

SOME ACTUAL PROBLEMS OF FINANCIAL MECHANISMS FOR SCIENCE AND TECHNOLOGY ACTIVITIES IN VIETNAM

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Abstract:

In actual international integration trends, the science and technology (S&T) is one of the main actors causing great impacts to socio-economic development of the country. S&T is the key for shortening the process of industrialization and modernization in efforts to catch up other nations in the world. S&T is the deciding factor for implementation of objectives to shift our economy to the knowledge based economy in the actual process of globalization.

It is a reality that our S&T capacities remain low. There exist many reasons of that and among them are the financial mechanisms actually applied in S&T sectors. The financial mechanisms play especially important roles among all the other mechanisms and policies for S&T development. The financial mechanisms are key factors to decide successes or failures of strategies of S&T development of every nation.

This paper has objectives to indicate some shortages in financial mechanisms, from establishment and distribution up to use of financial resources invested for S&T sectors which are found weak and limited. On this basis, the paper provides some suggestions and proposals related to innovation of financial mechanisms for S&T activities in Vietnam in purpose to produce highest effects for the national economy.

Keywords: Financial mechanism; S&T activities.

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1. Some aspects of financial mechanisms in S&T activities

According to Dictionary of Economic Terms (pp. 120-121), the financial mechanisms are “the total of measures and organizational forms of management of the process of set up, distribution and use of financial resources in national economy. Financial mechanisms should meet and fit management mechanisms of every development stage. Therefore, financial mechanisms for S&T activities are the total of measures and organizational forms of set up, distribution and use of financial resources for S&T activities.

Naturally, financial mechanisms for S&T activities contain common features as financial mechanisms of economic activities in general. They are, therefore, here to reflect the relations of distribution of benefits

between the State and S&T sectors, between units in S&T sectors as well as between individual scientists and the units where they conduct activities, Since financial mechanisms target to settle the relation of benefits in general, then the ones for S&T activities are found very sensible in connection to the distribution of social resources. The right distribution would push up economic development in general and S&T activities in particular, and inversely.

For S&T development, therefore, it is needed to make investment resources, from human resources to infrastructure, and in final account, financial resources for activities of this sector. These resources come from State budgets, enterprises, social units and organizations.

Financial investments from State budgets for S&T activities are part of the process of distribution and use of State expenditures to operate and develop S&T activities. These resources are not only simply to provide finances for regular operations but also to adjust and orient S&T and R&D activities in conformity to State policies. Financial resources from State budget mainly are used for S&T activities in key important sectors with priorities for higher social interests, namely: (i) Conducting fundamental researches in key directions of science sectors; (ii) Maintaining and developing S&T potentials; (iii) Providing State S&T development funds; (iv) Building technical infrastructure and providing deep going investments for State owned R&D institutions; (v) Providing supports for enterprises to conduct researches for technology development and application in key important sectors.

Regarding non-State budget financial resources for S&T activities, the S&T development bring crucial benefits for both scientists and the society. When S&T research products provide social benefits all the organizations, enterprises, individuals, families and communities have duties to give contributions for development of S&T activities. Therefore, the awareness of careful attentions for development of S&T activities are rights and duties of the whole society for purpose of socialization of S&T activities and diversity of financial investments for S&T activities in the way of “the State and the people working together” (a Vietnamese concept of PPP).

Regarding the structure of financial resources, in addition to State budgets of investment for S&T activities, we can see, *first*, the ones from enterprises, namely enterprises keep part of their capitals of investment for development of S&T activities for purpose of technological innovations and enhancement of competitiveness of products. Capitals of investment for S&T development are taken as part of costs of production-business operations. As practice, enterprises set up S&T development funds for pre-

active investments for S&T development. *Second*, non-State budget resources of investment for S&T activities are S&T development funds raised by organizations and individuals through contributions of founding bodies which are not from State budgets, namely: volunteer contributions and donations from organizations and individuals, and contributions of capitals for business purpose. *Third*, non-State budget financial resources come from bank loans. The offer of loans for realization of S&T programs should be based on reasonable interest rates. *Fourth*, financial resources may also come from overseas organizations and individuals. In context of international economic integration, many international organizations including UNDP, WB, ADB, Bank of Japan and etc. Provide considerable finances to support scientific research activities. In addition to that, there exist other non-State budget financial resources through training and research activities, leasing services and other S&T service activities.

