

ENHANCEMENT OF EFFECTIVENESS OF INVENTION ACTIVITIES OF VIETNAM PUBLIC UNIVERSITIES THROUGH RECOVERING BARRIERS OF THESE ACTIVITIES

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Abstract:

One of the indicators to evaluate competitiveness of universities is their scientific research capacities where inventions are specific products of research activities. The quantity and quality of inventions present not only research capacities of universities but also science-technology (S&T) and economic competitiveness of a nation. Universities could not keep outside positions in activities of invention creation and protection in the mission for national S&T and economic development. However, the quantity and quality of inventions developed by Vietnamese universities remain limited. This paper shows the actual situation of activities of inventions in Vietnam public universities.

Some notions related to inventions and invention protection are referred Vietnam's Intellectual Property Law, 2005 which was revised and amended in 2009. Invention activities in public universities are referred to a series of activities to create and explore inventions as well as to protect them from their funding sources. It is necessary to note the main tasks of universities are training and researching. Therefore, the center of evaluation of the effectiveness of invention activities of universities is not mainly turned to economic-commercial aspects.

Keywords: *Public universities; Intellectual property (IP); Invention activities; Scientific research capacities.*

1. Actual situation of invention activities of Vietnam public universities

1.1. Creative activities and establishment of rights towards invention

Vietnam public universities have large human resource potential for creation activities with 337 public universities and colleges and more than 70 thousands of teachers (45 thousand of them hold post-graduate degrees) and the annual enrollment of hundreds of thousands students¹. Among them only those universities which are in field of social sciences cannot have inventions and some research areas of other universities are not listed under IP protection as inventions². Surveys of data made public by Vietnam Intellectual Property

¹ According to Vietnam Statistics Office, <http://www.gso.gov.vn/default.aspx?tabid=435&idmid=3>

² Refer to Article 59, IP Law: *Objects not protected as invention* and Classification of S&T research scope issued as attachments to Decision No. 12/2008/QĐ-BKHHCN dated 4 September 2008 by Ministry of Science-Technology (MOST) and Decision No. 37/QĐ-BKHHCN dated 14 January 2009 by MOST adjusting Decision No. 12/2008/QĐ-BKHHCN).

Agency show the minor rate of inventions filed by public universities and the growth rate is very slow ³ in comparison to other institutions. Statistic figures by Intellectual Property Agency (for period from 1 January 2000 to 19 April 2011) the number of inventions granted of patents of public universities made only 4%, the utility solutions made only less than 3% of the total numbers. Concretely it can be seen in Chart 1:

