

# Professionalism, Innovative Culture in Universities and their Contribution to the National Development- An Intellectual Property Law Perspective

HAM Harankaha

Faculty of Law, University of Colombo, Colombo 3, Sri Lanka

harankaha@gmail.com

**Abstract**— *It is evident that national development of a country and its economic development have a close relationship. Undoubtedly, economic development is an essential aspect of broader notion of national development. Innovations and inventions of a country play significant role in enhancing economic development. These innovations and inventions, in a broader sense, include organized knowledge in creating new technological products, manufactures and services, industries, businesses, software and digital industries such as cinemas. Simply said, these are areas covered by legal regime of intellectual property and information communication technology. Further, a joint venture of both state and private sector for enhancement of knowledge culture would ensure viable and more stable development of a country. It is therefore evident that professionalism is an integral role in national development and intellectual property law plays a vital role in incentivizing and protecting professionalism in a country. This research attempts to analyze issue as to why contribution of university researchers/intellectuals to enhancement of inventions and innovations of country has not been effectively inculcated to country's economic development. Research analyzes existing legal hindrances affecting professionals to contribute services effectively in intellectual property law perspective by evaluating some IP law concepts i.e. employer -employee relationship, ownership concept and joint ownership of inventors. It discusses adequacy of existing laws and their pitfalls by recognizing importance of introducing new laws. Study is mainly desk-based research which analyzes relevant Conventions, Acts and regulations while having deep look at experiences of other selected jurisdictions. In addition, researcher used some data of local higher educational institutions with respect to their experiences on commercializing their inventions. Research concludes that contribution of university sector through commercializing their innovations is an important aspect in inculcating professionalism in national development and recommends that some intellectual property aspects such as joint ownership and co-ownership should be given more recognition and clarification while emphasizing on proper implementation and enforcement of relevant laws.*

**Keywords**- *innovations, intellectual property, professionalism*

**Keywords**-*Innovations, Intellectual Property, Professionalism*

## I. INTRODUCTION

Today, from the perspective of universities, there is a growing interest to join forces with the private sector as universities are highly expected to make a tangible contribution to society. It is believed that universities are no longer a *blessed* investment free from the critical evaluation of cost effectiveness (Nezu, 2010). Universities are, hence, heavily expected to contribute to economic development by investments in R&D enhancing the technological development of the domestic industry. However, commercializing university researches and laboratory products and processes which may be technologically accurate and sound in theory, but maybe lack of marketability is now in the minds of many policy makers in developing countries. Hence, any useful research results which remained unused in laboratory shelves without having a pro-active policy to transfer such results to industry can be minimized if factors such as idea of professionalism and the commercialization of research within an effective intellectual property protection mechanism can be properly adapted to the legal regime of a country. This research paper critically evaluates to what extent some intellectual property concepts can be utilized to enhance university - industry relationships and commercialization of research works in the market.

## II. COMMERCIALIZATION

It is hence important to identify an exact meaning given to the idea of commercialization in this present context. The process of commercializing intellectual property involves moving the fruits of creative thinking, research and development from the laboratory bench, author's study or designer's computer to the market place. This process of defusing innovations into the community has become known as technology transfer, or alternatively innovations. It is provided that for creation of intellectual property rights (IPR) planning is very important. Simple creation of an IPR without determining its importance and use by the public will not do any good. Such an IPR will not have any value also and only will remain in paper. As IPR has dual objectives, namely (i) the creator getting some benefit-financial or otherwise- for the intellectual

inputs given in such creation and (ii) the society getting the benefit of the IPR created, the planning the creation of IPR plays a very important role. This planning of innovations essentially includes commercialization of inventions. (Subbaram, 2010). No doubt, this involvement is something beyond the control and the capacity of the researcher/inventor attached to the university or the research institution and, it is a process which needs many assistance from the industries and the technology transfer offices.

