Evolution and Features of Korea's Science & Technology Policy Coordination System

Jieun Seong*

ABSTRACT

Korea is examining how to coordinate its S&T policies and solidify its position as a leader of infrastructure innovation policy that forms the foundation for many different policies. A number of questions have been raised, such as whether to install a superior coordinating body like the National Science and Technology Council (NSTC) or separate the budget allocation and coordination authority from the budget-planning ministry. Korea has tried using various institutional coordination devices and functions such as reorganizing its administrative ministries based on related functions and installing or reinforcing a superior coordinating body. In line with these discussions, the strengthening of the S&T policy coordination function through the NSTC is currently under review. In order to design an effective S&T coordination system in step with changing political and social demands, it is important to have a clear recognition of the current context as well as the unique institutional characteristics of Korea. This study examines the evolution of Korea's S&T policy coordination systems and analyzes its features.

KEYWORDS: science & technology policy coordination system, system and institution evolution and features, National Science and Technology Council (NSTC)

1. INTRODUCTION

The issue of policy coordination based on science and technology (S&T) innovation is emerging as a core policy task due to the emphasis of an integrated S&T innovation policy aimed at economic

* Team Leader, System Innovation Team, Future S&T Strategy Center, STEPI, jeseong@stepi.re.kr

growth and the improvement of national R&D competitiveness as a new paradigm. This integrated innovation policy includes goals to solve various social problems such as elevating the quality of life and achieving sustainability.

Korea has been examining how to coordinate its S&T policies efficiently. A number of questions have been raised, such as whether to install a superior coordinating body like the National Science and Technology Council (NSTC) or separate the budget allocation and coordination authority from the budget-planning ministry. Korea has tried using various institutional coordination devices and functions such as reorganizing its administrative ministries based on related functions and installing or reinforcing a superior coordinating body. In line with these discussions, the strengthening of the S&T policy coordination function through the NSTC is currently under review. In order to design an effective S&T coordination system in step with changing political and social demands, it is important to have a clear recognition of the current context as well as the unique institutional characteristics of Korea.

This study is to examine the evolution of Korea's S&T policy coordination systems and analyze its features so that future policy implications can be suggested.

2. EVOLUTION OF KOREA'S S&T POLICY COORDINATION SYSTEM

2.1 Policy Planning and Coordination by the Economic Planning Board (EPB)

The Economic Planning Board (EPB) (currently, the Ministry of Strategy and Finance) was a central administration body created in July 1961 under the authority of the prime minister and based on the Planning Board that was established in July 1948. During the 1960s-70s related policies were coordinated through the EPB when S&T was considered a less important factor in economic development. The EPB was a powerful government agency that established comprehensive plans for national economic development, set up budget plans, deliberated on investment priorities, mediated conflicting interests between economy-related ministries, stabilized prices, and oversaw external economic policies.

From the beginning, EPB allocated the budget through its Budget Office, in addition to its General Planning Office, Material Mobilization Planning Office, and Statistical Office. Power was focused in the budgeting function as it underwent reorganization; however, it managed to maintain the function of the Budget Office. With the commencement of the Third Republic under the President Park Chung Hee administration, the minister for the EPB was appointed as the only deputy prime minister that signified that the EPB would be the focal point of the national economic policy. Specifically, the minister in charge of the EPB would oversee and coordinate each ministry in relation to the planning and operation of the economy under the direction of the prime minister and the ministers of the economy. In addition, other administrations had to follow such coordination plans and oversee their relative responsibilities. The EPB played a leading role as the determinant authority in the major economic policies of the 1960s based on its coordinating power in the planning process, budget planning, allocation, and coordinating authority in the enactment and revision of various legislations, and the stature of its minister as deputy prime minister (Presidential Advisory Council on Science and Technology 2004).

2.2 Policy Making and Coordination by S&T Ministry

In Korea, the ministry in charge of S&T (initially the Science and Technology Agency and later the Ministry of Science and Technology) played a salient role in the development of S&T. In order to materialize the strong policy intentions of the government to develop a national S&T, it recognized the need to set up a ministry solely in charge of this field. Therefore, the government elevated the Science and Technology Agency (which had a comparatively lower position among other agencies) to the Ministry of Science and Technology as well as strengthened its administrative function (Seong, Ji-Eun 2009).