2. Some shortages of financial mechanisms in S&T sectors in our country

2.1. Shortages coming from investment resources for S&T activities which come mainly from State budget resources while socially mobilized resources are not high

The State provides financial expenditures for S&T sectors mainly at rate of 2% or more from the total annual State expenditures. This important fact is recorded in the 2013 Law on S&T (Law No. 29/2013/QH13). It shows that the State budgets gives priorities for S&T sectors but in comparison to other countries in the world and in the region, this figure of Vietnam remains relatively low. Many experts give a vision that, in terms of absolute values, the resources of investments for S&T sectors in Vietnam remain modest (*Nguyen Nam, 2015*). The investment volume of Vietnam for S&T sectors per habitant is very much lower than the one of other countries. The expenditures of 2% of the State budgets for S&T sectors make about USD2 billion. The figure of 2% of State budgets for S&T sectors seems to be equivalent to practice in many countries such as USA, Japan, South Korea, China and others but these countries have bigger GDP figures then their expenditures for S&T sectors, in absolute values, remain very big. For example, in South Korea, with its GDP figure of about USD1,000 billion, the package of 2% would make many tens billions of USD reserved for S&T sectors. Mr. Nguyen Quan, Minister of S&T makes know that the share of 2% of national State budgets for S&T sectors is within the medium range of the world's practice and then we have only about the annual financial resources of USD1 billion for many recent years. Note that Samsung Group of South Korea spends annually more than USD1 billion

for technologies. If the investments for S&T sectors are based only on State budgets without mobilization of social resources, enterprises and adequate distribution of available resources it is difficult to make breakthrough moves for socio-economic development and then to turn these sectors really to important driving forces for socio-economic development of the country.

We can see many lessons learnt from those countries which, in the past, had conditions identical to the actual ones of Vietnam, such as Singapore, South Korea, Japan and etc., and which, after 30 years of right moves of investment for S&T development, gained outstanding progress and development. In a real understanding of important roles of S&T sectors in the process of industrialization and modernization of the country, the Party and the State always pay important considerations for S&T sectors in the top national policies. Actually, the State maintains the investment rate for S&T activities at level of 1.36 - 1.59% of the total State expenditures (not including other expenditures of S&T natures made in sectors of environmental protection and national security-defense) (*Dang Minh, 2015*). In Vietnam, a major part of investments for S&T comes from State budgets then the total investment volume for S&T remains very much lower in comparison to other countries. At the workshop “The status of distribution and use of S&T budgets, 2011-2015 period” held by the National Assembly Committees for Science-Technology-Environment, Mr. Tran Quoc Khanh, Vice Minister of S&T makes know that in the total investment resources of the society for S&T sectors in Vietnam the State budgets make 65-70% of the total investment volume (*Thao Moc, 2014*). This fact shows that, in order to extend investment resources for S&T, Vietnam should have policies to encourage other investment resources of enterprises for S&T development, differently from the last practice of looking for investment resources from State budgets. In the actual reality of balance of State budgets and GDP incomes, it is difficultly possible to increase the volume of expenditures of State budgets against the actual policies to reduce gradually the mobilization of State budgets as well as over-expenditures of State budgets to assure the financial security in middle-term and long-term views.

Then, the next question is: Why does the sector of enterprises make low rates of investment for S&T, though they get many incentives for that in aspects of financial supports as well as practical mechanisms?

Many reasons lead to these shortages, namely:

First, the demands of investments by enterprises for S&T development are not big. During recent years, Vietnam holds on to apply the large expanding model of economic growth where those sectors which require big capitals

and work forces get priorities. In this model of economic growth, the competitive advantages are not based on the superiority of product quality but on low price of labor forces. Therefore, the demands of investments by enterprises for S&T development to modernize production lines are not found big.

In addition to that, many State-owned enterprises of Vietnam hold monopoly positions in local markets and get many incentives and supports from the State mechanisms, even protected in both input and output aspects. In such a low competitive environment, the demands for innovation of technologies and enhancement of product quality are surely inconsiderable.