### III. INNOVATIONS

Innovation has been defined as; being the transformation of knowledge into new products, process and services and this involves discerning and meeting the needs of customers. Further, Improvements in marketing, distribution and service are innovations that can be as important as those generated in laboratories involving new products and processes. Therefore, an essential aspect of innovations seems to be meeting the needs of customers while it being a transformation of knowledge to a new product or process. The concept of innovation hence involves with the process of *transforming* the very rudimentary type of invention produced in the laboratory to a customer demanding device which has a profitable market for the inventor/patent owner and a utility value for the customer as well.

### IV. ECONOMICS OF PATENT SYSTEM

Classical economic theories of the patent system build on (old) notions that in the absence of patents underinvestment in R&D and innovation would occur and/or that too much secrecy would occur. Thus an extra incentive to invent, disclose and innovate would be needed and a patent right would help fill this need. This theory is basically founded on Bentham's famous thesis; [...] which one man has invented, all the world can imitate. Without the assistance of laws, the inventor would almost always be driven out of the market by his rival, who finding himself, without any expense, in possession of a discovery which has cost the inventor much time and expense, would be able to deprive him of all his deserved advantages, by selling at a lower price. (Bentham, 1962). Although there are many counter arguments against this basic theory the researcher takes the above notion as the basis on which his propositions are developed.

### V. UNIVERSITIES AND ENTREPRENEURSHIP

In analyzing commercialization of research works, the following two concepts in relation to economics in patent are important.

- i. Entrepreneurship
- ii. Underinvestment in R&D and innovations

Entrepreneurship: Patent and IP system is an institution for stimulating entrepreneurship toward economic growth and welfare. Ordinarily, entrepreneurship comes in many forms; e.g., autonomous, corporate, state, university, military, etc., however, it is noted that this research limits its scope only to universities and the university as an entrepreneur. The research deeply analyses possible repercussions of universities being recognized as an 'entrepreneur' from the perspective to what extent it can deviate from its traditional role as a non-profitable institution engaging in research activities solely for public good.

Underinvestment: Here, under-investment means lack of investment in R&D and innovations. There are arguments that today's issue is underinvestment in R&D and innovations, both technical and non-technical, in a market economy. Underinvestment in R&D means the difficulty of selling the particular product and thereby appropriating profits to cover investment expenses. Therefore, funding agencies, Government and companies are reluctant to provide sufficient investments. According to this opinion, it can be further argued that the universities would be adequately funded by the Government or funding agencies to the extent that universities produce, as their inventions and innovations, products and processes that could be largely marketable or commercialized. This argument can also be furthered that, as far as university-industry collaboration is concerned, the industries would please to tighten their assistance with universities if universities could satisfy the industries that they engage in researching on more marketable product rather than any embryonic type of products which would only remain in a paper.

### V. PATENT RIGHTS AND PUBLIC-FUNDED UNIVERSITIES

It is well established that universities are expected to work on education, research and further to fulfil its social responsibilities such as advising various faculties of the government, assisting the policy makers on policy matters and disseminating the new knowledge among the local and foreign institutions and agencies. Among these '*duties*' of universities, research works play a prominent place as it has a direct bearing on the socio-economic development of any country.

However, up to many recent years, it was the reality of many developing countries that University academics have attached far greater importance to writing academic papers and having them published in leading scientific journals/ publications rather than seeking patent protection for their innovative ideas or inventions or transferring this new technology to private

sectors/private industries for the purpose of commercialization or marketing the invention. In other words, it is obvious that many useful research results may remain unused on laboratory shelves of universities if a pro-active policy to transfer such results to industry is not undertaken. Hence, the importance of having this university-industry relationship can be justified in many respects.

In fact, working with industry is a multi-beneficiary option for universities, as business laboratories tend to be better funded and better equipped. Sometimes the level and quality of their research is as high as those of universities. In addition, students tend to prefer universities that have close working relations with industry, since such universities offers opportunities for finding good jobs after graduation.(Nezu, 2009)

Hence this research aims to see Possibilities of enhancing effectiveness of researches and inventions of universities through-an effective university-industry relationship(U-I Relationship) which can be built up by applying an effective intellectual property policy. This collaborative effort between universities and industries will also assist academic scientists who are typically lacked the market knowledge and the resources to successfully commercialize their own inventions by way of allowing them to own the intellectual property rights over the inventions created by them.