With the inception of the Science and Technology Agency in April 1967, Korea became the first developing country to establish a ministry in charge of S&T under the leadership of a cabinet level minister. The Science and Technology Agency installed a Research Coordination Office (unlike other central government agencies) where it hired up to 20 privileged Grade 1 and 2 government officials. This Office was mainly in charge of planning, integrating, and coordinating the national R&D programs. Its operation was considered radical at the time, as it opened its doors to recruit outside experts needed to conduct its tasks.

Pursuant to the Government Organization Act, the Ministry of Science and Technology (formerly, the Science and Technology Agency) was responsible for overseeing the establishment of a comprehensive basic policy for the promotion of S&T, and intervened in the coordination of S&T policies as the main S&T government agency. This meant that the ministry could conduct these responsibilities or that a third agency could conduct them under the supervision of the ministry.

The General Science and Technology Council (GSTC) and the Science and Technology Ministers' Meeting (STMM) were installed to coordinate S&T policies; in addition, the Minister of Science and Technology was appointed as an executive member of these bodies. The Ministry of Science and Technology offered administrative support for the coordination of S&T policies through a third agency rather than actually conducted the policy coordination itself. The S&T policy coordination conducted under the name of GSTC or STMM (instead of the Ministry of Science and Technology) and shows that the legal authority of S&T policy coordination did not lie with the Ministry; however, the role of the Ministry remained significant in S&T policy coordination. The GSTC and STMM were operated as non-permanent bodies that required the Science and Technology Ministry to oversee the coordination process and set up coordination guidelines (Hwang, Yong-Soo and Kim, Gap-Soo 1999).

2.3 Policy coordination by the President and Presidential Secretary's Office

During the military regime prior to the Kim Young-Sam administration, the decision-making structure for policy in Korea was conducted exclusively based on a perfectly coordinated cooperation system between the President, the Presidential Secretary's Office, and high-level government officials. In particular, the role and influence of the President and government officials were considerable because the focus of Korea's S&T policy was in hardware and the nurturing and increasing support for R&D agents. The determination and interest of the President was strongly reflected in national S&T policies. The President aimed to utilize the positive sides of S&T to realize his determination and goals for reform and maximize the legacy of his regime. This led to countless S&T pledges being proposed during presidential elections. Various symbolic phrases were produced that presented the future vision and aspirations of a certain administration at the beginning of presidential terms, such as "Emergence as an S&T Country" or "S&T President" (Park, Joong-Hoon 1996; Song, Ha-Joong et al. 2000; Jeong Byoung-Geol and Seong Ji-Eun 2005).

President Park Chung-Hee was the first Korean president to efficiently utilize the Presidential Secretary's Office. During the early years of his administration, he chose a centralized authoritarian rule that focused power on the Blue House. However, after the foundation of his authority was solidified, he gradually transferred the power of state operations to his cabinet while maintaining the Blue House as a strategic base. Subsequent presidents installed various systems (sometimes choosing to intervene directly in state affairs while at other times choosing to focus state operations on their cabinets) and sometimes opted for a dual axis system. Regardless, the Blue House Presidential Secretary's Office continued to show a trend for maintaining the role of a small cabinet or a powerful government office (Jeong, Jeong-Gil 1997; Ham, Seong-Deuk 2002; Song, Ha-Joong et al. 2000).

2.4 Policy Coordination by the Council and Ministerial Meetings

The Korean government tried to comprehensively coordinate its S&T policies and businesses and strengthen cooperation among ministries through coordinating agencies, such as the General Science and Technology Council (GSTC) (Act on the Promotion of Science and Technology) and the Science and Technology Ministers' Meeting (STMM) (Special Act on the Innovation of Science and Technology). Periodically, the Economic-Science Council was organized and operated as: a presidential advisory body in 1964, the Comprehensive Science and Technology Council in 1973, the Technology Promotion Expanded Meeting in 1982, the NSTC in 1991, and the Science and Technology Ministers' Meeting (STMM) in 1996.

