

India: IPR and the National Security

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The paper highlights intellectual property rights (IPR) issues related to defence and national security in the Indian context, for example, management of IPR during defence R&D and technology development, protection of IPR of strategic nuclear and dual use technologies and applications, negotiating patents and other IPR during acquisition of military equipment and technologies, and counterfeiting and piracy of legally owned intellectual property. The emerging non-nuclear commercial applications of some of the 'prescribed' substances in the Atomic Energy Act of 1962 like uranium, thorium, titanium, zirconium, graphite, or radioactive isotopes have been discussed. The paper stresses the need for resolving IP related issues, particularly, for dual-use materials and systems by evolving an appropriate IPR policy. It points out significance of IPR in defence acquisition procedures and implementation and risks to internal national security from piracy of trademarked or copyrighted or patented products. India may have to act against such a piracy and crack down on intellectual property theft as part of response to the new set of national security challenges.

Keywords: IPR laws, national security, dual use inventions, Atomic Energy Act, defence R& D

The intellectual property rights are inextricably linked to the generation and protection of new inventions and developments in science and technology contributing to both national strategy and social objectives. Several initiatives have been taken in the country to understand multifaceted implications of IPR for national scientific, technological and economic development and in building capacity to effectively manage IPR to maximize overall economic gains. There are several other issues of IPR related to defence and national security. These include, for example, management of IPR during defence R&D and technology development, protection of IPR of strategic nuclear and dual use technologies and applications, negotiating patents and other IPR during acquisition of military equipment and technologies, handling of confidential technical information, and counterfeiting and piracy of legally owned intellectual property. There is limited understanding on such issues in the country. This paper attempts to clarify some of these concerns in Indian context.

Security-Oriented of S&T and IPR

The science and technology have a central role in ensuring national security¹, which in modern context is impacted by advancements in defence research and technology development. These developments include

conventional and latest weapon systems involving nuclear and space capabilities, and critical industrial technologies covering a whole range of technological domains relating to armaments, aeronautics, energetic materials, biological, biomedical, and chemical technologies, electronics, information systems, and security, marine systems, sensors, ground combat, and energy systems.² There are issues of IPR protection and management, if such intellectual property is created within national defense research and development organizations. In case such technologies and equipment are procured from abroad, then also, one would need to look into issues relating to ownership of intellectual property while negotiating technology acquisition. The security orientation of S&T is thus closely related to IPR, which determines the technological superiority, and in turn, the military supremacy of a country.³

Security-Related Provisions in IPR Laws

A review of security related provisions in the national laws on IPR⁴⁻⁵ indicated that there were security related provisions in the laws relating to patents, designs, integrated circuits, and plant varieties, wherein the Government might prohibit or restrict the publication of information with respect to invention or communication of such information if it was considered relevant for defence purposes or prejudicial to the interest of 'security of India'. The expression 'security of India' included any action

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necessary for the security of India which (i) related to fissionable materials or the materials from which they were derived; or (ii) related to the traffic in arms, ammunition, and implements of war and to such traffic in other goods and materials as was carried on directly or indirectly for the purpose of supplying a military establishment; or (iii) was taken in time of war or other emergency in international relations. If the invention was relevant for defence purposes or atomic energy, permission to file a patent application outside India could not be given without prior consent of the Central Government. The Government might take any action including revocation of any patent, which it considered necessary in the interest of security of India by issuing a notification in the official gazette to that effect. There are no specific provisions related to national security in the laws on copyright, trademark, and geographical indication.⁴

IPR and the Atomic Energy Act

The Atomic Energy Act, 1962 provides for the development, control and use of atomic energy for peaceful purposes and for the welfare of people. It gives power to the Government of India to deal with all aspects related to patents and patenting as defined in sub-section (1) of Section 20 of the Atomic Energy Act.⁶ This sub-section is cross linked with Section 4 of the Indian Patents Act⁷, which states that no patents can be granted in respect of an invention relating to atomic energy falling within sub-section (1) of Section 20 of the Atomic Energy Act, 1962. The inventions relating to atomic energy mean the inventions useful for or relating to the production, control, use or disposal of atomic energy or prospecting, mining, extraction, production, physical and chemical treatment, fabrication, enrichment, canning or use of any prescribed substance or radioactive substance⁸ or ensuring of safety in atomic energy operations. The Department of Atomic Energy (DAE) has immensely benefited from IP related provisions of the Act, which have enabled it to achieve adequate success in indigenous development of nuclear science and technology.