One of the main issues raised by many experts was whether public-funded universities be allowed to commercialize their inventions (that are created out of the funds granted by the government or a government agency) and allowed them to be profit-earning institutions. The argument was that this new phenomena would be a contradictory approach from its traditional or conventional role.

When the professionalism of universities are expected to enhance and when the universities are expected to produce quality products which can be commercialized through their research, there are several issues to be addressed. One issue is about the government policy as to the intellectual property status of research produced via government funds. Importantly, next one is regarding the ownership of the intellectual property created by inventors attached to universities. And no doubt, this ownership should be granted to a one who is selected from the main three responsible faculties, namely, the Government, the University and the Scientist/inventor. Because, as far as the research done by the public funded universities are concerned, it is obvious that there are several *intermediaries* involved with this process. Among them; the government as the funding

agency, the university as the Recipient and the inventor/scientist as the university employee attached to the institution play prominent roles. Hence, it is important to find out what should be the government policy as to the intellectual property status of research produced via government funds.

#### A. USA

In the USA, earlier situation was that invention derived from federally funded research ought to be made available to the public royalty-free and with non-exclusive licenses. In other words; The government shall retain title of the invention, a non exclusive patent right is granted to the university and the university was expected to use commercial development of the invention for the social welfare.

Present Position of USA with respect to commercialization of university research and collaborative research activities between universities /government funded research institutions and industries are well managed by the Bayh-Dole Act of 1981.

Referring to Bayh- Dole, some argues “possibly the most inspired piece of legislation to be enacted in America over the past half-century”.(S Ray & Saha, 2010). Many opinions over the impact of Bayh-Dole vindicate that Bayh- Dole clearly answered the question whether academic researchers can own and commercialize government-sponsored research. According to the Act, they not only can but are also obligated to do so. Bayh-Dole gave universities and businesses the ability to maintain title to their federally sponsored innovations.

The impact of Bayh-Dole has been highlighted by many critics. The earlier institutional framework in the USA, had typically encouraged or mandated federal agencies sponsoring research to make the results widely available to the public through publications made available in the public domain or through government ownership of patent titles for non exclusively licensing to multiple industry players....Firms(industries)in many cases, did not even get to know about the inventions taking place at universities and, even if they did, they were not willing to pick up these inventions in their nascent stage without exclusive patent licence.(Eisenberg (1996; Gallini, 2002)

Hence, as a result, Bayh-Dole granted intellectual property rights to universities, not to the inventing researchers and it established technology transfer offices in universities having powers to;

- i. patent prosecution
- ii. maintaining patent portfolios
- iii. licensing and

other coordinating works between universities and industries.

The proponents of Bayh-Dole type legislations further point out that, in USA, since 1984 university patenting and licensing have increased dramatically, as has licensing income from university research. Henderson et al (1998) observed that university patents grew more rapidly than overall US patents and much more rapidly than US domestic patents. It is also observed that the share of university patents in total US patents with domestic assignees, increased from less than 0.5 per cent in 1970 to nearly 4 per cent by 1999, and the rate of growth of this share began to accelerate just before 1980. (Mowery, 2005)

However, it should also be noted that there are different views on the success of Bayh-Dole among the scholars in the recent past. One argument is that Bayh-Dole is a legislation of country-specific. They argue that Bayh-Dole was passed in a climate of economic crisis in the USA, when there was a fear of loss of economic and technological leadership to Japan. This atmosphere contributed to the passage of Bayh-Dole despite little evidence it was needed, and minimal discussion of its potential cost. (Sampat, 2009; Mowery, 2004). Hence the mere application of a Bayh-Dole type legislation in developing countries, without judging the ground realities of the particular country, would not be a successful attempt as it was expected at the beginning. The strongest argument put forward against the success of Bayh-Dole Act in the USA and potential success of Bayh-Dole type law in developing countries is mainly based on its anti-public interest impact.