Even though, it is expected that the demands of Vietnamese enterprises for S&T products will have changes in future when the large expanding model of economic growth of Vietnam comes to its limits with labor costs gradually increasing and the Vietnamese economy getting gradually large open too.

Second, another reason leading to low investments by Vietnamese enterprises for S&T relates to the development level of economy and the scale and size of enterprises. Vietnam remains a country with outdated economy with enterprises, in majority, of small and medium size (SMEs), and even super-small size. It is behind capacities to demand this type of enterprises to make their own investment for S&T because simply they do not have enough resources to do that, in terms of both financial and human ones, even if they would have needs to do that.

Actually in Vietnam, only a few big-size enterprises (such as Viettel) do investments for S&T development. Once small sized enterprises have needs for innovation of technologies their solutions would be a search and purchase on markets. Even in case, however, enterprises get aware themselves of importance of technologies for their production and business activities and then have needs for innovation of technologies their decision to buy new technologies on markets depends on their consideration if they have experts to absorb these new technologies.

Third, in practice, though even certain enterprises have needs to by new technologies on markets, they find difficult to find out supply sources because of limited capacities of domestic S&T enterprises. This, *from one side*, comes from the low S&T level of Vietnam in general and then local enterprises are not strong to compete and capable of offering a good solution in terms of quality and price, in comparison to foreign enterprises (who can sell their old technologies, but new for Vietnam, with very low prices). The low competitiveness of S&T enterprises of Vietnam is seen through not only their “thin” financial capacities but also the volume as

well as qualification and capacities of their own labor forces. It is the reason of historical nature. *From another side*, investments for S&T development are the one for high risk sectors where the practice level of protection of IP rights is low. S&T enterprises of Vietnam do not get enough incentive and encouraged to do investment for development of new technologies because of low chances of successful outcomes.

2.2. Shortages in distribution of financial resources for S&T activities

We know that finances for S&T activities are distributed usually to cities, provinces, ministries and branches on basis of the rates of distribution in previous years but not on basis of clearly identified backgrounds of indicators and norms. In many cases, the total volume of financial investments for S&T development from State budgets is divided evenly (50:50) between central and local level S&T organizations. The practice shows that local S&T organizations still have low S&T potentials and lack high qualified S&T staffs but get big shares of State budgets for S&T activities. This leads to the situation that they do not use the distributed budget in full or use them for other purposes. And, contrarily, ministries and branches having strong S&T potentials and rich personnel of qualified S&T staffs get too low shares of State budgets.

Financial resources for S&T activities in Vietnam actually are distributed mainly to defined beneficiaries of State budgets. This way of distribution mainly is based on mechanism of even sharing. It means that the State budgets are not distributed on basis of importance of research projects where the selection of research project is based on consideration of urgency of needs as well as availability of competent experts for successful implementation of projects. This way of distribution does not lead to competition between scientists in their efforts to enhance effectiveness of their S&T research activities.

Actually financial resources for S&T activities are distributed mainly from consideration of proposals made bottom up. This way of distribution of financial resources, though in some cases, helps mobilize creativity of scientists but, in many cases, make research projects largely spread and impossible to supplement each other. This way of distribution may also block the realization of projects of big scale, strategical vision, background nature and long-term vision all of which lead to wastes and low effectiveness of investments.

Another practice is that social sciences do not get adequate attention. One of the reasons comes from the situation that new technologies are interpreted as processes or know-hows related to production activities. The

role and importance of educational technologies and management technologies for socio-economic development in general and S&T development in particular are not well aware. The low evaluation of roles of social sciences for socio-economic development of the country lead to low investment shares not corresponding to their roles and, as results, many socio-economic problems of the country do not get adequate answers.

From another side, financial resources reserved for research activities are mainly focused on research institutes. This model is found positive to assist the process of specialization in research activities. But it has some disadvantages leading to separation of research activities from production-business reality and decision making practice, then to low applicability of research outcomes. This model further leads to separation of research activities and teaching activities. The low financial resources reserved for research activities in universities limit the active participation of teaching staffs in scientific research activities. As result, the research potentials of teaching staff and students are not mobilized in full and the next generation of researchers does not get properly motivated and remunerated. This situation leads gradually to low quality of human resources in research activities and lowering quality of research projects.

