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Intellectual Property Rights in Agriculture



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The Advent of WTO

The recognition of agriculture as a rule-bound enterprise of investment and profit making became obvious with its inclusion in the intergovernmental negotiations for the General Agreement on Tariffs and Trade (GATT) for the first time in the Uruguay Round (1986-1994). This round led to the establishment of the World Trade Organization (WTO) in January 1995. Now, the WTO has at least half a dozen intergovernmental agreements that directly affect agriculture. These are, Agreements on Agriculture (AoA), Applications of Sanitary and Phytosanitary Measures (SPS), Technical Barriers to Trade (TBT), Anti-Dumping, Subsidies and Countervailing Measures, Safeguards, and Trade Related Aspects of Intellectual Property Rights (TRIPs).

An understanding of the implications and the application of these agreements, particularly the TRIPs, has become more important than ever before at every stage of planning, research, upscaling and commercialisation of agricultural technologies. The TRIPs Agreement is covered in an elaborate document—comprising 73 articles in 7 parts, namely, (i) General provisions and basic principles, (ii) Standards concerning availability, scope, and use of IPRs (iii) Enforcement of IPRs, (iv) Acquisition and maintenance of IPRs and related *inter partes* procedures, (v) Dispute prevention and settlement, (vi) Transitional arrangements, and (vii) Institutional arrangements.

There are seven forms of intellectual property rights recognised in the TRIPs Agreement. These include, Copyright and related rights, Trademarks, Geographical Indications, Industrial Designs, Patents, Layout-Designs (topographies) of integrated circuits, and protection of undisclosed information. This agreement also covers provisions related to control of anti-competitive practices in contractual licences, although, it does not directly relate to IPR. In days to come, when application of various forms of IPR in different areas of agriculture is put to practice, we may face serious problems unless timely remedial measures are taken, awareness is brought out and also due emphasis is given on IPR literacy, higher education and capacity building in the country.

Following establishment of the international institutional mechanisms, such as, the Convention on Biological Diversity (CBD) and the WTO, and further, signing of International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), the growing importance and the global scope of IPR in agriculture are well realised and recognised. The IPR, after long debate, is recognised as an asset and means of rewarding and harvesting the fruit of agricultural research and development. Recognition of intellectual property rights provides an effective means of protecting and rewarding innovators. This acts as a catalyst in technological and economic development. The essence of regulation of IPR by law is to balance private and public interests. At the same time, equitable benefit sharing is, although, agreed upon under the CBD, is yet to be realised in effective terms.

Global and National Scope of IPR

Broadly, protection of all forms of IPR may be relevant in agriculture but its application has to be limited to the relevant domestic Acts in vogue. Hybrids in plants and animals may be

protected *de facto* by not disclosing the parents, whereas protection for plant varieties may be available by a *sui generis* system. The provision for Plant Variety Protection (PVP) made under the TRIPs Article 27.3(b), allows countries to provide such protection either through patent, or an effective *sui generis* PVP system or any combination of the two. Patents, in India, are so far available to new processes but not to all products *per se*. In agriculture, patents may be obtained for processes related to agrochemicals, growth promoters and regulators, vaccines, drugs, hides and wool, dairy technology, food technology, fuel and biogas production, bioreactors, standardisation of various laboratory protocols, environment management, etc. Copyrights and related rights, on the other hand, may be registered for databases, bioinformatics, genes and gene sequences, amino acid sequences, antibodies, etc. Application of industrial designs and the topographies of integrated circuits would be relevant, particularly in agricultural engineering. Nevertheless, in the days to come, IPR is likely to dominate the agricultural scenario irrespective of whether the technology in question is conventional or modern—biotechnology or information technology.

Countries are required to enact/amend their domestic laws in accordance with the TRIPs Agreement and the between-country disputes have to be resolved at the WTO platform, according to its dispute settlement procedures. In this context, it is important to have in place well enacted laws corresponding to the different forms of IPR that not only keep in view the basic needs of the country but are also capable of tackling complexities, which might arise at the international level.