It is obvious that now there is some rethinking of this legislation even in the U. S. For example, some U.S. scholars opine that the Act inadvertently created a misalignment between the private interests of university technology transfer offices and public interests that benefit the innovation system at large. (Boettiger and Bennett, 2006). It is also reviewed that privatization of academic research can sometime hinder research and commercialization and hence, in response to this, the government and funders of research are increasingly exploring alternative to the Bayh-Dole model. (Lee, 2009; N. Sampat, 2009)

#### INDIA

Even in India, there has been a vast opposition against the adaptation of Bayh-Dole type legislation, titled the Protection and Utilization of Publicly Funded Intellectual Property Bill, 2008 (The Indian Bayh-Dole Act) in India. Some critics, while re-visiting to the traditional duty of universities to disseminate their knowledge in the public

interest by way of putting their research outcomes in public domain, argue against the fully privatization of innovation of public-funded universities. (It should be noted that under Bayh-Dole type Acts, allowing particular university to patent its research work and granting the right of licensing them to others means universities are allowed to acquire private right to sell their products.) It is the common belief of many moderate scholars that one of the main ways in which publicly funded universities and laboratories contribute to domestic innovation and productivity is by getting knowledge and technology into the public domain. One of the objectives of the Indian legislation is "to ensure access to university technologies by all stakeholders for public good." However, they argue that, Indian Bayh-Dole Act makes no distinction between the characteristic of inventions that should be patented, and those that would be more effectively produce social benefits via placement in the public domain. (Sampat, 2009)

Therefore, it should be noted that a Bayh-Dole type Act can not be considered as the only remedy available for smooth commercialization of university research and enhancing in-built relationship between university and industries. This type of law should inevitably take into consideration the fact that to what extent a university can deviate from its traditional duty of putting its research outcome into public domain. For universities, there must be a clear direction on what type of research works should be put into commercialization (by way of obtaining patent for them) and what should not.

#### VI. PATENT OWNERSHIP IN THE EMPLOYMENT POSITION OF SRI LANKA

Sri Lanka does not have a Bayh-Dole like law, instead we have the Intellectual Property Act of 2003. It is important to analyse whether there are provisions in the Act which deal with U-I relationship. In this respect, section 69 of the Act is noteworthy. It provides;

"In the absence of any provision to the contrary in any contract of employment or for the execution of work, the right to a patent for an invention made in the performance of such contract of employment or in the execution of such work shall be deemed to accrue to the employer.

Provided that,

Where the invention acquires an economic value much greater than the parties could reasonably have foreseen at the time of entering the contract of employment, the inventor shall be entitled to equitable remuneration which may be fixed by the court on an application made to it in that behalf. In the absence of an agreement between the parties.

Cornish points out, in free-market economics it is an assumption, by now largely unremarked, that a products of labour belong to the owner of the business. It has even been an accepted fact in England, he further argues, when Lord Simonds declares in *Patcehtt v Sterling* (1955) as; it is an implied term in the contract of service of any workman that what he produces by the strength of his arm or the skill of his hand or the exercise of his inventive faculty shall become the property of his employer.(Cornish, 2010)

However, it should be noted that it is not a mandatory theory that an employee is obliged to hold his invention for his employer under whatever circumstances. This is a matter which shall depend on factors such as the nature of the service provided by the employee, time of producing the invention, the nature of the invention and its relationship with the nature of the business of the employer.

The issue to be analyzed here is whether this concept that, the ownership of an invention made by an employee attached to an establishment during his employment primarily belongs to the employer, is something applicable to the inventions that are the product of academic research in higher educational institutions. For this, primarily two factors are expected to be established; namely, the particular researcher who has invented the new invention should be an *employee* of the university and the university must have the right to claim the ownership of the patent. The Issue here is whether a public funded university can claim the ownership of the patent. Especially without having a Bayh-Dole type Act by which the patent rights of inventions of universities are actually granted to the university. As has been analysed, there is a strong view that inventions of public-funded universities, other than using them for public benefits by way of allowing them to be in the public domain, should not be used for commercial purposes. Analysing the before 1980s in England, Cornish opines; most British universities did not seek to assert rights over inventions made by their staff. It was by and large assumed that commercialization of results was not part of their role as bodies sustained by government grants and student fees. At the same time Cornish accept the fact that when financial pressures built up upon them, however, they began to set up technology transfer offices in universities and to claim ownership of patents.(Cornish, 2010). The present position of UK law is provided by the section 39 of the UK Patent Act, which in effect departs only marginally from the common law principles which determines whether employer or employee is initially entitled to an invention.