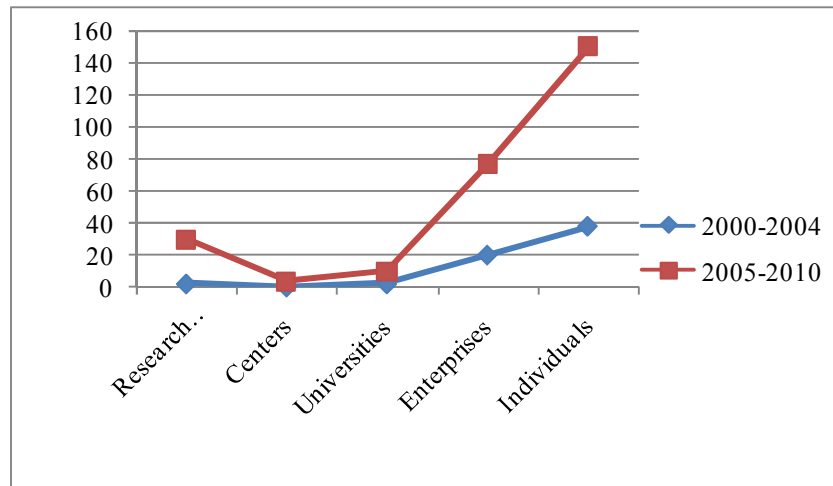


Chart 1: Number of inventions by ownership classification

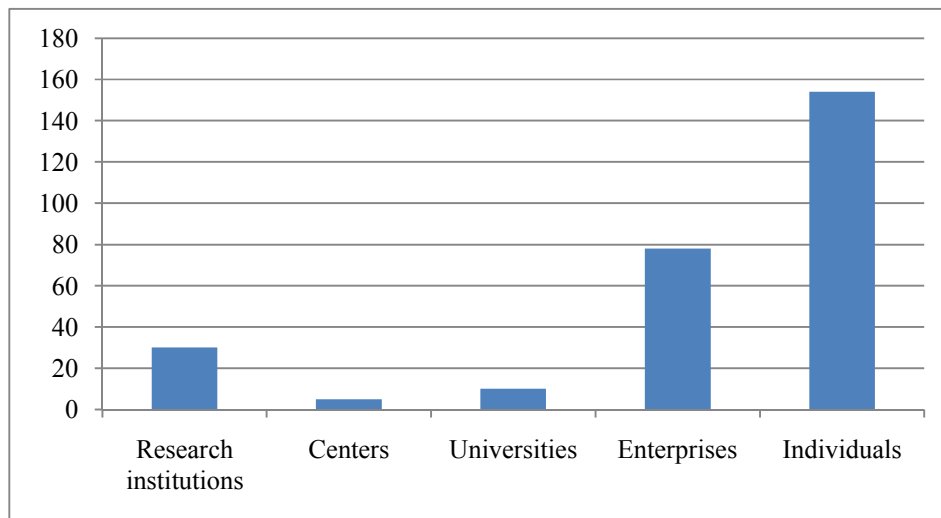


Chart 2: Number of patents by ownership classification

³ The survey made by the author deals only with inventions registered by public universities as owners.