In India, the Patents Act, 1970, constituted the basic Principal Act on the subject. This Act hardly included innovations in agriculture under the patentable subject matter. In particular, it excluded methods of agriculture and horticulture as well as all innovations in the areas of treatment and protection of plants and animals from pestilence or those aimed at increasing their productivity and value of their produce. This broad exclusion had historical impact and implications in respect of IPR protection in agriculture in the country.

India is bound by all the provisions of TRIPs Agreement, which oblige the country to enact/amend relevant domestic laws. Further, with such shifts in legal provisions and also national policies, increased private participation in agricultural R&D and far more public-private relationships, including both competition and cooperation in relevant areas, are imminent. Several legislative and institutional adjustments are being made in the country to gear up and face the challenges of globalisation. These include enactment of new legislations on Protection of Plant Varieties and Farmers' Rights Act, 2001 and Geographical Indications of Goods (Registration and Protection) Act, 1999, and amendment of Patents Act, 1970 in 1999 and 2002. The Biological Diversity Bill, 2000 is in the process of enactment and revision of the Seeds Act, 1966, is also receiving attention. The need to provide for protection in the areas specific to farm animal sector is also being realised.

Effective implementation of IPR related legislations in place and those in the offing is expected to have significant impact on the course of agricultural R&D in the country. Therefore, it is considered important to identify and develop various national policy options for addressing the emerging areas of IPR in agriculture, including the access to various protected technologies to the Indian farmers, entrepreneurs and users. It is high time that a critical analysis of the system is undertaken for its strengths, weaknesses, opportunities and threats (SWOT), to convert threats into opportunities and mitigate weaknesses through timely action.

Creating an Enabling Environment

Recognising the inherently complex nature of institutional development, prime consideration should be given to genuine requirement of resources and building an enabling environment to capitalise on the strengths. Opportunity for IPR protection in agriculture and allied sectors should be improved alongwith mechanisms for enforcement, access to resources and technology, benefit sharing, equity and justice in order to give durable effect to the national agricultural policy and the inherent basic principles of our constitution. A long lasting national commitment should be made in respect of effective institutional mechanisms and reforms, including the administrative, regulatory, legislative and judicial reforms at all levels of government functioning. Short and medium term fiscal plans must include elements of these reforms by providing resources to help meet the costs of adjustment. Resources should be tied to commitments by successive central and state governments with much needed incentive to innovators commensurate with the invention.

It is important to understand that developed economies are likely to benefit greatly from an organised IPR system due to their inherent capabilities to capitalise on such opportunities. Realisation of the gains, principles of equity and the need for a level-playing field is a real challenge. Nevertheless, in keeping with the spirit of the intergovernmental agreements, application of IPR and also maintenance of equity and social justice must be effectively addressed at the national level.

Enhanced competitiveness together with increased production should be the target for various agricultural commodities having export prospects. These include high value commercial crops, animal breeds, spices, medicinal and aromatic plants, and products like milk, meat, fish, leather and wool. Reduction in the cost of production at small farms should also be aimed at so that Indian exports become more competitive. Market-driven quality consciousness should be applied to lay far greater R&D emphasis and efforts to produce quality products that may fetch increased monetary returns per unit area, input and time.

NAAS Round Table on IPR

The National Academy of Agricultural Sciences (NAAS), recognising the importance of the above aspects, organised a one-day Round Table (under the Convenership of Dr. Mangala Rai), to deliberate on various aspects of IPR in agriculture, in order to develop a national policy framework and a road map to achieve the goals. About 40 eminent scientists, administrators, practicing attorneys, lawyers and others concerned with the agricultural sector participated and shared their views on the existing and emerging scenario in the area of IPR.

The technical sessions covered three broad contemporary issues relating to IPR in agriculture, namely, (i) Protectable subject matter in agriculture, (ii) Technical opportunities in agriculture, and (iii) Enabling environment for accelerated R&D and global competitiveness in Indian agriculture.

IPR: Protectable subject matter in agriculture: Patentable subject matter in agriculture and alternative forms of IPR were considered. It also covered what is not patentable and where protection can or cannot be granted under copyrights, designs, geographical indications of goods, trademarks, undisclosed information (trade secrets),

plant variety protection, etc. The coverage also included some case studies and a few comparisons with prevailing scenario in other countries.

