

Role of Intellectual Property Rights in Food Safety: A Review

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SUMMARY

The Indian food processing industry accounts for 32 per cent of the country's total food market, one of the largest industries in India and is ranked fifth in terms of production, consumption, export and expected growth. It contributes around 14 per cent of manufacturing Gross Domestic Product (GDP), 13 per cent of India's exports and six per cent of total industrial investment. 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) in as much as Plant Variety Protection (PVP) 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. 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. Identifying 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 an easy task, but the connections do exist.

INTRODUCTION

Agricultural research has been a major contributor to agricultural growth and economic development all over the world. Crop improvement research that led to the Green Revolution in wheat and rice in the 1960s to 1980s, in particular, has been a major success story of the public research systems- both national and international. As a result of agricultural research that led to the Green Revolution, there has been an unparalleled increase in food at lowered prices (Barton 2000) and the benefits have been equally shared among the urban and rural poor. Despite past successes, many developing countries throughout the world continue to experience food insecurity, poverty and malnutrition. The food insecurity problem, defined as, the inability to provide adequate food supplies to maintain a needed level of "per capita consumption" and to meet the nutritional requirements of all segments of the population. Rising population and accelerating economic growth require enhancing intensification of agricultural practices to meet the increasing demands for food. The demands would not only be in terms of the quantity of food produced, but also of its quality. In India, the concept of commercialization of technology from R&D is relatively new in most sectors; especially in agriculture. The Indian food processing industry accounts for 32 per cent of the country's total food market, one of the largest industries in India and is ranked fifth in terms of production, consumption, export and expected growth. It contributes around 14 per cent of manufacturing Gross Domestic Product (GDP), 13 per cent of India's exports and six per cent of total industrial investment. Food security has always been a part of the basic human right to food, broadly defined as timely access to sufficient and nutritious food. The Government of India has recently announced the "National Intellectual Property Rights (IPR) policy (GoI, 2016a). The policy and conducive ecosystem for catalyzing the intellectual property for economic, socio-cultural development and protecting public interest. The policy document put forth seven objectives namely i) IPR awareness: outreach and promotion, ii) Generation of IPRs iii) Legal and legislative framework iv) Administrative management, v) Commercialization of IPR, vi) Enforcement and adjudication and vii) Human capital development. The policy aims at strengthening the national initiatives such as "Make in India" (GoI, 2016b), "Skill India" (GoI, 2016c), "Start Up India" (GoI, 2016d), "Smart Cities" (GoI, 2016e), "Digital India" (GoI, 2016f).

Intellectual Property: What is it and Why it is Important?

Intellectual property right is a broad term used to cover patents, trademarks, plant breeder's rights, copyright, trade secrets and other types of rights that the law gives for the protection of investment in creative effort and knowledge creation. Knowledge, unlike a physical object, can be used by others. The greatest level of economic efficiency occurs with the widest possible dissemination of new knowledge. But if everybody is free to

access new knowledge, inventors have little incentive to commit resources to producing it. IPRs (temporarily) transform knowledge from a public good into a private good. Through enhanced market power conferred by the IPRs, owners of intellectual property can recoup their expenditure in creating new knowledge. Creative minds and innovative firms thus have an incentive to engage in inventive activities. There are two broad categories of IPRs: one, industrial property covering IPRs such as patents, trademarks, geographical indications and industrial designs, and the other is copyright and related rights covering artistic and literary works, performances, and broadcasts. IPRs that do not fall under classical division are termed as *sui generis*, meaning one-of-its-kind. Such *sui generis* rights include those covering lay-out designs of semiconductor chips and plant breeders' rights.

IPRs are thus a "compromise between preserving the incentive to create knowledge and the desirability of disseminating knowledge at little or no cost" (World Bank, 1999, p. 33). The various forms of intellectual property differ in terms of the subject matter that may be eligible for protection, the scope and duration of protection, and possible exemptions to exclusive rights-reflecting society's objective to balance the interests of producers and users of intellectual works. In a global, knowledge-based economy, IPRs are keys to the international competitiveness of both nations and firms (Langford 1997).

Thus, in the last two decades IP has become a significant factor in agricultural technology where IPRs provide a basic incentive for the development of the private sector in this area. Among them several of the IPRs are relevant to the agricultural sector in that they are used to protect goods or services produced in the agricultural sector. Specifically, IPRs in agriculture is patents, plant breeders' rights, trademarks, geographical indications and trade secrets. For instance, the designs of potato chips or any other chips are functions related to agriculture, but these are assumed to be incorporated in machines produced in the industrial sector.

