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Mechanisms for Management of State Budget Expenditures for Science and Technology Activities in Vietnam: Situation and Solutions

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Abstract

At the 13th Congress, in the new context, the Party and the State continued to elevate the role of science and technology. The Congress document considers science and technology to be one of the most important strategic breakthroughs for rapid, sustainable development. The General Assembly resolution affirmed: "Continuing the consistency of science and technology as the top national policy and the key driving force for the development of modern productive forces." This is a new, important way of thinking that reflects the party's strategic vision of the role

of science and technology. The article analyzes and evaluates the state of state budget expenditure management mechanisms for scientific and technological activities in Vietnam and clearly identifies the results achieved, the existence, lack of access, and the causes of the inadequacies of the state budget management machinery for science and technology activities over the years in Vietnam. Thus, we propose solutions to renew the management mechanism of state budget expenditure for scientific and technological activities in Vietnam in the future.

Keywords: State Budget Management Mechanism, Science and Technology, Vietnam

1. Introduction

The development of science and technology is an important issue that has long been regarded as the leading national policy and the driving force of socio-economic development. The Party and the State have always regarded science and technology as the top national policy, as the driving force of economic and social development, and as the foundation and decisive factor for the successful industrialization, modernization, and international integration of the country. This has been clearly expressed in Resolution 20-NQ/TW Close XI of the Central Executive Committee of the Communist Party of Vietnam, Science and Technology Law, 2013.

Changes in policy mechanisms in the field of science and technology have demonstrated strong, fundamental, comprehensive, and synchronous innovations in management, operations, and scientific and technological organization. However, these changes have only stopped at the level of "disengagement" for science and technology in the transitional phase, without sufficient "promotion" of scientific and technological activity. That is why, in addition to the results achieved, the scientific and technological activities in our country in the past time still have many limitations. Not meeting the requirements to serve the country's innovation and development in the context of strong globalization is taking place and becomes an essential trend for the development of the world in the new era—the era of the Industrial Network 4.0 with the important role of the knowledge economy.

In the system of management mechanisms for scientific and technological activities, the mechanism of financial management plays an important role. Finance is both a resource and a driving force for science and technology. It is only on one side of the problem that financial resources are properly allocated and distributed, and on the other, there must be appropriate financial management mechanisms that are constructed and implemented based on the characteristics of scientific and technological activities. In the past, implementing the party's and the state's initiatives, the funds invested in scientific and technological activities have increased significantly, especially the state budget. The financial management mechanism in general and the management of state budget expenditure in particular for scientific and technological activities have also been step-by-step renewed, gradually removing the difficulties encountered in the implementation of scientific and technical activities. However, with the development of the socio-economic system, the improvement of the mechanism of economic management and the increasing demand for the contribution of scientific and technological factors to the economy, the financial management mechanism in general, and the management of state budget expenditure in particular for science and technology activities have

also revealed many limitations and inaccessibility both in theory and practice, hence the requirement to be researched and perfected in order to improve the effectiveness of the state budget spending on scientific and technical activities.

2. Overview of Research Work

In the study by Charly. J. (2012) ^[4], the author conducted a study of the financial mechanisms for science and technology illustrated practically in Taiwan in a structured way, ranging from the funding of scientific and technological activities to the allocation of capital (mainly state budget capital) and how to control the expenditure of capital invested in science and technology. In terms of the distribution of capital, Taiwan is implementing two forms of distribution by input and output, according to the results of the study. However, there is a tendency toward the suppression of the second method. The control of expenditure is carried out according to the two methods of distribution: the method of allocation by input and the control of concentration to see if the amount is the right amount, the right standard, and the correct authority. And there's evidence of the fairness of the payment? In the output-based budget management system, is it necessary to control whether the expenditure achieves commitment-based or demand-based outputs, is used for other purposes, or is corrupt? However, research hasn't really assessed the prevalence and existence of allocations and controls that just stop from the point of view of description and commentary.