IPR: Technical opportunities in agriculture: IPR implications were observed on plant varieties, farmers' rights, biodiversity and environment. It also covered the biotechnological opportunities from IPR protection. In addition, coverage was made in respect of technology transfer, biosafety, institutional capacity building, human resource development and related matters.

IPR: Enabling environment for accelerated R&D and global competitiveness in Indian agriculture: A broad range of issues and concerns related to the enabling environment were discussed and deliberated upon for steering India through the existing and emerging scenario on IPR. This included commercialisation, competitiveness, safeguards, information management, indigenous and traditional knowledge (ITK), and orientation of research and development for technology development, transfer, trade, monitoring and management in the national and international context. The recommendations that emerged as a result of these deliberations are given below.

Recommendations

1. Harmonisation of IPR System

- Recognising that the capital intensive frontier areas of technology generation require high investment and at times long gestation periods, and that IP protection is one of the important means of resource generation aimed at further enhancing the R&D, a high priority should be given to generation, evaluation, protection and effective commercial utilisation of tangible products of intellectual property in agriculture.
- A dynamic and rational approach should be followed for IPR protection and portfolio management. Protection should be availed for the intellectual property involved in inventing new technologies using one or more than one form of protection in conjunction. Choice of any form of protection should be based on its relevance, enforcement mechanism, scope, and jurisprudence. Use of trademarks for brand development of Indian agricultural products should be encouraged as safety net in agribusiness. Remedies like 'passing off' should be availed of in jurisdictions where Common Law Jurisprudence is effective.
- Realising the emergence and importance of several new tools for growth in farm sector—biotechnology, hybrid technology, biocontrol agents, biofertilisers, vaccines, diagnostics, improved implements and machinery—and also that IPR regime is bound to affect development and use of these tools, future technological options in agriculture should be fully harnessed from the knowledge, the art and the strength to realise the IPR opportunities. Core competence should be developed through appropriate means, mechanisms and systems to harness the best of the intellectual property generated.
- Recognising the need to capitalise on our national resources and capabilities to attain and sustain IPR advantages locally, regionally and globally with timely and effective action, the area of IPR in agriculture should be addressed in conjunction

with traditional rights and indigenous knowledge. Access to genetic resources in the new regime is likely to be facilitated but it will certainly be regulated. Rights to equitable sharing of benefits must be suitably balanced with the rights to IPR protection wherever applicable.

- Acknowledging that the issues of IP protection by third parties based on our indigenous traditional knowledge (ITK) are sensitive and important, a high priority and liberal financial allocation should be made to the projects that may lead to development and strengthening of traditional knowledge and resource databases in order to discourage such protection by third parties.
- Appreciating that in accordance with the intergovernmental commitment by developing countries to grant product patents in all fields of technology earliest by 1 January 2005, high priority must be accorded to the development of competitive products, particularly in agrochemicals and biotechnology, in Indian agriculture, besides, further making suitable amendments in the Patents (Amendment) Act, 2002.
- Recognising the available strengths for animal genetic resources and generation of competitive technology in farm animals, poultry and fish in the country, and also realising that appropriate IP protection laws in this area are lacking, steps should be initiated on the analogy of Protection of Plant Varieties and Farmers' Rights Act, 2001 so that in future animal and fish breeds/strains and also farmers' rights on these genetic resources are protected by law.

2. Awareness Generation and Literacy in IPR

- Realising that awareness generation is important for confidence building in order to accept and apply IPR in agriculture and to naturalise the IPR culture, an intensive campaign should be launched to this effect, at all levels and for all relevant sections of the society. Increased general awareness should be brought out in public to enable them to respond to various opportunities, challenges and threats. Elaborate awareness tools—compact discs (CDs), documentary films, newspaper features and advertisements should be developed and widely disseminated in all languages through mass media.
- Issues and concerns, scope of application of IP protection in one form or the other, or in conjunction, various exceptions and exemptions, procedures and rules in the Indian and global contexts in easy to understand, simple language and comparisons with other countries on case-to-case basis must be analysed and presented for public appraisals. Recognising the absence or paucity of case laws, simple illustrations should be made for FAQs like what, where, why, how, have and have-nots. Potential benefits should be explained and, at least, hypothetical examples made in relation to facilitated access to genetic resources and benefit sharing, judicious application of legislative, regulatory and administrative provisions related to IPR laws, and monetary rewards or sharing of licence fee and royalty for saleable intellectual property generated by the employees in the course of R&D.
- In order to help increase the IPR literacy in agriculture and allied sectors, compendia on IPR protection and technology transfer should be published for wide distribution.