However, in the context of promoting the university-industry relationships, factors such as researchers attached to universities and industries, their legal status, ownership of inventions invented by them should be clearly determined and established. In Sri Lanka, according to the above mentioned proviso( of section 69), the inventor shall be entitled to an equitable remuneration which may be fixed by the court if the invention acquires an economic value much greater than the parties could reasonably have foreseen at the time of entering the contract of employment in the absence of an agreement between the parties.

In an analysis, it is obvious that this section does not avoid the opportunity given to the parties to enter into a contract by including conditions even against the basic principle that the ownership of an invention made during the employment goes to the employer. In the UK, this depends on the policies of different universities. Cornish points out; each university sought its own resolution of the controversial issue by specific terms in employment contracts and these vary in content. Typically the university claims patent and associated rights from their grant onwards, but then offers inventors a considerable share in earnings.(Cornish, 2010)

However, it is submitted that, academic and university relationship cannot be equated with the ordinary employer-employee relationship. Hence, the general rules of ordinary employer-employee relationship cannot be applied in academic research in general as academics are entitled to their academic freedom as well. This academic freedom flows from an appreciation that the academics are both employees of their university and members of it!

Therefore it is recommended that in Sri Lanka, the government must have a clear IP policy on the ownership of inventions produced by universities. While determining the applicable law in general by the government, universities must be adequately given the freedom of deciding what percentage of income (or profit) the university should give the research-inventor as his part of contribution and the rationale of determining that. Further, universities must have a clear policy on the fact that what type of inventions should be used for commercial purposes and what should not. In short, if not determined by law, universities must be vigilant enough to distinguish, from their inventions, which one should be chosen for patenting (for commercialization) and which should not. In determining that, the *social welfare factor* of the particular invention need to be clearly identified. No doubt any invention made providing reliefs or healing against health issues and on medicare, inventions beneficial for desables, inventions based on

traditional knowledge etc., can be *per se* determined as pro-public interest inventions which should not be patented solely for commercial purposes.

#### VII. JOINT AUTHORSHIP- Section 67(2)

The concept of joint ownership is explained as follows;

“Where two or more persons have jointly made an invention, the right to a patent shall belong to them jointly”.

It is then important to see whether this concept can effectively be applied to university-industry collaborative works in Sri Lanka. It is evident that there is no clear definition provided for “joint-authorship” under Sri Lankan law. In the absence of having a definition, it is important to see how other jurisdictions define this.

According to UK position, *a person who has merely assisted in the creation of an invention but has made no contribution of a creative nature shall not be deemed to be the creator or a co-creator of such invention.* (Bently and Sherman, 2001) The question here is by whom and how it decides this *creative nature* of an invention? Because any assistance given by any industry or institution in the private sector to university research can be in different forms such as financial, laboratory and other technical type of assistance. It is questionable as to whether these assistances be identified as *contribution of a creative nature*?

It has been examined by the researcher that the very nature of joint ownership of patent could be identified by analysing the following factors.

i. by way of defining ‘inventor’ i.e. UK Patent law defines inventor to mean the ‘actual deviser’ of the invention. Joint inventors are construed accordingly.

ii. identifying ‘inventive elements’ of the invention - this is a matter to be decided by the court by analysing the descriptions/claims of the patent application. There, the court is expected to see whether the claimant was responsible to develop some or all of these elements.

iii. Joint ownership can also be decided by looking at the inventive contribution of each and every party.

It is submitted that in the absence of having a proper caselaw guiding principles like in UK i.e. *Moor v. Regents of the University of California*, to ascertain the nature of creative contribution by one joint owner, in Sri Lanka, it is hardly possible to determine this factor if any statutory guideline in law is not available.