Research by George Papaconstantinou and Wolfgang Polt (2016) ^[5], *Financial Policy Assessment in Science and Technology Innovation* The group conducted a financial policy assessment study for science and technology innovation in Thailand. The research group focused on three main issues: (i) policy groups in attracting and expanding public participation in the field of science and technology; (ii) the policy groups monitoring the gender mechanisms in scientific and technological activity; and (iii) the policy grouping of financial distribution in scientific and technological activities. The group has highlighted mechanical issues in the implementation of the science and technology development strategy in Thailand and has proposed a number of proposals relating to a change in financial policy to generate electricity for scientists to do science in the right sense. However, the new research is mainly focused on the macro-scale; the research does not refer to the implementation as well as the construction of financial mechanisms at scientific research institutions, especially the proposed group. The authors have not indicated what conditions the operating model of scientific research organizations must meet to be able to apply and operate the suggested funding mechanism as expected.

Research by Nguyen Truong Giang (2012) ^[6], *Innovation in the Financial Mechanism for Science and Technology* The authors pointed out the remaining issues of financial mechanisms for scientific and technological activities, including: (i) distribution of the state budget to scientific and technological organizations that are not linked to the requirements and tasks of the scientific product, not to the final product; (ii) The allocation of the state budget for state-level scientific and technological activities under the schemes and schemes approved by the Ministry of Science and Technology accounted for up to 77% of the funding management, resulting in the limitation of initiative for the

ministries directly implemented and benefited; (iii) The resources outside the NN budget have not been fully exploited, in particular the promotion of the role of the National Science and Technology Development Fund; (iv) Difficulty exercising self-reliance and self-responsibility in organizing scientific and technological research. From these existences, the author proposed a set of solutions that focused on the issues of (i) mobilization and diversification of investment resources; (ii) strengthening decentralization and enhancing the role, responsibility, and self-reliance of the Ministries of Management, Industry, and Local Governments in the management and use of state budget funds; (iii) completing the system of funds for scientific and technological development; and (iv) public transparency and accountability in the use of the state budget in the field of science and technology.

Research by Le Xuan Truong and colleagues (2014) ^[7], *Financial Mechanisms for Science and Technology: From International Practice to Vietnamese Practice* From practical research, the author has identified that wanting to accelerate economic growth can not only drive science and technology development. In particular, in the study that the authors affirmed when talking about the innovation of financial management mechanisms for science and technology, it is impossible not to mention the basic contents of the financial management system. The author has specified the basic content of the financial mechanism: the financial resources, the users of the funds, and how to allocate and control the funding for science and technology. The authors suggested the need to learn from the advanced countries, which is the job that is essential for developing countries like Vietnam. In it, the author analyzed and pointed out some characteristics of financial management for scientific research activities in some advanced countries around the world, like the United States, Ireland, Sweden, etc.

Study by Le Thi Thuy Van and colleagues (2020) ^[8], *Financial Policy for Development in Vietnam by 2030* On the basis of the assessment of the financial policy status for scientific and technological development in Vietnam in the period 2013–2020, a number of solutions have been proposed to complete financial policy for Vietnam's scientific and technical development by 2030. Accordingly, the expenditure policy needs to continue to ensure the allocation of sufficient resources from the state budget for science and technology, focusing the state budget allocation on key projects that have a spread-up impact, finalizing state budget spending policies, and strengthening the mobilization of non-budgetary financial resources. With regard to tax policy, fees, and fees, it is necessary to continue to review and refine the legal corridors, as well as appropriate policy mechanisms related to promoting the development of scientific and technological enterprises, to strengthen the attraction of investment resources in society, especially from enterprises for science and technology activities through tax policy tools, while strengthening publicity and guiding the policies of tax incentives, fees, charges, and administrative procedures relevant to scientific and technological enterprises; As far as credit policy is concerned, appropriate incentive policies need to be put in place, focusing on funds, policies dedicated to science and technology enterprises such as the National Technology Innovation Fund and the Local Science and Technology Development Fund, and cutting down administrative procedures.

3. Research Methods

Analysis and synthesis methods are used to analyze the results and arguments obtained in the course of research and then synthesize and give the main arguments.

The method of attribution and interpretation is used to synthesize the results and information obtained in the course of scientific research, from which to draw the characteristics and nature of the research problem towards the purpose of the paper.