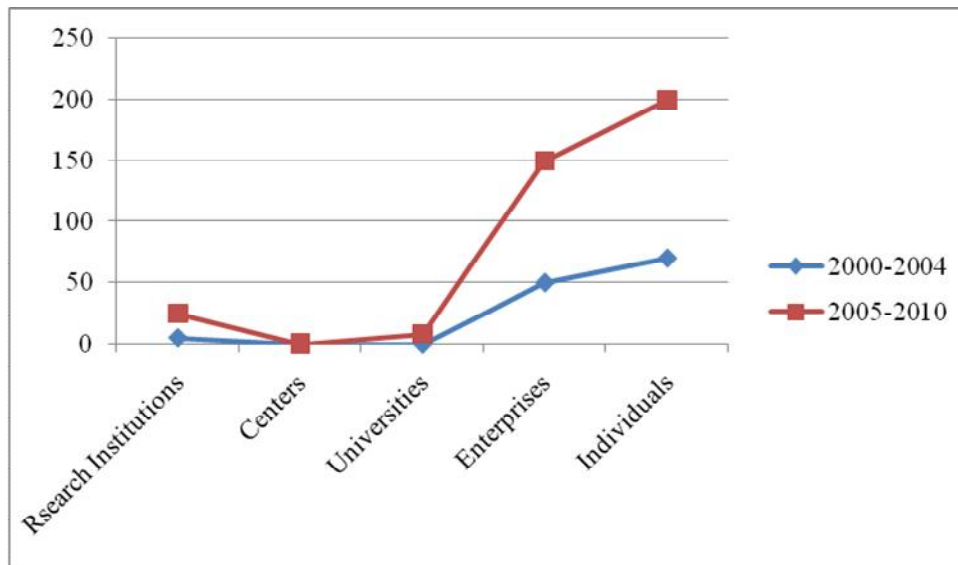


Chart 3: Number of utility solutions by ownership classification

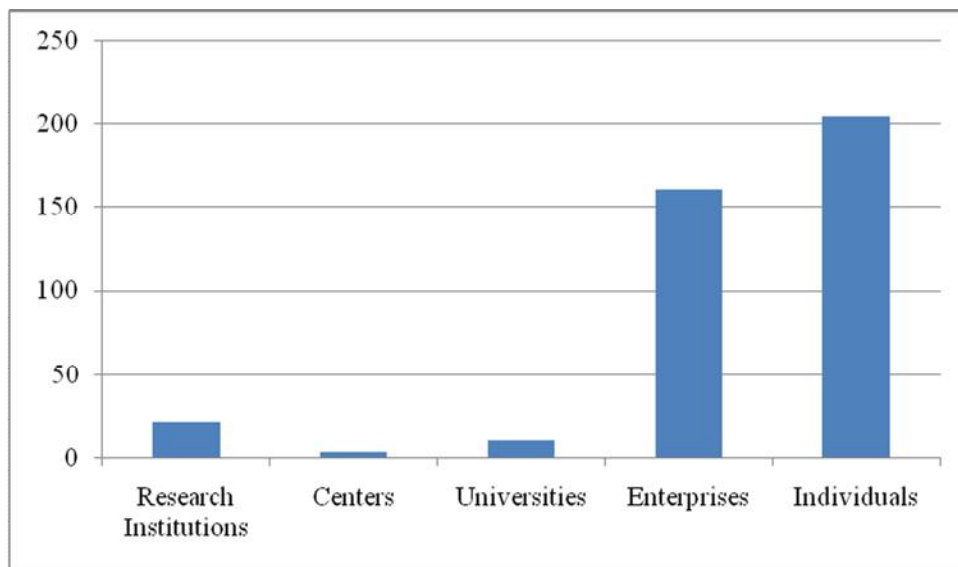


Chart 4: Number of exclusive utility solutions by ownership classification

(Source of Charts 1, 2, 3, 4: Intellectual Property Agency, Official Letter No. 4561/SHTT-TT on supply of information on inventions/utility solutions, 29 July 2011)

The data collection by the author based on data from Intellectual Property Agency from May 2011 up to now shows that the number of applications of inventions from universities increased by 19 applications, the number for utility solutions is three applications. Eight applications get patents and the same number for utility solutions.

It is necessary to note that the inventions registered in Intellectual Property Agency come mainly from some big public universities of Vietnam. Since 2011, private universities started appearing in this field.

In term of quality, experts from Intellectual Property Agency note: “*The quality of applications of inventions by Vietnamese owners is not high which is seen through the quality of description of inventions (the descriptions do not present yet inventions in full, clear and integrated manner, they do not illustrate the applicability of solutions then examiners are unable to assess the solution) which lead to low chances to get patents*”⁴. It is also the main reason to explain the high rate of refused applications from public universities in stage of formal examination. Almost they refused applications are cases where the universities prepare themselves the application without leasing a service from IP dealers⁵.

1.2. Commercialization activities of rights towards inventions

Public universities actually may commercialize themselves their rights towards inventions or transfer them to other sides. Annual reports by Intellectual Property Agency show the absence of transfer contracts for inventions developed by public universities. These show low economic values from patents granted to inventions/utility solutions and universities do exploit them efficiently.

Another particularity is that the inventions are developed from university funds but the authors do the registration and they do themselves the commercial exploitation of inventions then it is very control these activities. The case of Hochiminh City National University is for example: the University website shows that 9 inventions developed by the University had got patents and the applicants are member universities. However, more detail checks of data sources of Intellectual Property Agency show that all of these inventions were registered under individual owners which are in fact the authors of the inventions.

1.3. Activities of protection of rights towards inventions

Surveys made by the authors show the most noted remark is that there is no violation reported for inventions developed by public universities. However, this reality does not make sure that there are no risks of violations for these inventions. The main solution now is to enhance awareness of teachers and students through lessons and promotional activities on IP. Other measures more powerful such as to organize a special in-charge unit and/or a control

⁴ Intellectual Property Agency, Referenced Official Letter, p.3

⁵ See the legal status of applications at <http://iplib.noip.gov.vn/>

system for inventions and other IP related matters only initially implemented by a few universities.

2. Identification of barriers to invention activities in public universities

From the above noted remarks and analysis some barriers to inventions activities in public universities can be identified as follows.

2.1. Scheme of State budget expenditure for scientific research activities

As practice shows, the State budget allocated for S&T research activities in public universities is not so small. The question is why these rich funds could not produce inventions of corresponding values. The answer proposed by the paper's author comes from the inadequate way the State budget money is used for scientific research activities. The following table shows the State budget allocations for scientific research for the two big public universities of Vietnam: Hanoi National University and Hochiminh City National University.