#### A. Right to a Patent

In general, the right to be granted a patent is *primarily* given to the inventor or joint inventors. This is evident by section 67(1), (2) of IP Act 2003. It provides that; subject to the provisions of section 68 the right to a patent shall belong to the inventor.

It further provides that where two or more persons have jointly made an invention, the right to a patent shall belong to them jointly.

It is important to identify the underpinning rationale of this concept. Bently observes that; this focus upon the inventor follows the common practice whereby the creator is accorded the privileged status of first owner of intellectual property rights. (Bently, 2001)

However, an invention made in a contract of employment is an exemption to this phenomenon. As it has been earlier observed, *In the absence of any provision to the contrary in any contract of employment or for the execution of work, the right to a patent for an invention made in the performance of such contract of employment or in the execution of such work shall be deemed to accrue to the employer.* (emphasis added)

The underpinning rationale of this law is obvious. This section serves for the recognition of entrepreneurship, investments, giving recognition to the initiation of the work and the organizational skills of investors. However there are several issues to be recognized and examined under this section. In fact, this section should be analyzed in the backdrop of whether the real inventor, that is the employee, is entitled to include his name in the patent application or granted patent as the ‘inventor’.

It is an accepted law that the right of the employee, who is the actual inventor or developer of the invention, to be recognized (named) as the inventor (not as the patent owner) under the patent granted.

This has well been recognized in other laws i.e. UK Patent Act, s. 13, EPC Arts. 62, 81. According to this section, inventors are entitled to be named on the patent, even if they are not entitled to the patent.

It is submitted that this recognition is important in the phase of encouraging employees or university researchers in universities to engage in more effective and fruitful researches.

It is obvious that Sri Lankan patent law recognises the right of the inventor, even though he is an employee worked under a contract of employment to be named in the patent as the inventor of the device. Section 70 of the

IP Act of Sri Lanka provides that, 'the inventor shall be named as such in the patent...'

However, it is also submitted that the section 69 of the IP Act which recognizes the right of the employer as the patent owner does not cover the position of an employee who was a joint inventor with someone who was not also an employee of the institution. i.e. a university lecturer completes an inventive work after engaging in a collaborative research work with a researcher of a private company. It is yet questionable in this case whether the employer- the university in this case-is entitled to claim ownership to the whole of the property.

#### REFERENCES

- Bainbridge D. *Intellectual Property*, 3<sup>rd</sup> ed., Pitman Publishing
- Bently L and Sherman B (2001). *Intellectual Property Law*, 3<sup>rd</sup> ed., Oxford University Press
- Bhandari M K (2012). *Law Relating to Intellectual Property Rights*, 3<sup>rd</sup> ed., Central Law Publications
- Chandra R (2010). *Knowledge as Property*, Oxford University Press
- Chawla A (2013). *Law of Copyright; Comparative Perspective*, Lexis Nexis
- Cornish W and Llewelyn D (2010). *Intellectual Property Law: Patents, Copyright, Trademarks and Allied Rights*, 7<sup>th</sup> ed., Sweet & Maxwell
- Davis J (2012). *Intellectual Property Law*, 4<sup>th</sup> ed., Oxford University Press
- Flanagan A and Montagnani M L (eds.) (2010). *Intellectual Property Law Economic and Social Justice Perspectives*, Edward Elgar
- Ghidini G (2006). *Intellectual Property and Competition Law*, Edward Elgar
- Gupta V K (2004). Multi-disciplinary Studies on IPR in R and D: a Review, Vol 9, Journal of Intellectual Property Rights
- Nezu R (2009). Overview of Technology Transfer, IPR and Effective University-Industry Relationship
- Sampat B(2009) The Bayh-Dole Model in Developing Countries: Reflections on the Indian Bill Policy Brief October 2009
- Taraporevala V J (2013). *Law of Intellectual Property*, 2<sup>nd</sup> ed., Thomson Reuters
- Wadehra B L (2013). *Law relating to Intellectual Property*, 5<sup>th</sup> ed., Universal Law Publishing, New Delhi, India