

**2011 Modularization of Korea's Development Experience:  
Public Investment Management Reform in  
Korea: Efforts for Enhancing Efficiency  
and Sustainability of Public Expenditure**

**2012**



MINISTRY OF  
STRATEGY  
AND FINANCE



Korea Development  
Institute



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2011 Modularization of Korea's Development Experience:  
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of Public Expenditure

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2011 Modularization of Korea's Development Experience  
**Public Investment Management**  
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**Efficiency and Sustainability of Public**  
**Expenditure**



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# Preface

The study of Korea's economic and social transformation offers a unique opportunity to better understand the factors that drive development. Within one generation, Korea had transformed itself from a poor agrarian society to a modern industrial nation, a feat never seen before. What makes Korea's experience so unique is that its rapid economic development was relatively broad-based, meaning that the fruits of Korea's rapid growth were shared by many. The challenge of course is unlocking the secrets behind Korea's rapid and broad-based development, which can offer invaluable insights and lessons and knowledge that can be shared with the rest of the international community.

Recognizing this, the Korean Ministry of Strategy and Finance (MOSF) and the Korea Development Institute (KDI) launched the Knowledge Sharing Program (KSP) in 2004 to share Korea's development experience and to assist its developing country partners. The body of work presented in this volume is part of a greater initiative launched in 2007 to systematically research and document Korea's development experience and to deliver standardized content as case studies. The goal of this undertaking is to offer a deeper and wider understanding of Korea's development experience with the hope that Korea's past can offer lessons for developing countries in search of sustainable and broad-based development. This is a continuation of a multi-year undertaking to study and document Korea's development experience, and it builds on the 20 case studies completed in 2010. Here, we present 40 new studies that explore various development-oriented themes such as industrialization, energy, human capital development, government administration, Information and Communication Technology (ICT), agricultural development, land development and environment.

In presenting these new studies, I would like to take this opportunity to express my gratitude to all those involved in this great undertaking. It was through their hard work and commitment that made this possible. Foremost, I would like to thank the Ministry of Strategy and Finance for their encouragement and full support of this project. I especially would like to thank the KSP Executive Committee, composed of related ministries/departments, and the various Korean research institutes, for their involvement and the invaluable role they played in bringing this project together. I would also like to thank all the former public officials and senior practitioners for lending their time and keen insights and expertise in preparation of the case studies.

Indeed, the successful completion of the case studies was made possible by the dedication of the researchers from the public sector and academia involved in conducting the studies, which I believe will go a long way in advancing knowledge on not only Korea's own development but also development in general. Lastly, I would like to express my gratitude to Professor Joon-Kyung Kim for his stewardship of this enterprise, and to his team including Professor Jin Park at the KDI School of Public Policy and Management, for their hard work and dedication in successfully managing and completing this project.

As always, the views and opinions expressed by the authors in the body of work presented here do not necessary represent those of KDI School of Public Policy and Management.

**May 2012**

**Oh-Seok Hyun**

**President**

**KDI School of Public Policy and Management**



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# Chapter 1

## Introduction

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# Introduction

The financial crisis that hit Korea in the last half of 1997 had a devastating impact on the Korean economy, causing the worst recession during the postwar era. In order to address the fundamental causes of the crisis and to revitalize the economy, the Korean government took bold and decisive steps to initiate comprehensive structural reforms. The major focus of reform in the fiscal and public sectors has been to adopt more market-oriented forces and managerial strategies to increase efficiency and transparency. Efforts were made to instill a performance-oriented approach in the system, which implied management of public expenditure, based on the principle of value for money.

The government adopted a series of integrated (ex-ante, intermediate, and ex-post) quality control efforts for the efficient management of its public investment program. A strong and effective project appraisal study, to oversee the project selection process of the line ministries, was established by the budget ministry. A formal review process was introduced to ensure that funds were continually subjected to monitoring and evaluation. In addition, budgeting for public investment was simplified by reducing the number of special accounts and government funds.

The practices of project appraisal in the earlier stage, and total cost management in the intermediate, were found to be more efficient. There was common ground on the intentions and functions of a performance management between the budget ministry and the line ministries. The government introduced the Medium Term Expenditure Framework (MTEF), with a top-down budgeting process in 2004 for fiscal year 2005. The MTEF pointed out a need to enhance the capacity for planning and prioritizing public investment programs in the line ministries. It also emphasized the need to change the role of the Ministry of Strategy and Finance (MOSF) as well.