Table 1: State budget allocations for scientific research activities in Hanoi National University

(Unit: million VND)

No	Member universities	2006	2007	2008	2009	2010
1.	University of Natural Sciences	14800	13115	10715	10815	10280
2.	University of Social Sciences and Humanities	1760	2210	2830	3510	5020
3.	University of Foreign Languages	1280	1320	1620	1960	1410
4.	University of Technologies	2085	2620	1955	4538	2620
5.	University of Economics	580	630	900	1595	1785
6.	University of Education	380	380	865	1120	545
7.	Law Faculty	490	460	580	500	590

(Source: S&T Division, Hanoi National University)

Table 2: State budget allocations for scientific research activities in Hochiminh City National University

(Unit: million VND)

No	Member universities	2006	2007	2008	2009	2010
1	University of Natural Sciences	5959	6508	18427	9235	6319
2	University of Social Sciences and Humanities	1251	2300	3598	1855	2130
3	University of Science-Technologies	6769	10331	20129	13076	12241
4	International University	655	431	570	1240	1550
5	Information Technology University	530	260	593	691	1125
6	University of Economics-Laws	280	770	375	400	417

(Source: S&T Division, Hochiminh City National University)

Data show the investment priority of the two universities for research activities in fields of natural sciences and technologies which are capable to produce inventions. However, the number of inventions granted of patents remains limited. Data made public on websites⁶ of these universities show that Hanoi National University has one patent for inventions and one patent for utility solutions and Hochiminh City National University has 9 patents for inventions and 2 patents for utility solutions. Could one say that the budget allocations are not adequate? More than that if the investment volume is spread largely they would not be capable to make outstanding results. To knowledge of the paper's author, the fund for every University level research projects for teachers varied from tens millions to hundreds million VND and the one for students is about VND100,000 by a research project. This modest fund volume is difficult to produce valuable research results, particularly the ones which require hard tests and applications as inventions.

2.2. Orientations of research activities in public universities

The orientations of research activities are very important to produce valuable research results. They would help:

- Promoting national advantages;
- Catching up S&T development trends. This aspect is very important since it helps to avoid the made thing to secure the novelty of inventions to be registered;
- Meeting social needs.

However, the practice of invention activities in public universities does not show the background to get these benefits.

Statistic figures and classifications of patents for inventions and utility solutions of public universities (by Intellectual Property Agency from 1 January to 19 April 2011) show the majority of these patents are in Group C (for chemical metallurgy) and some are Group A (for human life needs)⁷. This fact shows that the research investment is not made equally for fields and there are not inventions based on advantageous fields of Vietnam.

2.3. Policies for construction and development of intellectual assets

In 2008, Ministry of Education and Training issued Decision No. 78/2008/QĐ-BGDĐT on management of IP activities in public universities. Accordingly,

⁶ Refer to the number of patents of Hanoi National University at: <http://www.vnu.edu.vn/home/?C2024>, and the one of Hochiminh City National University at: http://khen.vnuhcm.edu.vn/website/notice.aspx?_pageId=6®ist=1

⁷ Refer to the number of patents of Hanoi National University at: <http://www.vnu.edu.vn/home/?C2024>, and the one of Hochiminh City National University at: http://khen.vnuhcm.edu.vn/website/notice.aspx?_pageId=6®ist=1

some universities and colleges set up regulations for IP protection. However, there exist some limitations for capacities to create and develop inventions of universities, namely:

First of all, there are no clear and adequate definitions, in official documents by State agencies in general and by universities in particular, of background for rights, benefits and liabilities sharing of sides related to IP assets developed from State budgets and University funds sources. Existing regulations do not make distinguish *copyrights* and *author rights* then lead to mistakes in interpretation of rights. In practice, the definition of author rights, owners and owners' rights in inventions developed by public sources is still confused because of lack of clear and adequate regulations. Also, a more difficult thing for public universities is related to inventions developed from research results by students. Regulations on scientific research by students in public universities and colleges (issued as attachment to Decision No. 08/2000/QD-BGD&DT dated 30 March 2000 by Minister for Education and Training) have no concrete rules on ownership and registration status of inventions developed by students. Some universities and colleges define that the universities are owners of the research results. Students conducting scientific research activities get paid for research activities. These supports for students are minor but require hard research efforts and the students are not recognized as owners of intellectual assets. This matter needs to be considered in more details.