The STMM was installed on March 11, 1996 pursuant to a separate presidential decree to pursue S&T policies in a more comprehensive and systematic manner through closer cooperation between S&T-related agencies, coordinate overlapping fields in the national R&D projects of each ministry, and strengthen the organic connection among ministries. The STMM was a new turning point in strengthening effectiveness that could connect deliberation results for budget allocations. The Special Act on Science and Technology Innovation was enacted in March 1997 to regulate the composition and direction of operation of the STMM that became the foundation for the STMM to function as an S&T policy coordinating body (Science and Technology Agency, 1987 & 1997)

TABLE 1 Comprehensive Coordination System by GSTC and STMM

Coordinating Body	Period	Chair	Main Function
General Science and Technology Council (GSTC)	1973-1996	Prime Minister	Pursuant to the Act on the Promotion of Science and Technology, the GSTC was composed of related ministers and appointed private members to coordinate S&T policy and projects
Science and Technology Ministers' Meeting (STMM)	1996-1998	Minister of Finance and Economy (-'97) Minister of Science and Technology (-'98)	Pursuant to the STMM (1996. 3) and enactment of the Special Act on Science and Technology Innovation (1997. 4), the STMM was composed of related ministers to coordinate S&T policy and projects

Sources: Presidential Advisory Council on Science and Technology 2004.

Efforts to coordinate and prevent the overlapping of national R&D projects through the GSTC and STMM failed to meet expectations due to real world restraints (Presidential Advisory Council on Science and Technology, 2004).

2.5 Installation of NSTC as a national-level comprehensive coordinating body

Since the commencement of the President Kim Dae-Jung administration, demands for stronger coordinating function on a ministry-wide basis were made and the National Science and Technology Council (NSTC) was installed and operated under the leadership of the President. The NSTC was in charge of a comprehensive coordinating function for S&T policy, administration at a national level, and coordinating the major items of the S&T budget.

After the inception of the NSTC, the 2015 Science and Technology Long-term Vision was announced in 1999, and the Framework Act of Science and Technology went into effect in July 2001. Through the establishment of the Basic Plan on Science and Technology (founded on the Framework Act on Science and Technology in December 2001) the government presented the mid-term vision, the S&T goal, and strategy to achieve its goal. The establishment of the Basic Plan on Science and Technology integrated, unified, and systemized the government S&T-related policies for all government departments. In addition, the government devoted efforts to improve S&T development planning capability at a national level, such as presenting the S&T vision for the next decade and designing a national road map on 99 core technologies in 2002 (Jeong, Moon-Jae 2003).

The NSTC has had difficulty in the efficient coordination of policies that do not have the ability to tangibly support the powerful coordinating authority of the Ministry of Science and Technology, the major ministry in charge of S&T, and an executive ministry for the NSTC. Furthermore, it has been criticized for a lack of equitability and objectivity from other ministries. In particular, it is regarded as having focused more on the post coordination of R&D projects, rather than a preliminary coordination of policy and planning.

2.6 Planning and Coordination of S&T Policies by a Deputy Prime Minister-led Ministry and the Installation of the Office of S&T Innovation

Recognizing the national importance of S&T since the beginning of his administration, President Roh Moo-Hyun appointed an Information Science and Technology Advisor and proactively worked to become the "No. 2 S&T Country" and build an "S&T-based Society." Such efforts included the overhaul of the S&T administration system. The adoption of the Deputy Prime Minister for Science and Technology system and the Office of S&T Innovation were strategic moves to efficiently achieve such national goals.

The major points were to: ① elevate the Minister of Science and Technology to the Prime Minister and Vice Chairperson of NSTC, ②install the Office of S&T Innovation for a fair and neutral implementation of general planning, coordination and evaluation, ③ grant the authority of coordinating and allocating national R&D budget to the NSTC, and ④ grant independence and autonomy to government-funded research institutes by transferring S&T research societies under the NSTC and provide support in terms of basic research funds and labor costs in order to reinforce the comprehensive planning, coordination and evaluation function nationwide on S&T-related industry, human resources, and regional innovation policies.

The work of the Science and Technology Ministry was significantly reduced. Research in pure and basic sciences and R&D for application and commercialized sciences was transferred to the Ministry of Industry, Resources and Education. Considering the criticism that the Science and Technology Ministry was acting as a player and referee, its responsibility became taking charge of the infrastructure fields that had limited clientele, such as research on large composite and emerging technologies, applied research, and projects to raise public S&T awareness.

The Office of S&T Innovation was founded to improve the efficiency of policy and investment by comprehensively coordinating S&T innovation policies and R&D projects that had been conducted by each ministry in a dispersed manner to the national development strategy. The function of the Office of S&T Innovation was similar to the EPB in the ability to comprehensively coordinate various S&T innovation policies as well as coordinate and allocated R&D budgets. However, this showed that the paradigm shifted from regarding S&T as a part of economic planning that saw it as a less important part of economic development to a part of S&T planning that recognized S&T as a top priority.

