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The Philippine Technology Transfer ACT [1]

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ABSTRACT

A brief discussion on the importance of technology transfer policy was discussed in this paper. It provided the significance of crafting a law for technology transfer and what are the pressing issues and challenges to be addressed. Related policies were also presented and how they became bases in developing the Philippine law on technology transfer. Salient provisions of the technology transfer act in the Philippines was also presented to showcase key points of this landmark law.

Key words: technology transfer, research and development, technology commercialization, intellectual property rights, competitiveness

INTRODUCTION

On March 23, 2010, President Gloria Macapagal Arroyo signed into law Republic Act 10055, otherwise known as the "Philippine Technology Transfer Act of 2009". Unknown to many, this law is a landmark science and technology (S&T) policy, which sets the tone for the country's publicly driven research and development (R&D) efforts. In general, this national statute has

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particular bearing on stimulating a national innovation system (NIS), which has now become a global by-word in development context. Innovation as described is an integral part in determining potentials, gauging performance, and setting directions on development of many industrialized and developed countries.

Meanwhile, policy analysts agree that effective innovation policies require intellectual property rights (IPRs) as incentives, and that the role of research and development institutes (RDIs) in developing countries may need to change (UN Millennium Project, 2005). To realize this, implementing national S&T policies for the developing world has become a priority in an effort to alleviate poverty, among other lingering issues.

As a matter of policy, the 1987 Philippine Constitution, Article XIV, Sections 10 to 14, recognizes that science, technology and innovation are essential for national development and progress. Accordingly, the state has been tasked to:

1. give priority to research and development, invention, innovation, and their utilization; and to science and technology education, training and services (Sec 10);
2. support indigenous, appropriate and self-reliant scientific and technological capabilities and their application to the country's productive systems and national life (Sec. 10);
3. regulate the transfer and promote the adaptation of technology from all sources for the national benefit (Sec. 12);
4. encourage the widest participation of private groups, local governments, and community-based organizations in the generation and utilization of science and technology (Sec. 12.); and
5. protect and secure the exclusive rights of scientists, inventors, artists and other gifted citizens to their intellectual property and creations, particularly when beneficial to the people, for such period as may be provided by law. (Sec. 13).

WHY THE NEED FOR TECHNOLOGY TRANSFER POLICY?

The need for a technology transfer policy is driven by a number of concerns. While public investments in R&D in the country leaves much room for improvement, the transfer of R&D results into the mainstream market and making them available to the public has been a dead end question in public laboratories and research and development institutes (RDIs). In fact, at the Department of Science and Technology (DOST), a 2005 internal study revealed that out of 258 technologies derived from DOST-funded R&D for a period of ten years, only three (3) % have partnership or licensing agreements and only 28 % are available for commercialization but with no takers from the private sector yet. Although sixty-five (65) % are already being utilized, this falls short in pushing the level of innovation forward since these technologies are intended really for key commodities.

Hesitation had been noted among our scientists and researchers to apply protection for their research outputs which is often borne by the fear that once become known in the open, these would be stolen or replicated. This is further fueled by the long-standing mistrust on the State's ability to uphold intellectual property rights (IPR) protection for their works. Some have limited knowledge on the benefits of securing protection while others feel that the effort is not worth the time and cost. Yet, because of the prevailing "publish or perish" incentive scheme in the academic world, they had to report findings in peer-reviewed journals. These findings therefore remained as mere outputs of academic exercises. Unprotected, these are vulnerable to

exploitation by technology prospectors, many of whom have become wealthy from such publicly funded discoveries (Justimbaste, undated).

ADDRESSING TECHNOLOGY TRANSFER PROBLEMS

An internal study by DOST in 2007 revealed the following major constraints to technology transfer: (1) weak public-private collaboration in R&D; (2) lack of harmonized, coordinated and integrated technology transfer system; (3) issues on technology ownership and information sharing; (4) weak support to S&T and lack of resources for technology transfer; (5) weak Intellectual Property regime in the country; and (6) policy setbacks.