The classification method and the system used to classify the information collected according to certain criteria are then systematically compiled and concluded.

The historical method is used to study and understand the nature of the subject through its formation and development. Through the transformation of things, the nature of the subject is more recognizable.

An empirical analysis method is used to gather results from previous scientific studies, thus forming the basis for the study of the thesis.

Data collection: The secondary data source is data from the Ministry of Finance, the Department of Science, Public Services, and the Environment. In addition, the paper uses data from published research.

4. Status of State Budget Expenditure Management Mechanisms for Scientific and Technological Activities in Vietnam

4.1 Mechanisms for Managing State Budget Expenditure for Scientific and Technological Tasks at Various Levels

State budget expenditure management mechanism for special scientific and technological tasks (level):

To date, the first and only special scientific and technological mission in Vietnam is the mission "Building the National Territory of Vietnam," approved by the Prime Minister in 2017 and entrusted to the National University of Hanoi as the chair. The mission is scheduled to be completed from 2018 to 2022 with the National Geography Ministry, the Digital Database of National Geographies, the National Atlas of Geography, and National Geographic Information Pages. The task has not been approved for total

estimates. So far, the state budget has allocated VND 70 billion to carry out the task (in 2018: VND 10 billion; in 2019: VND 20 billion; in 2020: 40 billion).

State budget expenditure management mechanism for national science and technology missions:

The financial management mechanisms of the programs and scientific and technological tasks at the national level are carried out in accordance with a general mechanism issued by the Ministry of Science and Technology or a mechanism specific to each program (if any).

Common financial mechanisms issued by the Ministry of Science and Technology: The general financial mechanisms for the management of scientific and technological tasks are laid down in the instruments regulating the sequence, procedures for determining scientific and technological tasks at the national level using the state budget, regulations on the administration of national scientific and technical tasks, and regulations concerning the selection and direct assignment of organizations and individuals performing national science and technology missions using the state budget.

Specific financial mechanisms, specifics of each program, and national scientific and technological missions: Scientific and technological activities are generally understood as research activities (projects, experimental production projects). However, in addition to being implemented under the common mechanism, each mandate program, owing to its specific nature of activities, has separate financial management mechanisms, such as: key state-level science and technology programs; an industrial development program supporting national product development; a program to support the development of science and technology enterprises; The program supports the application and transfer of scientific and technological progress to promote the economic and social development of rural, mountainous, and ethnic minorities in the period 2016–2025. It also supports the development of scientific and technological enterprises and public science and technology organizations implementing self-reliant, self-responsible mechanisms.

Table 1: Funding for implementation of national science and technology tasks for the period 2016-2022

	2016	2017	2018	2019	2020	2021	2022
Total cost to perform the task	2.685	2.810	3.304	3.143	3.353	1.767	2.178
Funds have not been allocated in detail	1.362	824	426	475	497	462	525
Leave ratio	42,4%	26,7%	12,4%	13,1%	14,8%	26,1%	24,1%

Unit: billion dong

Source: Compiled by the Authors

Table 2: Allocation of funds for implementation of national science and technology tasks by ministries and central agencies in the 2016-2022

S. No	Ministries, central agencies	2016	2017	2018	2019	2020	2021	2022
	Total	2.685	2.810	3.304	3.143	3.353	1.767	2.178
1	Ministry of Education and Training	19	16	48	46	48	44	0
2	Ha Noi national university	134	43	40	28	54	34	10
3	Ho Chi Minh City National University	20	38	80	87	68	34	10
4	Vietnam Academy of Science and Technology	60	56	164	188	134	0	0
5	Vietnam Academy of Social Sciences	3	0	150	31	33	30	33
6	Ho Chi Minh National Academy of Politics	0	5	18	33	16	0	0
7	Ministry of Agriculture and Rural Development	183	138	196	224	208	0	0
8	Ministry of Health	64	20	9	13	3	0	0
9	Department of Defense	268	507	636	369	145	78	308
10	Party Central Office	15	35	30	27	7	3	0
11	Ministry of Industry and Trade	201	131	142	231	176	132	61