Therefore, the way of distribution of State budgets remains mainly administratively subsidized and is not bound to consideration of effectiveness of activities, capacities and practical needs. Here, guidelines for budget estimates and works of management, use and settlement of assigned State budgets are conducted as routine works of administrative tasks.

2.3. Shortages in effective use of financial resources for S&T activities

By 2014, Ministry of Finance (MOF) and Ministry of S&T (MOST) had issued Inter-ministerial Circular No. 121/2014/TTLT-BTC-BKHCH dated 25th August 2014 to govern the budget distribution for function-based regular operations of public S&T organizations. The actual new mechanism is not based on the structure of permanent staffs but on the assigned tasks which are established by organizations themselves, then approved and assigned by MOST as projects under procedure of checks, inspections and acceptance evaluation. Those S&T organizations who fail to complete this would not be qualified to get finances of this category in the next year. Here are some paradoxes where the annual State budgets for S&T sectors said to be 2% of the total expenditures never gets fully released, and, contrarily, many S&T organizations could not use assigned budgets in full while some others do not get enough budgets for implementation of their projects. Minister Nguyen Quan makes know that public S&T organizations get

State budgets for regular operations and some other expenditures while non-public S&T organizations do not get them. This mechanism leads to the situation that non-public S&T organizations have to set up their estimates to include all of these expenditures in their proposals submitted for bidding procedure of research projects. This unfair rule leads to the failure of non-public S&T organization against public S&T organizations in competition for research projects. Therefore, almost all the State-level research projects go to public S&T organizations.

As norms, finances for S&T activities come from three sources: State budgets, social resources and enterprises. Statistic figures show the total investments from these three sources are very limited and used inefficiently because State authorities are both the approving and assigning actor at the same time.

In addition to that, if you want your proposed research projects to get approved this year you need to build up the plan in the last year. In many cases when the approved proposals get implemented some of submitted contents may become outdated, in terms from applied norms to certain equipment.

From another side, the release of finances needs to pass rigid regulations and procedures which require proposal submitting organizations to give detail estimates of research project expenditures. These requirements, in many cases, appear not to meet real situations where projects may last for many years and the expenditures may get adjusted from initially established considerations. Therefore, the initially approved budgets need to be adjusted in maneuvers to meet new raising items which may lead to halt some components as result of inflation impacts.

The release of State budgets for S&T research projects remains formal procedure where the State budgets get released without interests to be paid to outcomes of research activities. It leads to the situation that a defined scientific target implicates many further extended "tails" where the following projects do not use outcomes of previous projects or overlap with some of their completed components. This is also a type of wastes of money and labor.

Many research projects consume large finances and pass acceptance formalities but the application of their outcomes in practice remains very minor. Many of them, after having passed acceptance procedures, remain almost without any applications.

Minister Nguyen Quan acknowledges that finances remain limited but there is a situation the assigned amount is not used in full because in the past we

built up S&T plans on basis of central planned and controlled economic concepts where S&T tasks have to be approved by July of the previous year to get finances ready by January of the following year. It explains the fact that when finances get released, the research proposals may become outdate and cannot meet market demands. In addition to that, investment finances, though limited in many cases, have to be made for the same research contents assigned to many ministries and branches. Therefore, many new research projects have to bear considerable losses for administration and management costs.

Therefore, it is possible to see that the biggest challenges to management of use of financial sources for S&T activities are to identify a mechanism balanced between two requirements of, *from one side*, rules to assure scientific researchers to have pre-active and flexible activities to meet demands of expenditures and effectiveness of investment, and, *from another side*, regulations to offer financial managers to have capacities to control the right and saving use of released money. By other words, the financial mechanisms should make scientists self-controlled with careful considerations.

3. Some directions for solutions to innovate financial mechanisms for acceleration of S&T development

3.1. Further diversification of sources of financial investments for S&T sectors on basis of socialization of S&T activities

The socialization of S&T activities is a natural and objective requirement of life, integration process and development. It is a complex process of both immediate and long visions which require right awareness of matters and preparation of necessary conditions for good outcomes. The socialization of S&T activities is a key policy of the Party and the State, the natural road for right development and best use of outcomes of S&T activities for process of industrialization and modernization of the country.