The Office of S&T Innovation is composed 60% of employees: government officials of related ministries and external experts (government officials of the Science and Technology Ministry, other ministries, and private experts were composed by a ratio of 4:4:2) to acquire equitability and expertise. The installation of the Office of S&T Innovation transformed an S&T administration system that had been maintained over the past forty years. In addition, director general-rank government officials recruited from outside of the organization were exceptionally innovative in terms of character and the composition of the organization.

TABLE 2 Changes in the R&D Budget Allocation Method after the Establishment of the Office of S&T Innovation

Items	Prior to the Establishment of the Office of S&T Innovation	After the Establishment of the Office of S&T Innovation
R&D Budget Coordination	Evaluation of R&D projects and proposal of comments to the Budget Office after pre-coordination	Incorporation into budget of Budget Office after evaluation of R&D projects & budget coordination and distribution
Setting Ceiling of R&D Expense	Budget Office determines total expenses, while NSTC proposes its opinion on the expense ceiling for each ministry to the Budget Office	NSTC and Budget Office determines total expenses jointly, while NSTC determines the expense ceiling for each ministry and notifies the Budget Office
Main Direction of Investment	NSTC prepares and presents opinions to the Budget Office	NSTC makes a decision that is incorporated in the budget (plan) of each ministry
R&D Budget Deliberation Organization System	Composition of temporary committee led by the private sector	Establishment of a permanent supervisory system utilizing the Counsel of Office of S&T Innovation and private experts
Submission of Plan	Submission of major new and continuous business plan (end of February)	Submission of mid-term business plan (end of January)
Connecting Performance Results to Budget	Performance evaluation results not fully reflected in budget plans	Budget coordination and distribution based on performance evaluation results

Sources: Office of S&T Innovation (Feb. 2005), "Direction of Operating the New S&T Administration System."

Together with these efforts, the Roh administration reinforced the assessment of R&D project results to improve the strategy and efficiency of R&D investment. Moreover, it adopted the Planning Evaluation System based on performances of new businesses with a total budget of over 10 billion KRW, and made it mandatory for ministries to conduct joint planning.

TABLE 3 Installation & Features of the Comprehensive Coordination Body of the Roh Administration

Category	Features of the Comprehensive Coordination Body of the Roh Administration
Comprehensive Coordination Body	National Science and Technology Council
Purpose of Establishment	Strategic R&D investment
Chair/Chair	President (Vice President: Prime Minister for S&T)
Operation of Council	Regular sessions/permanent body
Major Activities	Determination of investment priorities + determination of total budget ceiling for each ministry + pre-coordination of budget by project
Evaluation of Research Project Result	Evaluation of research project + in-depth evaluation
Pre-coordination of Research Project Budget	Determination of investment priority + preliminary review of major research project budget +pre-determination of budget ceiling for each ministry (distribution of total budget, ministry to autonomously set up plans)
Subject	Projects operated by the government budget + Projects conducted by donations
Planning of New Business	Adoption of planning and evaluation system based on the performance of projects with total budget of 10 billion KRW + Mandatory joint planning between ministries
Connection with Budget Planning	Reflection of comprehensive coordination results of the R&D Coordination Committee, which has the authority to deliberate on budgets (total budget distribution)

Sources: Yang, Hee-Seung 2004.

2.7 Pending Issues in S&T and Issue Coordination by S&T-related Ministers' Meeting

The Roh administration installed and operated the S&T-related Ministers' Meeting in order to more effectively discuss pending issues in S&T innovation. The S&T-related Ministers' Meeting was the focal point for S&T policy coordination with the NSTC operated to expeditiously examine the performance of the top thirty NIS tasks of and pending S&T issues.