Second, there is a lack of supports for researchers to develop creative inventions, to establish the rights, to commercialize the rights and to protect their rights. The State had issued some legal documents and regulations to encourage creative activities and support policies noted in Circular No. 52/2007/TT-BTC dated 21 May 2007 on Guidelines of financial supports for Technical Creation Contest which are related to establishment of rights, e.g. *"Supports for authors to register IP rights: nor exceeding VND6.5 million per invention,..."* (Item 2.3, Article 2-II, Circular No. 52/2007/TT-BTC dated 21 May 2007). However, this regulation item was not officialized in documents by universities in their policies to build and develop IP assets. Other supports such as establishment of an unit specifically in charge of IP matters were implemented in a very few universities.

Third, regulations of management of IP assets of some universities miss clear policies of commercialization and protection of IP assets. Vietnam had set up a legal framework to push up technological transfer but the documents are overlapping and non-integrated which lead to difficulties in technological transfer electro-chemical. The universities are required to have more concrete solutions for commercialization of their IP assets where particular attention should focused on benefit sharing between sides for developed inventions.

2.4. Promotion of knowledge and skills for IP matters in general and inventions in particular

The regulations issued by Ministry of Education and Training do not have any requirement to introduce IP matters as compulsory teaching discipline and so the IP matters are introduced independently according to needs of every university⁸.

The low IP knowledge level limits also capacities to get benefits from invention information for creative activities. Invention information is important sources reflecting legal status and technical nature of inventions when they are made public through registration process. This is an open source for free access very beneficial for researchers and exploiters of research results since they allow to avoid repeated researches and to follow development trends of technologies and technologies related competitions.

3. Some solutions to promote invention activities in public universities

3.1. Enhancement of IP promotional activities and knowledge diffusion

The introduction of IP related disciplines in general and inventions in particular in public universities are urgent needs of modern society. Therefore, Ministry of Education and Training and public universities themselves need to identify concrete orientations in this field. On basis of their capacities and needs the public universities can introduce IP related discipline at different levels, from a compulsory discipline to Master or Doctor Degree level. The IP teaching programs can be independent or integrated in other related disciplines.

3.2. Enhancement of supports for inventors

First, more investment is required for infrastructure of scientific research which would stimulate creativity of researchers and offer solutions for higher quality of creative activities. Policies of investment for R&D activities need to be clear and target oriented to promote Vietnam advantages or to meet social needs.

Second, research orientations are crucial elements. The model of research teams headed by leading experts in research fields would let increase the quality of developed inventions.

Third, a department special in charge of IP activities should be set up which would provide consulting service and implement IP related activities. This unit can be set up as an independent unit or an unit of S&T department to keep functions of:

⁸ See more related research works by Dr. Nguyen Thi Que Anh (Law Department, Hanoi National University): tapchi.vnu.edu.vn/1_208_KThuat/2.pdf, Dr. Tran Van Hai (University of Social Sciences and Humanities, Hanoi) in *Journal of Science Activities, Ministry of Science & Technology, No. 573, February 2007*.

- Assisting researchers in provision of invention information;
- Consulting activities to get the highest chance of research results to be protected (to meet requirements for protection);
- Connecting inventors and exploiters to get the highest effective commercialization of research results.

Actually, some universities have implemented this model and they gain certain positive results.