This complex process has the following contents: (i) Intensive attraction of social resources for participation in S&T activities; (ii) Enhanced links of scientific research activities with practical production activities through extending and accelerating the application of research outcomes in practical life; (iii) Shifting gradually State-owned enterprises and S&T units to operate on basis of market driven economic mechanisms; (iv) Innovation of management mechanisms and enhancement of investment effectiveness of social resources for S&T sectors.

During recent years, the awareness on socialization of S&T activities gets more unified in various levels of governments. Policies and legal regulations necessary for socialization of S&T activities get further added, revised and amended. Thanks to that, investments for development and innovation of S&T activities get growing and give contributions to enhance quality and competitiveness of products and services in markets. The service for certification of standards gets largely extended and then helps enterprises to bring their quality products to domestic and external markets.

It is necessary to create an environment of healthy and equal competition in supply of S&T services between organizations of different economic sectors (public and private) including chances of access to financial sources from State budgets for S&T development. It is necessary to develop various forms of competition such as bidding, lease or contracts for private organizations to provide supply services for S&T activities.

In addition, it is necessary to set up compulsory regulations to force enterprises to make 10% of annual before-tax incomes to set up S&T development funds of enterprises or to develop local S&T development funds.

From another side, the actual practice of assignment of financial budgets to certain research organizations on basis of their submitted proposals has led to the situation that many research projects remain far from practical needs and then once these research projects get completed and pass the acceptance procedures they would be locked in filing services. In order to avoid wastes of money and efforts in research activities it is necessary to link them to application markets. It is necessary to reduce administrative formalities in the procedures including the submission of research proposals, and selection and approval of S&T research projects. The expected practice of lump sum based contracts and payment according to research outcomes on basis of serious and impartial evaluation by national S&T councils is a good hint for effective management mechanisms. At the same time, the use of market driven mechanisms as tools for appraisal of S&T product quality should become a practice of tests of research outcomes. The intervention of market principles would limit the “begging-granting” practice. Then the involved actors including the State, enterprises and individuals need to make orders if they want to get scientific outcomes and products of good quality. In final accounts, the sources to feed scientific research activities would not come necessarily from State budgets but be mobilized from social sources such as enterprises, organizations and foreign capital sources.

3.2. Innovation of mechanism of distribution and enhancement of effective use of financial sources for S&T sectors

According to guiding policies by MOST, the use of financial sources from State budgets for S&T investments should be focused on application-oriented fundamental researches, researches for strategic policy-making services, public services and other S&T priorities. Namely, it is necessary to distribute financial sources for S&T sectors which have to meet demands of: (i) Creation of scientific research products to serve socio-economic development; (ii) Objectives to train S&T human resources; (iii) Global development of the country and S&T development of various sectors, branches and localities. Also, priorities of higher investment from financial sources reserved for tertiary sectors should be given to State level tasks which play important roles for socio-economic development in general. Higher rates of investment should be reserved for research organizations which have good research staffs, particularly leading experts of the country.

It is necessary to issue policies and mechanisms for direct use of leading experts in big scientific centers and assignment of tasks and finances for them to carry out key research projects of State, ministerial and local levels.

The actual practice of distribution and use of financial sources of ministries, branches and local governments should be improved to be focused better to solve problems of higher significance level. The program of key important projects should be set up on basis of these projects.

Technologies are the center of industrialization. Financial investment is prerequisite for development and enhancement of our actual technological capacities. For Vietnam, with its out-dated technological level, the financial investment for S&T development is found crucially important. All options of technological innovation without being bound with solutions of financial sources, turn out to be unfeasible. The priorities of financial investment sources from State budgets for S&T activities should change basically the national technology level and fit development trends of the modern world, namely bio technologies, information technologies and automation technologies. These sectors need to be get invested adequately to become driving forces for enhancement of S&T level, development of producing forces of the society and enhancement of competitiveness of our products in context of intensive international integration process.

It is necessary to have closer coordination between Ministry of Planning and Investment (MPI) and MOST for distribution and use of expenditures of development investments for new construction, reforming, upgrading, deep oriented investments and equipment purchase for S&T organizations.