Emerging Non-Nuclear (Dual Use) Applications

With emerging globalization and opening up of the Indian economy, the non-nuclear applications of some of the 'prescribed' substances are growing. For example, prescribed substances like titanium, zirconium, graphite, or radioactive isotopes are used in nuclear technology but are also of utility, in other

branches of technology and are in demand by industrial sectors. The uses for titanium in industry are growing faster than ever before in applications in power generation, heavy chemicals, computer industry, automotive industry, human implants and a wide variety of consumer products. The zircon and zirconium have several uses in refractory/metallurgical fields. Graphite is used in printed circuit board manufacturing, metalworking, and lubricants and additives. Further, use of radioactive substances has become widely prevalent in agriculture and land use management, food preservation, and radio-pharmaceuticals. Even uranium or thorium may be used for fabrication, research, and manufacture of consumer products such as ceramics and glassware or manufacture of refractories. Small quantities of Plutonium, U-235, and U-233 (less than 200 grams total) may be needed for purposes such as biological and chemical testing, calibration of instruments, neutron sources for use in industrial applications or power sources to generate heat or power for remote weather stations, and space satellites.⁹ Several private sector entrepreneurs play a significant role in R&D and commercial activity of such nuclear related substances. New inventions brought out by them have commercial benefits and are required to be protected by patents and relevant IP laws. For example, titanium apatite, a titanium compound, which looks like white particles is one result from a company's research work. It reacts to light and promotes decomposition of odors, contaminants, bacteria, viruses, etc. Another example is it reacts on the surface coated with ink. When embedded in plastic, the plastic itself becomes reactive. Believing that titanium apatite can be applied in numerous other fields, the company is further working on finding various ways to utilize this substance. Such inventions may be of dual use and commercial importance and would need to be protected by taking patents.¹⁰

It is essential that IP related issues of inventions of dual use nature are resolved, particularly, for dual use materials and systems in order that the on-going programmes of the Department of Atomic Energy in India continue without legal hurdles and jeopardizing emerging commercial interests. The relevant clauses of the Atomic Energy and the Patents Acts may need to be modified in order to take into account the growing needs of commercial interests of the non-nuclear sector.¹¹

Need for IPR Policy for Dual Use Inventions

Dual use policies substantially refer to technology or product transfers from defence to civilian applications where the military invention can be commercialized after 'light' modifications. When military technology 'pulls' the market, it is the civil sphere that tries to adjust its systems in order to benefit from spillovers generated by military demand. In the opposite case, it is steering of dual use and implementation of proactive procedures by industry and defence administration that become necessary to create opportunities for integration or transfer. The IPR play a major role as an incentive to active and fruitful collaboration in the spin-off experiences from military to civilian sphere. They can actually act as a trading 'commodity' or 'currency' in agreements between military 'unit' (whether business unit of a firm or a defence laboratory) and civilian commercial firms.

India has significant R&D and technological capabilities in the dual use technologies and inventions.³ In addition to nuclear related dual use inventions, there may arise several inventions from defence research and development itself that may include both military and civilian applications. The approach to technology development in defence is also changing wherein a number of defence systems are outsourced from the regular commercial systems.³ There is thus a need to create an appropriate IPR policy for dual use inventions and technologies— not only to look for spin offs but also to further strengthen the base for dual use technologies and innovations in the economy.

Defence R&D and Significance of IPR

The Defence Research & Development Organisation (DRDO) is the major scientific agency in the country to carry out R&D relating to military equipment and technologies. It is working in various areas of military technology which include aeronautics, armaments, combat vehicles, electronics, instrumentation engineering systems, missiles, materials, naval systems, advanced computing, simulation and life sciences.¹² The management of IPR is likely to play a significant role in strengthening defence R&D and technology development, the key features of which are discussed below:

Identification of Technology for IP Protection

The overall R&D process may involve carrying out basic research, applied research, application of results of research, development and transfer of technology. All R&D projects aim at creating new intellectual

property or develop existing forms of intellectual property. This creation may be worth a great deal of money or of critical strategic significance in case of military and defence R&D. In both sense, the aim of defence R&D organizations should be to emphasize promotion of R&D focused on creation of significant intellectual property. Further, patent documents contain most up to date and latest technological information, which may be used by scientists and researchers when beginning a new project or identifying R&D opportunities for technological development. The timely use of patent information makes it possible to identify appropriate ideas for technology development, avoid unnecessary expenditure and save time and resources.¹³ The quantitative techniques of scientometrics may be useful in identifying R&D opportunities or technologies for development.¹⁴

The results of research, so obtained, may call for an early identification of inventions that may need the IP protection, particularly, through patents. Generally, scientists themselves are the best persons for taking a decision that they have obtained results of research that are required to be protected by patents. In principle, two criteria need to be satisfied, viz. (i) results are significantly different from what is already known, and (ii) results provide definite value additions over and above the existing knowledge. Alternatively, help of outside experts may also be sought in identifying and determining technologies that need to be protected.