Unit: billion dong

12	Ministry of Construction	23	0	0	0	0	0	0
13	Ministry of Information and Sports	0	3	3	0	0	0	0
14	Ministry of Natural Resources and Environment	30	43	108	90	50	0	0
15	Ministry of Home Affairs	0,555		0	0	7	0	0
16	Science and technology	1.653	1.748	1.625	2.011	2.364	1.445	1.767
17	Committee for Ethnicity	10	28	55	36	47	1	0
18	Vietnamese commune information	0,94	0	0	0	0	0	0
19	Central Vietnam Women's Union	0,2	0	0	0	0	0	0
20	The elderly group	0,5	0	0	0	0	0	0

Source: Ministry of Finance and Ministry of Science and Technology

State budget expenditure management mechanism for ministerial and provincial scientific and technological tasks: Basically, the mechanism for managing the state budget expenditure for ministerial and provincial science and technology tasks is implemented in steps like the general process and similar to national tasks.

Mechanisms for managing state budget expenditure on science and technology tasks at the basic level:

The current financial regulations do not contain much clear reference to the management of budget estimates for and tasks of science and technology at the basic level; there are no clear legal corridors; most are carried out "standardly" as tasks at the ministerial or provincial level. The distinction between the basic science and technology tasks is that they can be self-approved by the head of the chief executive unit (level III assessment unit) and handed over to the officers in charge, or they can also be approved by a head of department or a central or local authority. The reporting and monitoring of funding for the implementation of scientific and technological tasks at the base level is carried out in accordance with the instructions of the Ministry of Finance.

4.2 Mechanisms for Managing the Expenditure of the State Budget on Scientific and Technological Activities in the Form of Exchanges Preparation, Assessment, and Approval of the Budget Estimates for the Implementation of the Following Tasks

The organization chaired, the head of the task of construction, and budget estimates performed tasks in accordance with the provisions of the Ministry of Science and Technology on selection, direct transfer of organizations, individual performance of tasks at the national level, and specific regulations of the ministries, departmental agencies, provincial people's committees, and cities subordinate to the Central (hereinafter referred to as the Ministries, sectors, and Provincial People's Committees) for demonstration and estimates of the tasks of departments, provinces, and establishments.

The authority responsible for approving the mission is responsible for organizing the assessment of the budget estimates of the mission; in cases where there is no technical and economic standard, the authority authorized to approve the mission shall be responsible for its decision.

Mission approval. On the basis of the conclusions of the Board of Selection, the direct assignment of tasks, the results of the assessment of estimates, and the opinion of an independent consultant (if any), the competent authority decides to approve the chairing organization, the individual chairperson, the method of exchange (expenditure on the final product, exchange of the partial expenditure), the total amount of funding and the level of expense, and the duration of execution of the task.

Payment and settlement of the cost of carrying out scientific and technological tasks:

In accordance with the regulations, after the scientific and technological tasks and funding for the implementation of the tasks have been approved, the Chief of the task has been actively constructed to implement the contents of the assigned work, which has the right to adjust the items of expenditure, contents, level of expenditures, funding between the parts of work assigned (assuring within the scope of the total amount of funding assigned, consistent with the spending regulations of the duties in the Rules of Internal Expenditure of the host organization), submitted to the Head of the chief organization approval before deployment in order to perform the task effectively, in line with the problems arising in the practice of implementing the task.

Procedure for payment of fees in accordance with the current regulations on expenditure control for the career budget, the state treasury where the transaction is carried out will carry out the control of expenditures based on invoices and expense documents. However, with the aim of facilitating and simplifying the procedures in the liquidation of scientific expenses, the Inter-Ministry of Finance-Science and Technology Circular has regulated the simplification of payment procedures, with the direction of the State Treasury only carrying out the control of expenditure according to the volume of work carried out instead of the control on the invoices and documents. The workload inventory is based on the actual workload implemented and confirmed by the cost management unit.

About funding. Scientific and technological tasks are carried out in the form of expenditure bills that are settled once after completion, and the parties have proceeded to liquidate the contract in a settlement method that aggregates the content of the bills and the non-expenditure. For scientific and technological tasks carried out over many years, the presiding organization has the responsibility to aggregate and report to the financial management unit on the amount of funds received and actual expenditure in the year so that the management unit can summarize the funds taken and actual costs of the task into the accounting of the unit according to the budget year. At the end of the year, the estimated balance, the interim balance in the performance of the task, is transferred to the next year for continued execution.