The S&T-related Ministers' Meeting was a reorganization of the related ministers' meeting in four fields (the economy, human resources development, unification/ diplomacy/security, and society) which was operated based on a state operation system led by the prime minister to activate the cooperation and coordination system in each sector. A new field, S&T, was added to the above, making it a ministers' meeting accountable for the above five fields. The S&T-related Ministers' Meeting is composed of sixteen government officials, including ministers from twelve government agencies, such as the Ministry of Science and Technology (chair), Ministry of Finance and Economy, Ministry of Education & Human Resources Development, Ministry of Industry and Resources and Ministry of Information and Communications, and the Head of Government Coordination, Policy Planning Counsel in the Presidential Secretary's Office, Secretary for Information, Science and Technology, and the Chief of the Office of S&T Innovation. Since November 2004, it has hosted monthly meetings and enabled the efficient agreement and coordination of pending issues, shortened the deliberation period of patents, and improved the new technology certification system. With the installation of the S&T-related Ministers' Meeting, the discussion on S&T policy can now proceed ministry-wide so that it can expeditiously resolve complex and pending issues.

2.8 Integration of education and S&T ministries and the reduced function of NSTC

The President Lee Myung Bak administration integrated and unified similar functions that had been dispersed among different ministries under the policy goal of advancement and practicality through a

smaller government. Accordingly, it built a system of fifteen ministries and two offices and seventeen agencies that is three ministries smaller and two offices compared to the previous administration. The Ministry of Information and Communication, Ministry of Science and Technology and the Ministry of Maritime Affairs and Fisheries were abolished, and the work of the Ministry of Planning and Budget and the Government Information Agency were transferred to other ministries.

In terms of the S&T administration, the government established a large ministry and large state system by integrating the Ministry of Education and Human Resources Development and the Ministry of Science and Technology into the Ministry of Education, Science and Technology (MEST), and a part of the Ministry of Industry and Resources, Ministry of Information and Communication and Ministry of Science and Technology into the Ministry of Knowledge Economy (MKE). In addition, it newly installed the Chief Counsel for Talents, Science and Culture to oversee the work in education, science and culture, abolished the Korea Research Council of Public Science & Technology, and relocated twenty-six S&T government-funded research centers to the Korea Research Council of Fundamental Science and Technology (KRCF), and the Korea Research Council of Industrial Science and Technology (ISTK).

As a result, (with the abolition of the Ministry of Science and Technology) science was transferred to the Ministry of Education, Science and Technology and technology to the Ministry of Knowledge Economy, and the Office of S&T Innovation was also closed. The function of government R&D budget coordination distrubution that used to be under the Office of S&T Innovation was returned to the Ministry of Strategy and Finance. The independent S&T agency that had survived for some forty years since the Science and Technology Agency was established in 1969, was reborn by the integration of education and S&T, fields strongly connected on a working basis. This is a reflection of the government's intention to promote basic research, establish a system of cooperation between academia and research, and advance talented science education (Government Innovation/Regulatory Reform TF 2008).

TABLE 4 Changes in the Organization and Function of NSTC and R&D Budget Coordination and Distribution Authority

Category		**2003-2007**	**2008-2009. 2**
Ceiling for R&D Expenses		Office of S&T Innovation	Transferred to the Ministry of Strategy and Finance
Set up of R&D Budget		R&D budget Coordination & distribution	Direction of R&D budget distribution
Preliminary Feasibility Study		Office of S&T Innovation	Transferred to the Ministry of Strategy and Finance
Study/Analysis/Evaluation		Study/Analysis/Evaluation	- Study/analysis (remains) - Evaluation (transferred to the Ministry of Strategy and Finance)
Umbrella Organizations		Steering Committee, Special Committee (2), Expert Committee (2), Council (1)	Steering Committee, Private Expert Committee by field (6), Council (3)
Others	Secretariat	(Ministry of Education, Science and Technology) Office of S&T Innovation	(Ministry of Education, Science and Technology) Policy Planning and Coordinator
	Executive	Chief of Office of S&T Innovation	Chief Counsel on Education, Science, Culture at the Blue House
	Planning Coordination Committee	Maintained under the Steering Committee	Transformed into an expert committee

2.9 Strengthening of NSTC Function as a Permanent Administrative Committee

In December 2010, the Lee Myung Bak administration accepted the opinion of the S&T society that there was no body to comprehensively manage S&T policy and the National Assembly passed the law stipulated that NSTC was to become a permanent body. The main point of the law was to elevate the advisory council to a permanent administrative council under the President, and strengthen the independence, permanence, and expertise of its secretariat to reinforce the position of the NSTC. This was a response to the criticism that the non-permanent advisory council could not undertake the comprehensive coordination of national R&D policies and that as long as the secretariat belonged to the Ministry of Science and Technology, its ministry-wide supervisory coordinating function would be weak.