Disclosure of Inventions in Patent Applications

The related dimension of IP protection resulting from defence R&D is the issue of disclosure of invention in the patent documents. The patent law requires that the patent applications should fully disclose the invention while making claims. In not doing so, the patent may not be granted. The disclosure of sensitive technical information in patent applications might be detrimental to the national security interests.¹⁵ The national patent offices have the right to order an invention to be kept secret and not to publish the patent applications if it is identified that the invention relates to defence and a secrecy order may be passed in such a case. This is an important issue wherein an appropriate balance needs to be established between rights of inventors and national security consequences of the inventions. Judicious guidelines may be required for decision making in the national patent offices to exercise a proper judgment on protection of IP and issuing of secrecy orders.

Confidential Aspects of R&D Information and Know-How and Appropriate Measures to Protect Such Information

In case of intellectual property, the description 'confidential information' has nothing to do with the military security classification: CONFIDENTIAL. Both unclassified and classified information may be disclosed and licensed as 'confidential information' in the intellectual property sense. Scientists, besides, sharing new ideas and S&T information through publications, keep know-how and a large amount of technical information confidential. Such information may include scientific, engineering, or technical documentation in the form of plans, blueprint, designs, quality control techniques, or manuals. It would be desirable to recognize the confidentiality of such R&D information and develop skills for its protection.¹⁶ Scientists as employees owe the employer an obligation to act in good faith and keep confidential information confidential. All inventions made by them need to be kept in trust for the employer for a certain period of time even after the retirement.¹⁷ A separate 'confidentiality agreement' may be used while disclosing confidential information, which may define: duration; parties; what constitutes confidential information; to whom the information can be provided; the purposes for which it can be used; and what happens on expiration or termination (for whatever reason) of the agreement.¹⁶ The need for adequate protection of commercially sensitive information is also essential for military procurement agencies to retain the confidence of industry. For example, India and the US signed a General Security of Military Information Agreement (GOSMIA) in August 2002.¹⁸

Managing S&T Co-Operation— Principles of Ownership and Sharing IPR

DRDO is increasingly collaborating with R&D institutions in universities, national laboratories and private commercial enterprises in matters relating to defence R&D and technology development. For effective collaboration, pre-existing rights of the collaborating institutions should be clearly spelt out. The implementation of such collaborations and ownership of IPR may be guided by the following key principles:¹⁹

Collaborative R&D Projects

In a collaborative arrangement, there is a substantial involvement of both the collaborators in making contribution to the technical aspects of the effort. In principle, the intellectual property is jointly owned by the collaborating

S&T institutions and the resulting benefits are to be equally shared. Alternatively, the benefits are shared in proportionate to the inputs of the collaborating parties.

Contract Research

The principal purpose of a contract is to acquire the research inputs as a direct input in well - defined programmes and missions of the agency giving the contract. Normally, both tangible and intangible intellectual property are to be wholly-owned by the giver of the money/funds; but the recipient of the money may have royalty -free licence for his non - commercial use.

Grants-in-Aid

One of the purposes of a grant is to accomplish given objective through stimulating or supporting the acquisition of knowledge or understanding of the subject or phenomena under study. Both tangible and intangible property are to be wholly - owned by recipient of money; but the donor of money may have royalty -free license for his own use.

Basis of Naming of Inventors/Co-inventors

The naming of inventors/co-inventors is important to recognize and reward the true inventors for their contributions, and to establish their right for a share in the subsequent commercial benefits. All those persons who contribute towards development of patentable features of an invention should be named as inventor (s)/co-inventor (s).¹³

Commercial Exploitation of Patents and Incentives for Scientists

A patent on its own is no guarantee of commercial success. It needs to be commercially exploited in the market.²⁰ However, the principal benefit of IPR for defence may not be the money, which it might bring, but the strategic pitfalls that it might avoid, for example, to prevent others from claiming innovations as their own or to infringe the third party rights. More importantly, the end results should be utilized by the army, air force, or naval wings of defence services.