Weak public-private collaboration

Unlike in most developed economies where there is strong public-private collaboration from the planning stage to R&D and technology transfer phase, technology generation activities in the country, particularly those that are publicly funded, are often regarded as not receptive to industry needs. The 2009 innovation survey indicated that the industrial sector acquired technologies from all sources except public R&D institutions.

Weak technology transfer system/policy setback

Harmony and convergence of technology transfer policies and activities is lacking among stakeholders such as research and development institutions, government agencies, private entrepreneurs, and venture capitalists. Some do not even have technology transfer policies/guidelines to follow.

Technology ownership and information sharing issues

The absence of an institutional mechanism for technology transfer, such as a technology transfer office, contributes to the instability of technology property rights especially if these came from publicly funded research. Because of weak IPR culture, there are scientists who do not want to negotiate or part with the technology believing that it would be disadvantageous to them. Others believe that results of publicly funded are outright "public goods" which should be made available for use by everyone. Still, there are those who oppose granting exclusive license to a technology especially if it is generated out of public funds because current government accounting and auditing system deems it as government property.

On information sharing, existing laws are not clear on the extent of technology sharing in cases where experts from public R&D institutes are tapped as industry consultants. Policies are also not clear on the limits of information that can be shared for publicly generated technologies.

Weak intellectual property cultureworldwide.

It is increasingly recognized that market-oriented mechanism such intellectual property (IP) is important in encouraging innovation, diffusing scientific and technical knowledge, and in enhancing market entry and company creation. The experiences of other countries show that in order to enhance the impact of publicly-funded R&D on the economy, the protection of

intellectual property assets arising from research and development (R&D) projects funded fully or in part by national government agencies have encouraged the commercialization of publicly-funded R&D results bringing about significant socio-economic benefits to the society and private individuals. IP rights, of which patents, industrial designs, copyrights and trademarks are among the most widespread, reward investments in R&D and innovation by granting inventors and creators market power over competitors.

Lack of resources for technology transfer

Considering the comparatively limited budget for S&T in general appropriations, public support for S&T continues to be inadequate. In a 2005 data at the DOST, the expenditure on R&D amounted only to 0.12% of the Gross Domestic product (GDP), too low as compared to the 1% GDP prescribed by the United Nations.

Policy setbacks

In many countries, governments have recognized that placing the outputs of publicly funded research in the public domain is not sufficient to generate social and economic benefits from R&D. Granting R&D institutions the rights to IP generated with public funds can lead to better use of research results that might otherwise remain unexploited, as well as to the creation of academic spin-offs or start-ups that create jobs, income and wealth. However, these assertions are open to questions of whether or not there is prior and existing policy in coordinating all the factors in the technology transfer process.

As a result of these problems, the country generated a very low number of homegrown patents (about one granted per million population) compared to its Asian neighbors. Given the low number of patents granted to Filipinos in the country, it appears that many scientists and researchers are not fully aware of the potential benefits and implications of owning intellectual property rights. Despite efforts initiated by the Intellectual Property Office of the Philippines (IPO) to conduct familiarization programs for the science community to be aware of IPR benefits under the Intellectual Property Code of the Philippines (Republic Act 8293), IPO6 reported a dip in the number of local patents granted, with only 15 local patents granted from a total of 1,653 granted in 2005 and only 28 out of 1,814 granted in 2007.

All these pitfalls are further reflected on how the country performed in international innovation ratings compared to the other ASEAN countries as shown in the recent Global Competitive (GC) Survey (Table 1).

Compared to our ASEAN counterparts, in terms of technological readiness or the ability to adopt technologies, the Philippines ranked 95th with Singapore (11th), Malaysia (40th), Thailand (68th) and Vietnam (65th). On innovation or the ability to produce brand new technologies, the country was at the bottom in 111th place as against Singapore (9th), Malaysia (24th), Indonesia (36th), Vietnam (49th) and Thailand (52th) (Table 2).

On the availability of latest technologies, the Philippines was at 63$_{rd}$ place, with Thailand (64th), Malaysia (35th) and Singapore (20th) ranked higher than the country. Moreover, the Philippines ranked 80th in its capacity for innovation and 103rd in provision of IP protection (Table 3).