In the reorganization plan, NSTC allocates and coordinates 75% of the R&D project budget, with the exception of national defense, humanities and social R&D, and miscellaneous expenditures so that it can plan and coordinate national S&T policies. There are also discussions to enable the NSTC to act as a true control tower by conducting performance evaluations.

TABLE 5 Major points of Reorganization to Reinforce the Position and Function of NSTC

	Current	**Future**
Chair	President	Minister-level
Vice Chair	Jointly served by Minister of Education, Science and Technology	-
Committee Type	Non-permanent advisory (deliberation) committee	Permanent administrative committee
Unique Organization System, Budget, HR	Impossible	Possible
Secretariat & Staff	- Policy Coordination Planning Office of the Ministry of Education, Science and Technology - No more than 30 - Composed fully of government officials	- Separated from Ministry of Education, Science and Technology → Expanded to a secretariat - Approx. 120 - Composed of government officials and private experts
R&D Planning	Each ministry and research institutes	NSTC (ministry-wide connection project)
R&D Policy Coordination & Connection	NSTC	NSTC
R&D Financial Resources Allocation	- Present general direction in budget allocation (NSTC) - Budget allocation and coordination (Ministry of Strategy & Finance) - Determination of R&D expenses ceiling and budget planning (Ministry of Strategy and Finance)	- Present direction of budget allocation (NSTC) - Partial budget allocation and coordination (NSTC) - Determination of R&D expenses ceiling and budget planning (Ministry of Strategy and Finance)
R&D Performance Evaluation	- Evaluation of top and special cases (Ministry of Strategy and Finance) - Self evaluation (each ministry)	Evaluation of top and special cases (NSTC) - Self evaluation (each ministry)
R&D Performance Management	NSTC	NSTC

Sources: Ministry of Education, Science and Technology, Ministry of Strategy and Finance, and Ministry of Administration and Security (Nov. 23, 2010).

3. MAJOR FUNCTIONS

3.1 Continuous Reinforcement of the Coordinating Function Due to a Broader Field of S&T Policy

The Science and Technology Agency was the main ministry for S&T until the mid 1980s and the issue of comprehensive coordination did not emerge. However, with the ongoing increase of the government's R&D budget and various R&D projects conducted in various forms by several ministries, the need to comprehensively coordinate national R&D projects continued to rise. This led to the gradual reinforcement of the body in charge of the comprehensive coordination of S&T policy and functions. The planning and coordination of R&D projects were strengthened through the expansion of the Science and Technology Agency to the Ministry of Science and Technology (1998), the establishment of the National Science Technology Council as the highest deliberation and coordination body for S&T policy (1999), the preliminary coordination of the national R&D budget, the conduct of research, and the analysis and evaluation of national R&D projects.

In 2000, the scope of S&T policy expanded and its position was elevated, this moved the emphasis placed on economic and technological goals for economic growth and national competitiveness to the achievement of harmony with the social goals of sustainability and the improvement of the quality of life. With S&T policy expanding to become a part of economic innovation policy that encompassed industry, technology, innovation, region and education based on technological innovation. The issue of policy coordination is also expanding to the problem of connecting and integrating with other policies for the economy, society, culture, and health as well as on the issue of closer connection and cooperation between the technology supply and technology utilization/demand ministries. With the commencement of the Roh administration in 2003, the effectiveness of S&T coordination was improved by the elevation of the Ministry of Science and Technology to a deputy prime-minister led ministry and the establishment of the Office of S&T Innovation. The recent reorganization of the NSTC was also based on such a policy demand.

3.2 Coordination Based on Vertical Control

Policy coordination in Korea has maintained centralized and bureaucratic characteristics. The S&T coordination system is still caught up in a control tower discussion which signifies vertical control. The design and consideration of an innovative governance as a complicated system that creates a new order as various players interact is still lacking. In the past, powerful policy coordination through centralized and bureaucratic methods was possible; however, previous approaches are no longer relevant as current policies become more complex and related social players become more pluralized.

3.3 Utilization of Various Coordination Bodies

S&T policy was pursued under the centralized leadership of the Korean government. The various institutional devices and functions were created in regards to policy coordination, such as the creation of a ministry in charge of S&T, NSTC, S&T-related council and ministers' meeting, and an S&T advisory body, budget-related ministries, and functions to support the president (Ham, Seong-Deuk 1998). Among them, the organizations that were operated with the sole purpose of S&T policy coordination were the Ministry of Science and Technology, Comprehensive Science and Technology Council, Science Ministers' Meeting, and NSTC; in addition, other agencies and functions had an indirect influence on the coordination of S&T policies.