3.3. Establishment and implement of regulations for management of IP assets in general and inventions in particular

The establishment of regulations for management of IP assets in general becomes an urgent topic for public universities. They need to issue concrete policies for developed IP assets and strategies for their effective exploitation and development to avoid wastes and losses observed actually. Some of them require special attentions, namely:

- *Author status and author rights of developed IP assets*
 - + Authors are those who directly develop research results;
 - + Author rights: authors are fully entitled of untransferable Right to Personal Liberty (regulated by Article 19.1 and 19.4, Intellectual Property Law). Rights to make works public and assets rights are defined actually on case-by-case basis according to established contracts and defined sharing basis between authors and owners of IP assets.
- *Owners and rights of owners of IP assets developed by universities.*
 - + Universities are owners of developed IP assets on basis of work assigning documents or contracts signed between universities and researchers where financial sources come from State budgets, developed through local/international cooperation projects of universities, and working time or university's infrastructure are used;
 - + For other cases, owners are defined according to contractual terms and conditions. If no contracts were not established, researchers are acknowledged owners of research results they developed;
 - + Rights of owners: owners have rights to make public research results (regulated by Article 19.3, Intellectual Property Law) and get benefits from these assets according to established contracts and regulations of benefit sharing between authors and owners of university owned IP assets.

- *Benefit sharing of benefits of university owned IP assets.*
 - + The benefit sharing terms between authors and IP owners need to be clear in every case, namely: full or partial use of State budget, local/international cooperation projects of universities, and use of working time or university's infrastructure. Terms and conditions for benefit sharing between authors and owners need to be identified clearly in case of IP asset transfers.

Annex 1. Information about patents of inventions by public universities
(Since 1 January 2000 to 19 April 2011)

Ref. number of appli.	Ref. number of patents	Title of inventions	IPC based classification							
			A	B	C	D	E	F	G	H
1-1999-00857	1897	Crystallized form of rotundin sulfat components and bearing pharmaceutical products	1							
1-2008-00192	8317	Dracagenin B component and its extraction methods from <i>Dracaena cambodiana</i> plant	1							
1-2000-00442	3638	Producing procedure of cobra anti-venom serum and the serum products			1					
1-2000-00443	3637	Producing procedure of <i>cham quap</i> anti-venom serum and the serum products			1					
1-2002-00243	3809	Ex-furnace steel refining methods			1					
1-2006-00932	8077	Kaolin based nano-zeolite X material synthesis methods			1					
1-2006-00933	8078	Zeolite NaX producing methods directly from non-fired kaolin			1					
1-2006-00934	8079	Zeolite NaY producing methods directly from non-fired kaolin			1					
1-2007-01077	7523	Producing methods of <i>Ngoc Linh</i> Ginseng Root Cell Biomass			1					
1-2006-00458	6017	Digital magnetic exciting box of hydropower plants								1
		Total	2	0	7	0	0	0	0	1

Source: Intellectual Property Agency, Official Letter No. 4561/SHTT-TT on supply of information on inventions/utility solutions, dated 29 July 2011, Hanoi.

Annex 2. Information about patents of utility solutions by public universities
(Since 1 January 2000 to 19 April 2011)

Ref. number of appli.	Ref. number of patents	Title of utility solutions	IPC based classification							
			A	B	C	D	E	F	G	H
2-2003-00034	396	Jem holding structure for jewelleryes	1							
2-2004-00149	450	Average Ferro Magnan Carbon producing methods			1					
2-2006-00103	805	Producing method of zeolite 4A from Vietnamese kaolin			1					
2-2006-00104	806	Producing methods of zeolite NaY of Si/Al rate of 1.9 from Vietnamese kaolin			1					
2-2006-00105	807	Producing methods of zeolite 13X from Vietnamese kaolin			1					
2-2009-00007	808	Synthesizing methods of zeolite NaY from phlogopite argil minerals			1					
2-2009-00008	809	Synthesizing methods of zeolite NaX from phlogopite argil minerals			1					
2-2009-00009	810	Synthesizing methods of zeolite NaP1 from phlogopite argil minerals			1					
2-2009-00010	811	Synthesizing methods of zeolite NaA from phlogopite argil minerals			1					
2-2009-00022	821	Extracting and refining methods of ostrich oil			1					
		Total	1	0	9	0	0	0	0	0

Source: Intellectual Property Agency, Official Letter No. 4561/SHTT-TT on supply of information on inventions/utility solutions, dated 29 July 2011, Hanoi.

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