It is necessary to promote strongly the research for application of S&T products closely bound to outcomes of research activities, to meet actual needs of the society, to attract investment resources and to commercialize research outcomes made by enterprises. It is also necessary to change the actual way to build up research tasks on basis of proposals submitted by S&T organizations to the way which is based on demands of the society, markets and destinations of use to secure the close links of financial resources in all the stages (identification of tasks, organization of research and application activities, implementation).

The State should keep on existing incentive measures for enhancement of rights to self-mastering and self-liabilities of S&T organizations in fields of application researches. The State provides financial supports for fields of fundamental researches and policy-making researches.

With these policies, the State gets more resources to focus better investments on fields of fundamental researches and to create necessary backgrounds (necessary conditions) for development of application researches as well as application of research outcomes in production and business practice.

The actual practice of spreading equally State budgets is not found suitable and it is necessary to focus resources on effective areas without distinguishing their status of being State-owned or non-State-owned. Accordingly, there will be a shift to innovation of financial mechanisms with priorities given to research projects of high applicability and reduction of trends of segmented investments.

In the close future, the State should adjust the distribution of financial resources to reserve bigger shares for universities (of natural sciences and social sciences). This would not only enhance effectiveness of scientific research activities but also promote the innovation of the ways of teaching and learning in universities.

3.3. Innovation of the actual mechanism to pay salaries to scientists

One of the problems attracting the most attention of scientists is the lack of policies to bind incentive measures with careful assessments for effective development and use of intellectual personnel. We should not have the concepts of incentive approaches for intellectual staffs similar to the ones for deserved and disadvantageous individuals. Before to think of incentives in material aspects, it is necessary to offer the best conditions for scientists to develop their creativity and to give their talents and heart-rooted contributions for the country. Then, on this basis, policies and mechanisms

will be built up to let scientists enjoy outcomes of their creative labors equally to values of their contributions.

In the actual system of payment of wages, scientific staff suffer certain losses being the only community of salaried employees which do not get specific allowances (vocational allowance, long service allowance and etc.) similarly to the ones for salaried employees in education, health care sectors and some other sectors. In practice, up to now, Vietnam does not have adequate policies for incentives for and effective use of scientists, for attraction of young people to scientific research activities. It means a low chance for recruitment of talented people by research organizations. So, in some years, without issuing effective policies, Vietnam would experience severe lacks of young and qualified scientists and risks of “brain drains” or exodus from public sector to private sector and abroad.

According to Circular No. 45/2001/TTLT/BTC-BKHCMNT dated 18th June 2001, the set up of estimates of S&T tasks which use State budgets is based on the listed categories of tasks, but according to Circular No. 55/2015/TTLT-BTC-BKHCMNT dated 22nd April 2015, it has to be based on the norms of daily pay applied to scientific titles of persons carrying-out S&T tasks. The direct pay for persons involved in implementation of S&T tasks is calculated on basis of the number of converted working days and basic wages of scientific titles defined by State authorities at the time of establishment of estimates for S&T tasks.

It is also necessary to pay attentions to the fact the developed neighboring countries such as South Korea, Singapore, Taiwan and others have very high incentive rules for scientists. The pay they apply for scientists is not based on the quantitative consideration of products because this way of pay does not reflect the value of knowledge. Their system of pay shows their vision to the values of investment they make for future since the S&T is the core actor for social development.

Actually there exists a problem to attract home Vietnamese talented and heart-rooted scientists which are working abroad. This is a top leading priority in our State policies for socio-economic development. However, the application of too low wages is a barrier which blocks their interests.

4. Conclusion

During recent years, being supported with high interests and attentions by the Party and the State, S&T sectors of Vietnam has got increasing rates of investments. Scientific achievements as well as the scale and scope of application of these achievements get extended too. However, in comparison to others countries in the world and in the region, the S&T level

of Vietnam remains low and cannot meet demands raised by the socio-economic development process of the country where S&T sectors do not yet become main driving forces for economic growth. One of the main reasons is the absence of a complete and integrated financial system for S&T activities which is able to attract and to mobilize necessary financial resources.

This paper targets to present some shortages and to propose some solutions which are expected to complete and to improve financial mechanisms for S&T activities in Vietnam in close future./.

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