

**STATE MANAGEMENT ON SCIENTIFIC AND TECHNOLOGICAL HUMAN  
RESOURCE DEVELOPMENT IN VIET NAM**

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**ABSTRACT**

In the context of industrial revolution 4.0 and the development of the knowledge economy, scientific and technological human resources are an important resource in scientific and technological development in particular and socio-economic development in general. Therefore, the development of scientific and technological human resources is always concerned by the Communist Party of Vietnam and the Government. In recent years, Vietnam has formulated and promulgated many plans, projects, strategies, legal documents, policies on human resource development in order to renovate state management of scientific and technological human resource development.

**Key Words:** State management, human resource development, science and technology.

**1. INTRODUCTION**

According to management science, there are many different interpretations and approaches to the concept of State management. As the common understandings, State management refers to an activity with the nature of State power, a way in which governing agencies use State power to regulate social relationships in order to achieve management objectives set by the Government.

According to researchers on State administrative management: "State management is an impact organized and regulated by State power on social processes and human activities to maintain and develop social relationships and legal orders in order to perform the functions and tasks of the State in building socialism and defending the socialist fatherland"<sup>1</sup>.

Therefore, State management on scientific and technological human resources is an organized and purposeful impact with the lawful rights of the state in order to orient the development of scientific and technological human resources, effectively exploiting and using scientific and technological human resources so as to meet the practical needs for the country's socio-economic development. State management on scientific and technological human resource development can also refer to the total impacts through state programs, plans and policies in order to create all favorable conditions for scientific and technological human resources working with peace of mind. In other words, State management on scientific and technological (S&T) human resource development is the discovery, fostering, selection and use of S&T talents, mobilizing and promoting S&T human resources to the highest level of intelligence.

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National Academy of Public Administration (2000), *Textbook on the State Administration*, Volume 1, Vietnam<sup>1</sup>  
Education Publishing House, Hanoi, pp.4-5.

## **2.SOME SPECIFIC CONTENTS OF STATE MANAGEMENT ON THE DEVELOPMENT OF SCIENTIFIC AND TECHNOLOGICAL HUMAN RESOURCES IN VIETNAM TODAY**

Approaching under the scientific aspect of public management, state management of scientific and technological human resource includes basic contents:

### **2.1. Arrangement and planning for S&T human resource development**

Arrangement and planning for S&T human resource development can be the basis for organizing, training, fostering, appointing/removing staff. The basic requirements for formulating a S&T human resource development plan must ensure the adaptability, predictability, integrity and continuity. When developing a plan, it must be considered as a whole, the plan for S&T human resource development must correspond to the development of S&T and socio-economic construction. The planning is set for each specific upcoming period, so it is necessary to forecast the development of science and technology and the demand for scientific and technological human resources to meet the requirements in Vietnam today. The planning for S&T human resource development must be in the master planning on national socio-economic development, from which the sectoral and human resource planning should be carried out accordingly. The essence of planning is an action strategy, which leads to the guiding effect for the State management on scientific and technological human resource development. Arrangement and planning must be based on reasonable staffing and tasks' requirements, in which S&T tasks are considered as the basis for positioning human resources. The basis for formulating a plan to develop S&T human resources is based on the goals of socio-economic development, S&T development and the current situation of S&T human resources. The main content of the S&T human resource development plan is to improve the efficiency of using existing S&T human resources; make plans for training and retraining S&T human resources so that best measures are used to develop S&T human resources to meet the country's requirements.

### **2.2. Selection and rational use of S&T human resources**

The principle of selecting S&T human resources is to take the job as the center. The purpose of selection is recruiting talented people, capable people suitable for the job to achieve high efficiency at work. The next step is to determine the appropriate scientific and technological human resources. The principle of selecting S&T human resources must ensure that the selection process is a scientific, public, and transparent process in order to recruit S&T human resources who must be virtuous, talented, and well meet the requirements for the country's development. To do this task well, it is necessary to master the recruitment content, requirements, order and process.

