increased cost of seeds and restrictive agreements could impact agriculture and may in general affect access to food. The already poor rural farmers are further impoverished as they are driven into debt from trying to adopt farming inputs, paying royalties to the seed companies and buying seed each year.

The failure or low yield coupled with high input costs has left farmers in a debt trap and with reduced income, thereby affecting their income levels and access to adequate food. As a result of the

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<sup>40</sup>Anitha Ramanna, 'Bt cotton and India's policy on IPRs,' Asian Biotechnology and Development Rev., 2005

<sup>41</sup>Devinder Sharma 'Has the Bt bubble burst?' India Together, 7 Oct 2006

<sup>42</sup>Anuradha Mittal, Harvest of suicides: how global trade rules are driving Indian farmers to despair, 2008, available at [www.freelibrary.com](http://www.freelibrary.com)

high price of Bt cotton seeds and the failure of Bt cotton in various parts of India, thousands of farmers have committed suicide in the last few years.

A new development is particularly worrying: India has recently allowed field trials of GM varieties of rice, brinjal and groundnut. In addition to individual suffering, experience with GM seeds so far in India visibly undermines traditional agriculture, impedes sustainability and diversity, and contributes to the loss of traditional knowledge and culture, contrary to the Covenant on Economic, Social and Cultural Rights. India should thus tread cautiously before allowing new such crops.

In implementing legal and policy frameworks in the context of food security and IPRs, developing countries face a number of legal and other constraints. An easy route to compliance with international obligations is to follow existing and proposed models but these may not be adapted to specific needs and conditions of individual countries. In attempting to devise a regime which is tailored to their specific needs and conditions, developing countries should consider at least the following elements which have generally not been given much emphasis: the interests and rights of farmers, the conservation and sustainable use of biological and genetic resources, the prevention of biopiracy, the protection of traditional knowledge, the fair and equitable sharing of benefits arising from the exploitation of resources and the realisation of the human right to food.

## Conclusion/ Suggestions

The challenge of enhancing food security at individual level and for the entire nation at large shall require tremendous efforts on the part of varied actors at all levels involved to eradicate malnutrition. Food insecurity in developing nations has been the concern since time immemorial, which has in effect been linked to a number of general and specific policy challenges. Furthermore, the development of genetically modified plant varieties and with advent of IPRs in agriculture, constitute two related and significant changes in the policy environment for addressing food security. The actual repercussions of the introduction of IPRs in the agricultural sector in developing countries are yet to be ascertained given that the laws/rules in most countries are still in the process of being adopted or implemented. As discussed in the preceding paragraphs of this article, potential benefits of agro-biotechnology include but are not limited to development of plant varieties that help meeting some of the challenges linked to existing food insecurity; whereas the concerns revolve around a number of socio-economic impacts as well as environmental impacts, in particular with regard to the loss of agro-biodiversity and biosafety. In essence, the TRIPS Agreement does not give developing countries the possibility to avoid the introduction of plant variety protection. However, the *sui generis* option constitute an opportunity that developing countries can use to develop an IPRs regime which suits their specific needs and which takes into account all their international commitments, such as obligations in environmental treaties, in agricultural treaties and in human rights treaties.

The author transpires that main challenge at this stage for developing nations is recognizing or rather implementing a legal framework which goes beyond existing IPR models that have generally not been developed with a view to ensure that the introduction of IPRs in new areas of technology does not have negative impacts on the realisation of basic needs, such as basic food needs. In practice, developing nations are under varied duress within and without the WTO to introduce forms of IPRs generally modeled after existing models developed in the developed countries. Thus, the UPOV Convention has since long been has been encouraged as an appropriate model for a *sui generis* plant variety protection regime. Even if an UPOV style system is adopted, as has been the case in a number of countries over the past few years, developing countries should not stop there. The protection of traditional knowledge in general and in this specific case the traditional knowledge of farming communities must be enshrined in legal instruments. This though does constitute a significant challenge because there is little by way of models that can be used to develop such frameworks but the author strongly feels that protection of traditional knowledge is probably the most important part of a plant variety regime for most developing countries. The justification to introduction of IPRs in agriculture lies in fostering food security, or in other words fulfilment of the human right to food.

The author further suggests that for a growing/ a still developing nation like India there could be numerous ways to foster food security, and one of them being appropriation of knowledge related to plant varieties through property rights. In this scheme which is promoted today at the international level, control over knowledge is only offered to state-of-the-art inventions. In fact, the introduction of property rights in agriculture should benefit all actors involved in agricultural management. This is the gap that developing countries must fill given that their agricultural systems are often overwhelmingly dependent on the contributions of a significant number of small individual farmers, local farming communities and public sector institutions rather than private actors. In this situation, the development of positive farmers' rights is necessary not only for the benefit of farmers but also their countries. In fact, appropriately designed farmers' rights should not be limited to providing benefits to farmers and farming communities, but should aim at fostering sustainable agro-biodiversity management, providing tools for governments to fight biopiracy and further providing for a set of incentives to tackle food insecurity. Such farmers' rights need not be envisaged as opposed to existing IPRs but should rather be complementary, possibly overlapping forms of property rights, and on the whole they should foster, like patents and plant breeders' rights, further incentives towards the realisation of the human right to food.