Such compendia should cover rules, procedures, forms, guidelines, other important tips and selected case studies on various provisions, admissibility and application, infringement and remedies for various forms of IPR protection in accordance with different domestic laws and also in comparison with other country laws.

- Recognising that the IPR management in agriculture requires a broad portfolio management that includes the fundamental need to link IPR protection with licensing, technology transfer, upscaling, commercialisation and safeguards, all concerned institutions/organisations should generate, publish and widely disseminate relevant information and common literature on IPR in agriculture in the form of brochures and technical bulletins, etc.

3. IPR Education, Training and Human Resource Development

- Emphasising on the need to educate children—potential inventors and innovators of future years, it is time to think of developing suitable curriculum right from the, school level. Based on short stories, poems, letters, essays and short plays, these curricula should be developed in simple language and in interactive and illustrative modes. Concerned government departments and agencies should invite contributions to this effect and announce suitable and impressive awards for the selected entries. ICAR may take lead and recommend the awarded entries for inclusion in the syllabi of the Central Board of Secondary Education and the Boards of Education in various states.
- In order to enhance the level of higher education in the country for IPR in general and IPR in relation to agriculture in particular, there must be at least one compulsory course at the undergraduate and postgraduate levels in all agricultural universities and deemed universities, and also in the law colleges all over the country. Further, an LL.M. degree programme should be started in ‘IPR laws in relation to Agriculture’ at various law colleges in the country.
- Summer and winter schools and periodic training programmes should be conducted in the country for teachers, scientists and technical staff in order to enhance national competence to appropriately address the area of IPR in agriculture and allied sectors. Appropriate modules should also be developed for foundation level training and advanced orientation of concerned scientists at selected institutions on regional basis and at other related Centres of Advanced Studies at the ICAR institutes and the SAUs.
- Human resources in the ICAR institutes and the SAUs should be developed and strengthened in order to help efficient application of IPR in agriculture and allied sectors. Focused attention should be given in the national agricultural research system for the in-country on-job training for skill upliftment and also need-based exposure of Indian scientists to the relevant scenario in other countries. Adequate funding should be provided at the central and state levels to ascertain the much-needed promotion of HRD.

4. Strengthening the Institutional Mechanism—Legal, Regulatory and Administrative

- Recognising that it is important to establish an IP regime that would provide confidence in and workability for the protection of IPR in relation to agriculture and

allied sectors in the country, high priority should be accorded to the process of completing the required legislative provisions and also the notification, functioning and strengthening of national institutional mechanisms corresponding to various Acts, such as the respective Controllers, National Authorities, Tribunals, Registries, etc. Further recognising that the IPR Acts mainly relate to techno-legal matters, their governance should be controlled by eminent scientists with wide experience in relevant fields and the Tribunals should also have technical members. The National Authority on Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPV&FR Act, 2001), should have an eminent plant breeder as its chairperson.