Selecting S&T human resources must be based on the requirements for tasks, employment positions and staffing norms of the agency or unit. The recruitment of human resources can be through the form of organizing entrance exam or selection examination, depending on the recruitment council or the personnel department of the competent agency or unit. For successful recruitment, in the process of planning and organizing recruitment task, recruiters need to follow the following principles: *Firstly*, they must correctly identify recruitment needs, know whether there is a need for recruiting human resources, ensure the recruitment of human resources comes from the functions and tasks of the agency or unit and the workload; *Secondly*, they must plan and organize recruitment processes which ensure the scientific factor; *Thirdly*, they must ensure

publicity, transparency, fairness, objectivity and compliance with the law, policies of the State and the industry; *Fourthly*, they must ensure competitiveness, which means the higher the competitiveness is, the easier it is to recruit people who meet the requirements for the proposed positions. *Fifthly*, the recruited people must be suitable to the position and in accordance with the set criteria and standards, in line with the wishes of the agency or unit; *Sixthly*, they must give priority to people with special talents, people from families under preferential treatment policy; people with meritorious services to the revolution.

The use of S&T human resources is carried out immediately after the necessary number of people has been recruited. The agency or unit employing human resources needs to perform a number of other tasks such as assigning tasks to the recruited person; formulating and implementing salary and other remuneration policies; assigning apprentice instructors, tutoring and helping.

### **2.3. Training and retraining S&T human resources**

It is very important to train, foster and develop S&T human resources. Training is the process of imparting and training the knowledge and practical skills gained from the previous generation to the next generation through education. The organization of training can help the apprentices not waste too much time learning and drawing out the experiences and rules of things and phenomena by themselves.

Each different career field has different requirements for: ethical qualities; professional knowledge and skills; soft skills to solve problems and work experience. Via those requirements, managers can develop training programs suitable to that field and career requirements for the trainees. In reality, training and fostering S&T human resources can be relatively diverse and abundant in many different forms such as: centralized training, intensive training, decentralized training and fostering; long-term training, short-term training, thematic refresher courses; direct and indirect training; forms of self-improvement, self-study.

### **2.4. Evaluation of S&T human resources**

Evaluation of S&T human resources, or the assessment of using S&T human resources is an important content in the S&T human resource management, on that basis, they can make the right decisions on regimes and policies, giving proper priority to S&T human resources. Evaluation of S&T human resources is really a comparison between the results achieved by using S&T human resources with the goals set by the agency or unit. Through the evaluation, managers can carefully review the process of receiving, using, allocating, arranging and performing other functions of the organization tasks of S&T human resources then they can gain objective conclusions about the achieved results, shortcomings and limitations and point out the causes leading to such existence and limitations. Evaluation of the implementation of the S&T human resource organization usually focuses on the following contents: assessment of the quantity and quality of S&T human resources; assessment of the organizational structure of S&T human resources; assessment of the arrangement of S&T human resources for science and technology; assessment of training and retraining of human resources; assessment of future needs for S&T human resources; assessment of the potential of S&T human resources.

Principles of assessment on S&T human resources must ensure: comprehensive assessment of the political, expertise and professional qualities of each individual; The assessment must ensure

combined comprehensiveness and continuity (evaluation in a certain period and evaluation the whole process). The assessment of S&T human resources needs perseverance, for the long-term benefit to discover the strengths and capacities of human resources, thereby promoting the strengths and capacities of S&T human resources in the most effective way.