Table 1. Global competitiveness ranking 2009-2010 & 2010-2011 comparison

Selected Countries	**2010-2011 a/**	**2009-2010 b/**
Singapore	3	3
Malaysia	26	24
Thailand	38	36
Indonesia	44	54
Vietnam	50	75
Philippines	85	87

a/ covers 133 countries; b/ covers 134 countries

Table 2. Global competitiveness ranking in terms of technological readiness and innovation

Selected Countries	**Technological Readiness**		**Innovation**	
	2009-2010	2010-2011	2009-2010	2010-2011
Singapore	6	11	8	9
Malaysia	37	40	24	24
Thailand	63	68	57	52
Indonesia	88	91	39	36
Vietnam	88	65	44	49
Philippines	**73**	**95**	**99**	**111**

Table 3. GC ranking for selected variables, 2009-2011

Item	**Singapore**	**Malaysia**	**Thailand**	**Indonesia**	**Vietnam**	**Philippines**
Availability of latest technology						
2009-2010	14	36	52	72	81	57
2010-2011	20	35	64	77	109	63
Firm-level technology absorption						
2009-2010	13	37	61	65	51	54
2010-2011	15	30	66	65	60	59
Capacity for innovation						
2009-2010	18	25	59	44	33	70
2010-2011	17	25	56	30	32	80
IP protection						
2009-2010	1	33	54	31	62	95
2010-2011	3	33	34	58	109	103

THE WAY FORWARD FOR PHILIPPINE'S TECHNOLOGY TRANSFER

Such setbacks may have been avoided had there been a favorable structure for technology commercialization backed by a legislative policy to set the system in motion. The challenge, therefore, was to provide a conducive policy environment that would give due flexibility and benefit for our RDIs to maximize the use of the IPs they generate and move fruits of research and creative efforts from laboratories to the marketplace.

Learning from the success of the United State's Bayh-Dole Act, proponents at the DOST drew inspiration from this policy to pursue a similar framework on technology transfer. Prominently, it enabled some 40 billion dollars in economic activity that generated more than 270, 000 jobs in 1999. Since 1980, Bayh-Dole generated some 5,171 start-up companies. In 2005 alone, there were already 628 start-up or spin-off companies and 4,932 licenses across the United States (AUTM Licensing Survey, 2005).

The Bayh-Dole Act contributed significantly in facilitating the transfer of government-funded research results from universities to the commercial sector in the U.S. (PCAARRD, 2002) and was described by experts to have spawned the biotechnology revolution and revitalized US industrial innovation that addressed the failure to transfer technological breakthroughs from university laboratories to the market place (The Bayh Dole Act at 25, 2006). Cognizant of such a promising opportunity, the Philippines simply cannot afford to be left out.

Thus, in late 2007, following a national stakeholders consultation initiated by DOST and massive advocacy for the country to have technology transfer policy, House Bill No. 3270 and Senate Bill No. 1721, entitled "Technology Transfer Act" were simultaneously filed in Congress by Representative Joseph Emilio A. Abaya and Senator Edgardo J. Angara.

SALIENT PROVISIONS OF RA 10055

This Act carries with it the following unique provisions that would effectively address technology transfer constraints that were the basis for the crafting of the law:

Ownership of technologies/IPs

As a default provision, the law10 significantly provides for the retention of ownership of IPRs derived from research funded in whole or in part by the Government Funding Agency (GFA) to the RDI or contractor that actually implemented the research. This is a departure from the traditional "title-in government" policy, wherein GFAs are the default owners of the research output. This has particular reference to the provisions in the Bayh-Dole, which allowed for 'title-in contractor' provision, enabling universities cum research contractors to exploit the potential and mature IPRs.

Revenue sharing

When it comes to sharing of revenues, the default rule is that all revenues from the commercialization of IPs and IPRs from R&D funded by GFA(s) shall accrue to the RDI11, while sharing between the RDIs and their researchers shall be governed by an agreement, but shall not diminish the 40 % share in royalties of scientists, engineers, and researchers under Section 7 (b) of RA 8439.