3.4 Focus on Visible Reorganization of the Body

There have been countless reorganizations of the government agencies since the establishment of the Korean government in 1948. Changes in the regime and national agenda have triggered frequent modifications in the S&T administration, especially the main ministry in charge of S&T and various coordination agencies. In particular, the reorganization of politically salient agencies was a major focus that has been repeated under the Lee administration. The installation of new agencies or positions based on the issues at hand (rather than comprehensive and long-term consideration) is an obstacle to a long-term role, a specialization of the agency in charge, and to the establishment of connections between the related agencies.

4. CONCLUSION AND POLICY IMPLICATIONS

The national S&T innovation coordination system is embedded with unique institutional characteristics that makes the adoption or imitation of outside systems difficult. Building governance relevant to a national policy situation and context is a continuous task that must be relentlessly modified and improved. There is no guarantee that a new system design will be implemented as intended and is why problems must be industriously identified and continuously improved. The people that operate the system and the devices for operation are more critical than the design of the system itself in the S&T policy coordination system.

The debate on reorganizing the Korean coordination system was focused on the reorganization of government structure. Prime examples are the perspectives that the installation or strengthening of a coordinating body or the elevation of a certain minister to deputy prime minister would advance innovative governance. Conventional wisdom recognizes the reorganization of the government structure as a cure-all; however, it is not easy to improve the policy decision-making and coordinating processes to help solve the complex innovative governance issues with the simple solution of structural reorganization. Structural reorganization may be immediate and visible; however, policy effects and problem solving are often time-consuming and not visible (Choi, Byoung-Seon and Choi, Jeong-Won 2008). Therefore, considerable efforts must be made to maintain the evolutionary rationality of previous innovation systems and governance, while continuously modifying and improving them.

References

Choi, Byoung-Seon and Choi, Jeong-Won, *"Challenges and Strategy of the National Operation System."* Seoul: Nanam, 2008.

Ham, Seong-Deuk. *"Science and Technology Leadership of Leaders."* Science and Technology (2002), August Issue.

Hwang, Yong-Soo & Kim, Gap-Soo. *"Study on the Establishment of the Operation System of a Science Technology Coordinating Body."* STEPI, 1999.

Hwang, Yong-Soo et al. *"Study on the Direction on the Development of Science Technology Administration System."* STEPI, 2004.

Jeong, Byoung-Geol and Seong, Ji-Eun. *"Science and Technology and Symbolic Politics: With a Focus on Science and Technology Policy of the Roh Moo-Hyun Administration."* Korean Association for Policy Sciences (2005), Vol. 9, No. 1.

Jeong, Jeong-Gil. *"Institutional Leadership of the President"* Seoul, Korea Economic Daily, 1997.

Jeong, Moon-Jae. *"Necessity and Direction of National Science and Technology Policy Reorganization."* Scientific Ideas (2003), Fall Issue.

Office of S&T Innovation, *"Direction of Operation of a New Science and Technology Administration System."*, Office of S&T Innovation, 2005.

Presidential Advisory Council on Science and Technology (PACST). *"Study on National Science and Technology Administration for the Establishment of a Science Technology Based Societ."*, PACST, 2004.

Science and Technology Agency (STA). *"Twenty Years of Science and Technology Administration History."*, STA, 1987

_____. "Thirty Years of Science and Technology History.", STA, 1987.

Seong, Ji-Eun. *"A Comparative Analysis on the Science and Technology Administration of Countries with Integrated Functions in Education and Science and Technology: With a Focus on Japan, Germany and U.K."* Public Administration Theses (2009), Vol. 47, No. 2.

_____. "Trends and Implications of Integrated Innovative Policies of Major Countries." Issues & Policy (2010), No. 14.

Song, Ha-Joong et al. *"Role of the Top Decision-maker for the Development of Science and Technology."* Presidential Advisory Council on Science and Technology, 2000.

Yang, Hee-Seung, *"Institutional Significance of Comprehensive Coordination of Projects Participated in by Various Ministries."* Fall Academic Seminar of the Korean Association for Policy Studies (2004).