### **3. SOME INNOVATIVE SOLUTIONS FOR STATE MANAGEMENT ON S&T HUMAN RESOURCE DEVELOPMENT IN VIETNAM**

#### **3.1. Perfecting the formulation and promulgation of strategies and planning for S&T human resource development**

In recent years, the development of S&T human resources has received great attention from the Party and the Government and many documents and resolutions on the development of S&T human resources of the country have been issued; many strategies and master plans for S&T human resource development, in fact these documents have brought about great results for the construction and development of human resources in the country in the period of industrialization, modernization and international integration. Under the direction of the Government, Ministries, Industries and Localities have also basically formulated and promulgated strategies and master plans to develop S&T human resources in order to build and develop S&T human resources, the local industrial fields have met the needs for the country's development. However, the institutionalization and concretization of strategies and plans for scientific and technological human resource are still slow and have not met the practical requirements for development. In the near future, we need to focus on the following content: (i) The Ministry of Science and Technology advises the Government in formulating a decree regulating the formulation of S&T human resource development planning of ministries, industries and localities. (ii) Minister of Science and Technology develops strategies and master plans for the development of S&T human resources in Vietnam in the period of industrialization and modernization of the country. (iii) Strictly implement strategies, master planning and plans for the development of S&T human resources of the country. Every year, ministries, branches and localities must include development goals and targets in the plan and final report to give a basis for consideration and assessment. (iv) In order to successfully implement strategies and master plans on scientific and technological human resources, ministries, industries and localities must actively research and build financial resources, facilities and management mechanisms, the strategies and plans can be of high quality and effective. (v) In order to effectively implement strategies and plans to develop S&T human resources, all authorities and localities need to thoroughly grasp the instructions and guidelines of the Communist Party of Vietnam, competent laws and state policies on the role of S&T human resources and on the development of S&T human resources.

### **3.2. Perfecting legal institutions and policies on scientific and technological human resource development**

Vietnam has developed and promulgated a lot of legal documents on human resource development which are quite complete, however, the quality of legal documents is still not high, many of them are out of date, no longer suitable to the actual requirements for the development of scientific and technological human resources. Therefore, in the foregoing period, competent authorities need to review all legal documents related to the development of S&T human resources to gradually improve the system of regulatory documents in order to meet practical needs and serve our country's industrialization and modernization. It can be affirmed that legal regulations have played a great role in helping State management agencies perform their functions and tasks in labor management, education management and S&T human resource management. In addition, this legal system also plays the role in motivating and promoting the development of S&T human resources to meet the needs for the development of the country's economy in the transitional period of international integration.. To effectively implement this solution, in the current period we need to focus on a number of contents:

*Firstly*, we must study and thoroughly grasp the contents and viewpoints of documents and resolutions of the Communist Party of Vietnam on building Vietnamese people in the period of industrialization and modernization; the country's human resource development strategy; comprehensive educational innovation strategy on scientific and technological development of the country in the current period to further institutionalize the contents of views into legal documents on the development of S&T human resources.

*Secondly*, the Ministry of Science and Technology coordinates with the Ministry of Justice, the Ministry of Home Affairs, the Ministry of Finance, the Ministry of Education and Training to review, make statistics and classify legal documents on the development of scientific and technological human resource.

*Thirdly*, sociological surveys must be carried out to collect the majority of public opinions, the opinions of functional agencies and management authorities to synthesize evaluation opinions. With these collections, we can advise and propose to the relevant authorities to improve the legal system on scientific and technological human resource.

*Fourthly*, scientific seminars and conferences should be held to summarize and evaluate legal documents on the development of S&T human resources, and receive comments from experts on the quality and effectiveness of legal documents. On that basis, there are directions to amend, supplement and perfect the legal system on scientific and technological human resource development.

*Fifthly*, we must research and get opinions from legislators on the development of legal regulations to orient the development of scientific and technological human resources.