- Enforcement of new Acts and Amendments related to IPR in agriculture should be speeded up. This requires finalisation of Rules and Procedures for the PPV&FR Act, 2001 and the Geographical Indications (Registration and Protection) Act, 1999 (GI Act, 1999). Government should take note of the recommendations made by the NMS on the implementation of PPV&FR, 2001 and also the draft Rules and Regulations developed as a result of the FAO-MSSRF Consultation. The final draft rules and procedures for the GI Act, 1999, should be circulated for expert opinion on areas concerning agriculture and the allied sectors. Enforcement of Patents (Amendment) Act, 2002, should be done early to protect *inter alia* the wealth of agriculturally important microorganisms in the country. The designated repository should be equipped well and strengthened as per international standards. Similarly, enforcement of Amendment Acts related to Copyrights and Trademarks should be accorded a high priority to help derive the best benefits.
- Recognising that the protection of undisclosed information is the only form of IPR listed in the TRIPs Agreement for which there is no corresponding direct law in the country, and further reiterating such intergovernmental commitment, legal consultation process should be initiated to firm up the contextual position and decide the course of action. Development of related laws, such as, enactment of Biological Diversity Bill, 2000, should also receive attention. Appropriate legal instruments related to conservation, maintenance, trade and sustainable utilisation of animal genetic resources should be brought about.
- Simplified regulatory procedures for relevant application of IP protection and also for seeking any prior informed consent (PIC) on mutually agreed terms (MAT) for access to genetic resources and equitable sharing of benefits should be developed.
- It is recommended that parallel laws like the Seeds Act should be strengthened as they help in better application and enforcement of particular IP laws, such as the PPV&FR Act, 2001, in order to support effective implementation of *sui generis* system of protection. Similarly, Contract Law should be reviewed to strengthen the law on Trade Secret, and the law related to land ownership of small farmholders should also be strengthened to judiciously implement the farmers' rights.
- Recognising that the institutional development and strengthening is inherently complex in nature and also that it requires time, resources and will to develop institutional culture, short and medium term fiscal plans should include provision for resources that would help in meeting the costs of adjustment. Commitments by

successive central and state governments should ensure availability of precommitted resources in the techno-legal area.

- Management and Information Services should be strengthened in the ICAR institutions and SAUs in order to change their basic approach to research and IPR protection. Facilities should be established and strengthened for identification of relevant research areas through patent search, literature survey, UPOV database search etc. Early and conflict-resolving information services should be set up in the broader context.
- Inventors and innovators should be provided with their share commensurate with the worth of a commercialised invention whereas incentive should be given to all inventions whether processes or products in order to ensure a viable, dynamic and effective national institutional mechanism of IP management.
- Elaborate Clearing House Mechanism (CHM) should be developed and strengthened in relation to IPR in agriculture, encompassing all possible information on basics, thematic areas, related treaties, conventions and agreements, historical to current events and future activities. It should also have copies of all Indian Acts related to various forms of IPR, their rules and procedures, forms, guidelines and other important tips. A site on the Internet should be dedicated to this CHM and various notifications, case studies, with periodic updation of other relevant information.

5. Strengthening the Policy Area

- Recognising that the principal policy area related to protection of IPR in agriculture and allied sectors is the competitive commercialisation of technologies, attention should be given to further liberalisation of agricultural markets, promotion of private sector investment and more efficient technology systems.
- Codes and procedures for rewarding the concerned partners and stakeholder scientists should be developed in the ICAR, the SAUs and other concerned institutions to bring IP culture in the NARS. This may be commensurate with the gains accrued. Alternatively, a fixed proportion, at least 40 per cent of the earnings, should be given to the scientist concerned or shared among the research partners as is presently being followed in the Council of Scientific and Industrial Research (CSIR) institutes.
- Recognising that high priority should be given to strengthening of support services in farm enterprises, extension, training, research and quality control, public interventions in agriculture should focus on market intelligence, technology forecasting and early warning systems. A centre for forecasting market trends and the status of the national and international markets should be established to enhance the prospects and sustainability of competitive Indian agriculture. Market-led technologies should be developed, protected and commercialised to harness greater returns on the investments made.
- There is a strategic need to increase growth-enhancing public investment, besides capital formation in agriculture, and promoting private sector activities and resource

contributions. Essential ingredients must be put in place to bring much needed commerce in Indian agriculture.

- Whereas agriculture is deregulated as a result of the ongoing reform process, the lowest income groups should be continuously protected in accordance with clearly defined policy and directives by direct and indirect support programmes.
- Recognising that in the absence of proper legal framework, misuse, abuse, overexploitation and non-judicious utilisation of animal genetic resources is rampant, particular attention should be given at the national and global levels. There should be intergovernmental negotiations to address issues like the trusteeship/ownership of animal genetic resources in various genebanks and the legal frameworks for the databanks, including acquisition of the classified data on animal genetic resources.
- In order to avail of maximum IPR-linked opportunities in competitive agriculture, India must continue to contribute towards development of a level-playing field at the intergovernmental platform between the developing and the developed economies. In the ongoing negotiations at the World Intellectual Property Organization (WIPO) for IPR in relation to genetic resources, traditional knowledge and folklore, NARS experts can play a vital role which needs to be capitalised by the government.