Use of income

On the use of income, public RDIs undertaking technology transfer shall be vested with the authority to use its share of the revenues derived from commercialization of IP generated from R&D funded by GFAs12. All income generated from commercialization of IPs and/or IPRs from R&D funded by public funds shall be constituted as a revolving fund for specific uses, including for use of defraying the cost in technology transfer and IP protection.

The 'fairness opinion' option

This law13 is armed with a special provision providing for a fairness opinion report when it fails to benefit from public bidding. It provides the alternative to RDIs or any contractor undertaking commercialization to avail of the fairness opinion report, in lieu of the tedious government procurement process to hasten commercialization of IPRs/IPs in public RDIs.

Capacitating technology generators

In terms of capacity building, DOST is mandated to take the lead in enabling smaller RDIs to be capacitated such that they'll be able to manage and commercialize their own IPs and IPRs efficiently. The law likewise provides for enabling institutional mechanisms to hasten commercialization such as the establishment of Technology Licensing Offices and Technology Business Development Offices. RDIs are also mandated to craft their own IP policy frameworks with reference to the law.

Compulsory Licensing and March-in rights

A safeguard provision14, allowing government to assume ownership or use to exploit in cases of national emergency or other circumstances of extreme urgency, is provided for in the law. Also, in the event where RDIs fail to commercialize or file protection for potential publicly funded IPRs, the GFAs can take over ownership of the technology. However, the rights to the potential IPR shall revert to the RDI upon the cessation of the existence of the cases or when RDIs elect to recover ownership as determined by the designated authority.

Commercialization by researchers and spin-offs

In meritorious cases and to help ensure successful commercialization, the law15 indicates that an RDI shall allow its researcher-employee to commercialize or pursue commercialization of the IP and/or IPRs generated from R&D funded by GFA by creating, owning, controlling, or managing a company or spin-off firm undertaking commercialization, or accepting employment in a spin-off firm undertaking such commercialization. The spin-off or start-up company will provide the mechanism to manage and commercialize the IPR into profitable venture. The employee-researcher can own, manage, control, or work as consultant or employee in the spin-off company undertaking the commercialization without formally leaving the RDI.

Institutional mechanisms.

To ensure commercialization, the law provides for mechanisms that will enhance the environment for diffusing technologies or IPRs. The Act16 mandates the Establishment of a Technology Information Access Facility, Technology Licensing Offices (TLOs) and/or Technology Business Development Offices and development of Internal IP Policies.

Impacts on stakeholders

Inherently, the law will have positive impact on researchers, RDIs, the public and even on the country's eminent and traditional resources provided that it is efficiently implemented and enforced. It will allow faster diffusion of valuable research outputs, thus ensuring accessibility and availability of important technologies or by-products (medicines, farm inputs, etc.) to the public. The creation of spin-off companies could mean more job opportunities for Filipinos.

For researchers, it will create a financially rewarding environment for them by virtue of a mandated 40 % minimum share in royalties. It is also seen that R&D workers would stick to their careers locally, and reversing the trend of brain drain among R&D workers or shifting to non-science jobs. More researchers would also venture to S&T/research, which in effect could generate more technological innovations and breakthroughs.

For RDIs, this would generate increased licensing and royalty revenues given the fact that the IPRs are lodged to them via assignment. This would also encourage more R&D activities and greater cross-fertilization between entrepreneurial faculty and industry. If sustained, this will pave the way for better quality research, with closer interaction between public and private sector.

As for our traditional resources, the protection of IPR assets from biodiversity and genetic resources, traditional knowledge, and indigenous knowledge systems and practices as defined in the Indigenous Peoples Rights Act and the Wildlife Act, will now be ensured through disclosure procedures during application for IPR protection.

CONCLUSION AND POLICY INSIGHTS

In essence, this law is touted as a landmark statute in the area of S&T policy development in the country. On the minimum, it sets the benchmark in setting off technology commercialization in RDIs using public funds, while on the maximum, it is expected to create wealth and services that would redound to the benefit of the public given its optimum implementation. Underscoring the importance of technology transfer as an engine to move the country forward into attaining better technological performance through this policy is a penultimate and decisive step for the country's vision of becoming a new innovation hub in this part of the region.

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