The policy on scientific and technological human resource development plays an important role in creating motivation and promoting the development of scientific and technological human resources in both quantity and quality. In recent years, our Government has also built and issued a fairly complete policy system on scientific and technological human resource development,

focusing on groups under preferential treatment policy: policies on attraction and recruitment; remuneration policy; training and retraining policies; honor policy. However, in reality, our Government's policy has not yet ensured that "Science and technology are the leading national policy". In order to create a driving force for the development of S&T human resources in Vietnam, in the coming years, we need to focus on the following contents:

*Firstly*, we should research and review policies related to attracting high-quality human resources to participate in the field of science and technology. Innovating and perfecting policies on recruitment of S&T human resources in the direction of prioritizing and prioritizing highly qualified people who have excellent scientific research background and experience. Policies to attract the scientists and brainworkers worldwide to live and work in Vietnam should be developed and promulgated. In the immediate future, we should consider policies on recruitment, salary, official accommodation, land; policies related to civil status, household registration and related policies. We should organize creative contests and invention competitions to find young talents and foster them to become internationally qualified scientists in order to develop the quality of S&T human resources in Vietnam. We should reach reasonable decentralization in the recruitment of S&T human resources, linking recruitment with responsibility; allotment of salary fund for scientific research organizations and pay salaries according to scientific products.

*Secondly*, The policies on the salary, bonus and other remuneration for scientific research titles should be reviewed.

In the following years, the Ministry of Science and Technology should coordinate with the Ministry of Finance and the Ministry of Home Affairs to review the salary policy to build a salary scale suitable to the contributions and dedication of scientists. learn; research and develop a policy on allowances for scientific research such as public service allowances and class allowances for teachers; develop specific policies in order to attract S&T human resources of high quality; research, develop and issue seniority policies in order to retain qualified and experienced scientists in scientific research activities; formulate tax and banking policies, lending policies to support S&T activities; establish a fund for S&T human resources to support scientists facing difficult problems in life.

*Thirdly*, a system of policies to honor the team of scientists, and a system of awards in the field of scientific researches should be reviewed and developed. Administrative procedures and processes in recognizing, awarding and honoring scientists must be reduced. The regulation on awarding scientific research titles should be renovated in the direction of assigning autonomy to scientific associations, the Government only participates in macro management, mechanisms and policies.

### **3.3. Perfecting the organizational structure of the state management on scientific and technological human resource**

The actual organizational structure of the state management on the development of science and technology in our country is still scattered and lacks concentration, causing many difficulties for management, administration, inspection and examination and this is the responsibility of the State development on scientific and technological human resources. Therefore, in the next period, it is necessary to continue to perfect the organizational structure of the state management on scientific and technological human resources to implement this content more effectively. Specifically: We

should review the entire system of agencies with the function of state management of science and technology, research activities and development of science and technology throughout the country; We should research and consider putting the management of scientific research activities under one management agency, the Ministry of Science and Technology (because at present, the scientific and technological development management function is still opposed by many functional agencies). ); We should develop regulations on coordination between the Ministry of Science and Technology and other ministries, industries and localities in the development of scientific and technological human resources in the direction to assign the Ministry of Science and Technology to lead and coordinate this activity.

In the coming years, the formulation of policies on the use, evaluation and remuneration of human resources must be based on real capacity, work results and efficiency. We should overcome the psychology and phenomenon of over-emphasizing and formalizing "degrees" in recruiting and evaluating human resources.

#### 4. CONCLUSION

In recent years, the Communist Party of Vietnam and Government have developed and promulgated a great number of guidelines, instructions, policies and laws for an effective management of the State on S&T human resource development. However, in comparison with the Asian region and the world, the S&T human resources in our country are still quite limited in quality. This is reflected in the initiatives, discoveries and scientific inventions; works and articles that are widely published internationally. According to statistics of the Ministry of Science and Technology, "every year on average, about 19,000 articles are published in domestic science and technology journals"<sup>2</sup>. The number of Vietnamese articles published in international science and technology journals in the period 2014-2018 has more than doubled, from 4,071 articles to 8,821 articles<sup>3</sup>. Therefore, the state management on S&T human resource development must be effective and efficient in order to obtain S&T human resources of high-quality to serve the country's socio-economic development. .

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