Maintaining Records of Research

Suitable guidelines and practices need to be established for a good system of keeping records of research from the stage of first conception of the idea to an account of all the activities carried out through various stages of the R&D project.

IPR and Acquisition of Strategic Technology and Equipment

Acquisitions from Indian Industry

The Government of India has encouraged acquisition of strategic technology and equipment by defence through government or private systems in India or abroad. It opened up private sector participation in defence production in 2001. A number of major private sector industries from India have sought participation for manufacture of a wide range of defence items. In view of increasing role of private sector in defence R&D and business, a flexible approach to IPR may be required in defining rules for knowledge sharing, protection and benefits. Development of technology and systems based on indigenous research and design are an important component of the Government's defence acquisition policy which also introduced a procedure to categorize them as 'MAKE', in its Defence Acquisition process.²¹ This bridged a critical gap that existed hitherto, and provided requisite framework for increased participation of Indian industry in the defence sector. In case acquisitions are made from Indian industries, the offer from the Indian industry has to clearly mention that the IPR rights of the products are owned by the Indian industry. In case projects are funded by Ministry of Defence (MoD), the IPR belong to the MoD.²¹

Acquisitions from Abroad

The equipment for which technology for production is not available in India has necessarily to be imported to meet the operational requirements of the services. In cases when the technology or equipment are acquired from abroad, the Defence Acquisition procedures of the Government of India lay down specific commitments, which a vendor has to give on patent rights and other intellectual property.²¹ These include the following patent rights:

- (i) there are no infringements of any patent rights in accordance with the laws prevailing in the respective countries of the vendors.
- (ii) the prices stated in the contract include all amounts payable for the use of patents, copyrights, registered charges, trade marks and payments for any other industrial property rights.
- (iii) the seller indemnifies the buyer against all claims from a third party at any time on account of the infringement of any or all the rights mentioned in the previous paragraphs, whether such claims arise in respect of manufacture or use.

(iv) the seller is responsible for the completion of the supplies including spares, Special Machine Tools (SMTs)/Special Test Equipment (STEs), technical literature and training aggregates irrespective of the fact of infringement of the supplies, irrespective of the fact of infringement of any or all the rights mentioned above.

Use of Foreign Technology Protected in Country of Origin Without Permission

In acquiring foreign military technologies or equipment that are protected in the country of origin of the technologies or by corporate R&D units elsewhere, the Defence Acquisition procedures of the Government of India seek to ensure that no infringements take place while using such technologies or equipment in the country. However, from the point of view of defence R&D and technology development, the manifestations of the technology so acquired may further be examined so as to avoid any adverse implications. Firstly, permission may not be needed if such technology is not protected in India. Secondly, if the protected technology is used in new components, devices or any other new technologies, a license may be needed for such use. It is not advisable to use protected technology without proper permissions either for use within the country or for use and exports to third countries.

Infringement

Original Equipment Manufacturer (OEM) shall indemnify and protect at its own cost, the production agency in respect of cost/claims/legal claims/liabilities arising from third party claim with regard to the existence of any patent or intellectual and industrial property right of any such parties in India or from other countries.

In principle these IPR provisions, in Indian defence contracts, ensure that the equipment or technology procured by it are free from infringements or third party rights and no additional costs are made to it on account of any hidden IPR. In contrast, experience of other countries like UK, indicates that in defence related transactions, it is appropriate to establish clear principles for the disclosure, transfer, use and ownership of IPR. The significant lesson to be learnt from the UK experience is with respect to implementation of IPR related provisions in defence contracts. The Ministry of Defence in UK has established an elaborate IPR policy for its contracts. The policy is implemented by specially constituted

Intellectual Property Rights Group (IPRG) in the Ministry.²² Key roles of IPRG are to provide a policy framework for dealing with IPR throughout Ministry of Defence, and to provide specific IPR services in support of its business in formulating and negotiating standard IPR conditions for contracts and, in general, providing appropriate solutions to its IPR related problems. Its professional staff is graduate scientists or engineers, trained as IPR specialists.