The method of accounting for the implementation of scientific and technological tasks using the State budget is a breakthrough form, in accordance with the characteristics of science and technology activities, so it has obtained many positive results, enabling the head of the task and the chairman of the organization to actively make the expenditure according to the facts arising in order to meet

the scientific requirements of the mission, regardless of the standard and estimates of each content of the expense approved in the total amount of the contents of the expenditures traded, in addition, the funds traded that are saved due to the non-expenditure is left to the head organization to decide the method of use of the project.

Inspection, inspection, and supervision of state budget expenditures on scientific and technological activities

In recent years, inspection and inspection of scientific and technological research activities have been carried out on a regular basis at all levels, including inspection, audit of allocation, use of funds, implementation of content, progress, and enforcement of legal regulations in the performance of science and technology tasks on topics and scientific and technological projects at the national level, ministerial level, provincial level, base level, and comprehensive or thematic inspections.

Some of the limitations of the state budget management mechanism for scientific and technological activities and remedies

Resource constraints. Investments in science and technology come mainly from the state budget. However, due to its small scale, the state budget's balancing capacity does not meet the requirements of the approved scientific and technological mission.

Restrictions on the management mechanism of the state budget expenditure for scientific and technological activities include: there is no mechanism to make estimates and allocate regular spending on science and technology between the central budget and the local budget that is really efficient, clear, transparent, The allocation of the N-state budget to unreasonable scientific and technological activities, inappropriate spending structure, There is still overlap in the management of national science and technology missions between the Ministry of Science and Technology and the Ministries of Specialized Management.

The efficiency of the use of financial resources for scientific and technological activities is still low.

Restrictions on inspection: misuse of funds; non-democracy in science; abuse of authority and literacy; subject leadership status; the project is a civil servant with a position in the state management machinery; there is no fund of time to carry out scientific tasks, leading to "fake heads", but the scientific and technological tasks are still technically completed, etc. In addition, there are not a few organizations or individuals with the ability to preside over the topic. The project often proposes to build research tasks according to the strengths available, which is far from reality and does not take into account the needs of practice, so it is easy to duplicate and may even have the status of reworking content that the establishment itself has already completed or is exploiting but has not published.

4.3 Solutions

We need to be aware of the intention of the Party and the House to have an interest in investing in and perfecting the mechanisms of financial management and the state budget for science and technology.

Diversify funding to invest in science and technology. Implement the commitments, ensure the balance of the state budget to meet the requirements of the approved scientific and technological mission, and enhance the efficiency of the management of the state budget expenditure for science and technology activities.

Separate the expenditures of the state budget for management activities and the expenditures of the state budget for the performance of scientific and technological tasks.

Complete the legal system and overcome the overlap in science and technology management.

Completion of the state budget expenditure management process for scientific and technological activities:

Completion of the mechanism of preparation of estimates, allocation of state budget estimates for the performance of scientific and technological tasks, Finalization of mechanisms of disbursement and management of state budget expenditures for the execution of science and technology tasks.

5. Conclusion

To reassure scientists, focus on research, the financial mechanism in general, and the management mechanism of the state budget spending specifically for scientific and technological activities must be continuously reviewed: research, perfection, innovation, ensuring harmonization, creating transparency for the scientific and technological regulatory bodies as well as the scientist. At the same time, the discipline of the state budget must also be ensured to improve the efficiency, effectiveness of management, and use of the state budget.

Based on the analysis of the facts, the party's orientation, and the state's scientific and technological development objectives, the article proposed a system of solutions to improve the management mechanism of the state budget expenditure on scientific and technical activities. These include solutions to improve the management of state budget expenditures for scientific and technological tasks at various levels and solutions for improving the management mechanism for science and technology funds in Vietnam, as well as proposals to the Parliament and the Government for the improvement of the legal basis relating to the management of state budget expenditures for scientific and technological activities.

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