6. Harnessing IP-linked Technical Opportunities in Agriculture

- Trademarks should be extensively used for brand development in agriculture. Genes and gene sequences, amino acid sequences, antibodies, etc., should be protected by copyrights until there is opportunity to patent and commercialise these products. Judicious application of other forms of protection should be done as and where applicable. Protection of IPR in all cases should be essentially linked to commercialisation, sharing of royalty and other benefits, and further enhancement of relevant R&D.
- Appreciating that the agricultural research community should create/innovate, protect, and commercialise their new technologies on continuous and incremental basis, other important national responsibilities, like sustainable development, empowerment of economically weak farmers, and protection of their traditional resources and knowledge should also be prompted on high priority. Quick action should be taken to record and document farmers' varieties in the country as available over space and time and the traditional knowledge associated with their use.
- IP linked technical opportunities in agriculture may be extended to applied management of genetic resources including microorganisms. Biotechnological advances should be integrated with genetic resource management where feasible to identify, copyright and document unique genes or gene sequences. Recognising that the germ plasm registration of PGR is in practice, specifications and guidelines should also be developed for breed registration of farm livestock.
- At least five per cent of the research budget in agriculture should be allocated to protect the public sector R&D for sustainable IPR portfolio management, and technology development and mobilisation in agriculture. Where certain technologies are considered important for food security and well being but significant avenues do

not exist for IPR protection and commercialisation, development and deployment of public goods must continue to be done by the public sector R&D.

- As the IP protection is likely to be far more stringent in the years to come, agricultural markets should be constantly monitored and suitably reorganised at an appropriate time. Timely, corrective steps should be taken based on critical gaps, including the kind of IP scenario likely to emerge in future.
- Competitive funding schemes should be encouraged to develop research links between profit-making and non-profitmaking research institutions and to build bridges between the use of propriety and public domain resources and technology.

7. Linkages and Cooperation

- Mutually supported testing of technologies should be encouraged by a change in attitude and mindset in public-public, public-private or private-private partnerships to address high proportionate initial costs and risks, particularly that of the biotechnological R&D. Active partnerships should be further encouraged in exploring the new tools of applied genomics to understand and improve the biological systems in public interest.
- In order to provide encouragement for the public-private partnerships in true spirit, minimal codes of procedures should be developed and applied in different key areas of partnership. On selective basis, corporate culture should be brought about in some public sector institutions.
- Confidence building should be accelerated in cross-sectoral partnerships. Feeling of uncertainty in partnership calls from across the public and private sectors should be minimised. More opportunities should be provided for frequent interaction among the agricultural scientists, research institutions, agricultural industrial sector and entrepreneurs. The private sector should also complement the basic and strategic research by the public sector through appropriate funding and resource sharing.
- Voluntary or concessional legal advice may be provided in partnership deals of strategic importance to enhance competitiveness of Indian agriculture and to attend to the problems of uneven-playing field among the resource-rich and resource-poor potential partners. A common platform should be provided on sustainable basis to seek assistance from the attorneys and lawyers having reasonable agricultural R&D background. Besides, outsourcing for legal advice on case-to-case basis in order to competently address the techno-legal area of IPR protection in agriculture, the ICAR and SAU set ups should appoint law officers in their IPR Cells in order to strengthen their institutional mechanism for IP protection.
- Realising the importance of jurisdictional limits in respect of the application of IPR laws and the situations concerning enforcement and discipline, control of agribusiness abroad should be addressed by all concerned in a national spirit. Agencies like APEDA, FICCI and CII should earmark resources and funds to meet the contingent needs for relevant transnational IPR cases involving the Indian agricultural sector and to provide emergent support on case-to-case basis.