IPR and Indo-US Civil Nuclear Deal

IPR are becoming significant to India's growing military cooperation with other countries like Russia or the US. For example, Russia insisted for an agreement on IPR as relationship between the two countries grew from a vendor-client relationship in defence cooperation to one aimed at joint R&D and marketing of products.²³ The proposed Indo-US Agreement in civil nuclear technology²⁴ may also be important from the point of view of Indian approach to several of IPR issues. The agreement aims to create additional capacity for generation of nuclear power and resume its nuclear trade and commerce with the US and globally dismantling the technology denial regimes. The international trade in any system like nuclear reactors, their spares and accessories and also fuel assembly systems including fuel cycle production/processing technologies are heavily IP protected by the relevant corporate bodies in advanced countries including US. These will certainly attract the rigorous conditionalities in IP protection and negotiations for technology transfer, akin to all other civilian sectors. In essence, the national IP policy enunciated in the Atomic Energy Act 1962, which lead to the development of endogenous nuclear capacity, may have to be re-examined in the context of IP issues relating to the import of nuclear reactors, their spares and accessories and related technologies like fuel assembly systems.⁹

Enforcement of IPR and National Security Concerns

The challenge to national security is to deal with the range of threats not only rooted in the traditional state-oriented international system but also to those that have emerged as a consequence of the newer social, political and global realities.²⁵ Today, national security is intertwined with internal and external security threats including terrorism. The pirating of trademarked or copyrighted or patented products offers high earnings at a relatively low risk. The

piracy is increasingly linked to national security due to organized crime networks' participation in lucrative counterfeiting and piracy schemes.²⁶ The continuing growth of IPR theft and trade in fakes and pirated materials threatens innovative and creative economies worldwide. There is a need to build up necessary political will to act against such a piracy and crack down on intellectual property theft as part of the response to the new set of national security challenges. Several Governments have taken initiatives to introduce stronger enforcement of IPR laws. EU Directive in 2004²⁷ concerns the measures and procedures necessary to ensure enforcement of IPR. In US, the Government is taking at the highest level to communicate and influence Governments of other countries to stop counterfeiting and piracy.²⁸ India has issued strict enforcement guidelines, viz. Intellectual Property Rights (Imported Goods) Enforcement Rules, 2007²⁹, which define the role of customs precisely in combating IPR infringements at the borders. The Central Government may restrict or prohibit import and export of goods infringing intellectual property rights of the right holders under the Copyright Act, 1957, the Trade Marks Act, 1999, the Patents Act, 1970, the Designs Act, 2000 and the Geographical Indications of Goods (Registration and Protection) Act, 1999. However, it may have to address several related issues like police action against pirates, and following up raids by obtaining convictions for infringement.

Conclusion

The issues of IPR protection and management are significant both when such IP is created within national defense research and development organizations as well as procured from abroad. The management of IPR is likely to play a significant role in strengthening defence R&D and technology development, the key aspects of which include identification of technology for IP protection, disclosure of inventions in patent applications, protection of confidential information, utilizing patent information, principles of ownership and sharing IPR during collaboration, basis of naming of inventors/co – inventors, commercial exploitation of patents, and maintaining records of research. In view of increasing role of private sector in defence R&D and business, a flexible approach to IPR may be required in defining rules for knowledge sharing, protection and benefits.

With emerging globalization and opening up of the Indian economy, it is becoming essential that IP related

issues, particularly, for dual use materials and systems are resolved by evolving an appropriate IPR policy that balances the interests of the on-going programmes of the Department of Atomic Energy and those of the private commercial interests of the non-nuclear sectors. In principle, these IPR provisions, in Indian defence contracts, ensure that the equipment or technology procured by it are free from infringements or third party rights and no additional costs are made to it on account of any hidden IPR. The significant lesson to be learnt from the UK experience is with respect to implementation of IPR related provisions in defence contracts wherein the IPR policy is implemented by specially constituted IPRG in the Ministry of Defence.

The proposed Indo-US Agreement in civil nuclear technology may also be important from the point of view of Indian approach to several of IPR issues wherein the international trade in nuclear systems are heavily IP protected by the relevant corporate bodies and would need to be balanced with the national IP policy enunciated in the Atomic Energy Act 1962. The national security is intertwined with internal and external security threats including terrorism. The pirating of trademarked or copyrighted or patented products is increasingly linked to national security due to organized crime networks' participation in lucrative counterfeiting and piracy schemes. India has issued strict enforcement guidelines on import of goods and IPR, which define the role of customs precisely in combating IPR infringements at the borders. There is a need to act against such piracy and crack down on intellectual property theft as part of the response to the new set of national security challenges. India needs to explicitly integrate IPR policy within the ambit of its national security concerns.

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