Presently, patent is one of the important tools of IPR for agricultural goods and services by providing strongest protection for patentable plants, animals and biotechnological processes for their production. In nutshell it gives the patentee the right to prevent third parties from making, using or selling the patented product or process. However, patentable products have to meet the criteria of patentability, viz., novelty, non-obviousness, usefulness and applicability and the patent laws are followed by all countries. Nonetheless, not all countries allow the patenting of plants and animals or even microorganisms or biotechnological processes. In this context, IPRs can be seen as assets that provide a policy framework where intangible resources are to be transformed into sustainable development through the protection and promotion of creativity and innovation. Thus, there is need to understand the importance of IPR on both the micro and the macro level and are subject to analysis on the regional, industrial or firm level.

IPR and Food Safety

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 products 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 Agreement provides a number of specific minimum levels of protection that all WTO member states must respect. 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.

International Law and Food Safety

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 environments related treaties may have important implications for food security and lastly human rights treaties focusing on the right to food or related rights, may also play a major role.

Developments in India in Context of IPR and Food Safety

The WTO-TRIPS agreement of 1995 (WTO,2016), which is binding on all member countries including India, provided for minimum norms and standards in respect of protection of IPR in several categories: patents, copyrights, trademarks, plant varieties, geographical indications, industrial designs, layout designs of integrated circuits, and trade secrets. This agreement led India to put in place a set of appropriate and compliant mechanisms and instruments. Some of the legal instruments passed by the Indian Parliament as part of compliance process to the TRIPS include The Patents Act, 1970 (39 of 1970), The Patents (Amendment) Act, 1999 (17 of 1999), The Patents (Amendment) Act 2002 (38 of 2002), The Patents (Amendment) Act 2005 (15 of 2005), The Geographical Indications of Goods (Registration & Protection) Act, 1999 (Office of Controller General of Patents Designs and Trade Marks,2016) and The Protection of Plant Varieties and Farmers Rights Act, 2001 (PPV FR Act) (53 of 2001) (PPV&FR Authority. 2016.) Apart from these, the Government of India also enacted an umbrella legislation called the Biological Diversity Act, 2002 (No.18 of 2003). (NBA,2008) as part of the country's commitment to Convention of Biological Diversity (CBD). There is no specific IPR Act to provide protection for undisclosed information (trade secret). The Indian Contract Act of 1872 and common law have provisions covering this with the Ministry of Law and Justice as the nodal agency (Sudhir Kochhar,2008). A compilation of the major types of IP assets in 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. agriculture R&D with their qualifying attributes under relevant legislations in India is presented in Annexure. The broad institutional mechanisms, legislative provisions and potential returns to the stakeholders of agri-value chain are also depicted. Considering special nature of use of bioresources and traditional knowledge (TK) in agriculture, the various provisions and legal mechanisms for protection of these are also enumerated.

Patents

India inherited at independence a patent law which was deemed inappropriate to realize the economic development goals of the country. The resulting Patents Act, 1970 retained the western model of intellectual property but provided a number of exceptions with a view to foster and specifically precluded the patentability of methods of agriculture or horticulture. Further while allowing process 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.

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. 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.

Issues Related to Intellectual Property Rights in Agriculture

The process of technology development and transfer would have multiple impacts on the farmers, researchers and organizations involved in the agribusiness where the multiple sectors and networks work together. This also brings some issues of ethics in diffusion of technology and food safety and security concern.

i) Ethics of Human Well-Being

One of the main issues is whether IP and research should relate with agriculture, because more than 60 percent people are involved in agricultural activities. The fact that human well-being depends on food, and some of the critical questions in this area are: Does IP protection truly stimulate research investment in agriculture? Does publishing play a key role in the public domain? Issues must be addressed by policy makers at the international, national and institutional levels.

ii) Barrier in the Diffusion of Technology

IPRs reduce the rate of diffusion of Agriculture technology even though it depends upon region. The delay in diffusion relates to uncertainty and risk, and lack of information about the new technology. In such cases, the degree of technical complexity or novelty of an innovation may be an important factor inhibiting diffusion. Adoption of new technology will be easy only if the farmers have adequate information about the new technology.

CONCLUSION

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 significant changes in the policy environment for addressing food security. Thus, food safety is a major concern around the world, agriculture and cultivation has become more challenging because of various constraints due to biotic and abiotic factors. New technology has played a major role in mitigating the problems related to biotic and abiotic challenges of agriculture. Transfer of technologies in the field of agriculture has captured the attention of many research organizations and funding agencies globally. Public and Private sector both have launched several kinds of techniques/method, farming equipment etc. but to implement there is a need to advertise with the society.

For 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 fact, the introduction of property rights in agriculture should benefit all actors involved in agricultural management. Broadly, in agriculture IPRs are now visible in the form of patent activities. In the present form of IPRs, there is a need to improve the IPR regime in terms of the legislation and implementation of laws. Therefore, public sector involvement might be useful to enhance the creation of a better environment for improving the agricultural innovation in the country. However, India has enough of its own resources the only need is to monitor proper implementation of available resources.

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