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This paper seeks to explain the institutional arrangement and reform efforts of the Korean government for developing and managing public investment programs in the last decade, and to find lessons learned to further improve value for money. Section 2 presents a long history and tradition of public investment management system in Korea, under the initiative of the Korean Finance Ministry. This section points to a long tradition of sound and sustainable public investment management within the bodies of government planning and finance ministries, before the crisis in 1997. However, Section 3 discusses major reasons why a number of failures were found in Korean public investment management (PIM) before the IMF crisis. Section 4 presents a new institutional framework for PIM, including a reform to introduce the MTEF, and recent new PIM initiatives. Section 5 examines the evolution and performance of Korean PIM reform. Special attention will be paid to explain how public investment projects are selected, prioritized, and managed in the budget process. New initiatives of total project cost management (TPCM), preliminary feasibility study (PFS), re-assessment study of feasibility (RSF), and re-assessment of demand forecast will be presented and analyzed. The section will also evaluate the performance of these initiatives. Section 6 addresses some of the newly-adopted Korean public private partnership (PPP) projects, substituting traditional government investment. Section 7 presents major driving forces for success in Korea PIM reform. Based on the lessons learned from the PIM reform, seven factors that facilitated successful reform will be highlighted. The last section provides a concluding remark with challenges ahead for a better PIM scheme in the future.



2011 Modularization of Korea's Development Experience  
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## Chapter 2

### Long and Sound Tradition of Public Investment Management

1. Long Tradition
2. Role of the Economic Planning Board (EPB)
3. Project Appraisal Undermined in 1990s

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# Long and Sound Tradition of Public Investment Management

## 1. Long Tradition

The development of the Korean economy proceeded based on the seven series of the “Five-Year Economic Development Plan,” which began in 1962. Public investment in infrastructure was mostly tied to the economic development plan: the government identified and implemented new infrastructure investment projects, as suggested by the Five-year Economic Development Plans.

During the period of Economic Development Plans, most infrastructure investment projects had been evaluated by foreign organizations or experts, including the World Bank (former IBRD; International Bank for Reconstruction and Development) and academic professors, and selected without serious scientific and rational verification. When several planning staff members visited the Economic Development Institute (EDI) of the World Bank, after the second economic development plan had been drafted and completed an education program on investment project review, the efforts to adopt the investment project review system began to take shape. In 1968, the Investment Project Review Manual was prepared and distributed to appropriate agencies. The scientific methods of reviewing investment projects were explained at the State Council, and special education was provided to appropriate officers of economic ministries and executive members of state enterprises.<sup>1</sup>

The Regulations on the Investment Project Deliberative Committee were enacted on August 20, 1970, pursuant to Economic Planning Board Directive No. 52. The regulations provided for any matter pertaining to the composition and operation of the Investment Project Deliberation Committee, to be established to review the feasibility of a variety of investment projects, applied for to the Economic Planning Board. In March 1977, the Regulations on Major Investment Project Review were enacted, in accordance with the

<sup>1</sup> Most of the following points in this section hereafter are based on and revised from the chapter 4 of KDI, *The Korean Economy: Six Decades, 2010* (in Korean)

Economic Planning Board directive. Major investment projects subject to review included new treasury investment and loan projects, costing over 10 billion Korean Won (KRW) in total; public loan projects, for which the Minister of the Economic Planning Board requested a review under the Foreign Capital Inducement Act; private-sector projects, commercial loan projects and foreign investment projects, for which the Minister of the Economic Planning Board requested a review under the Foreign Capital Inducement Act; and overseas resource development projects under the Overseas Resources Development Business Act, among others.

If an investment was made to build a sustainable system by utilizing resources in the national economy, then the distribution of limited resources had a direct impact on the achievement of national goals. The purpose of the government's investment appraisal was to induce investment decisions, so that investment could be appropriately distributed for achieving the national economic goals. Here, several questions were raised: first, what the goal was, and second, how to distribute resources, or investments, as was appropriate for achieving the goal.

It was not easy to define the goal of the national economy in a single word. But it could have been defined as: to build an economy or society where all people can have decent lives, in a general sense. This concept could then be divided into two qualities: making the pie bigger, or distributing the pie evenly among the public. The former focused on efficiency in accelerating the growth of the national economy, in order to increase income levels. The latter focused on equity of income distribution. If efficiency and equity were interpreted in a narrow sense, the goal of the national economy included other issues, such as obtaining an appropriate level of employment, stabilizing prices, and preserving a pleasant living environment. The problem was establishing a methodology for judging and measuring the levels of contribution that investments made to achieve these goals.

Pursuant to the regulations as amended in February 1979, the criteria for review and analysis were: long-term plans and alignment with economic policies; supply and demand; cost, facility size, and international competitiveness; financing capability; debt service capacity; profitability; and overall evaluation. When investment projects subject to the regulations were proposed, the director general of a related bureau of the Economic Planning Board requested that the director general of the Investment Examination Bureau to review the project plans. The director-general of the Investment Examination Bureau then organized a working-level task force team for each project for review, and replied to the director-general of an appropriate bureau with an overall evaluation report.

This kind of approach to investment project review was also actively utilized in the 1980s. As the nation began to expand steadily at an unprecedented rate financially and economically in 1986, the number of projects and their value increased in tandem, rendering effective analysis increasingly difficult. Several problems emerged, including failures to appropriately reflect review findings in the allocated budgets because review deadlines were not specified. The "Regulations on the Major Investment Project Review" were amended in January 1991, to address these problems.

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The major amendments called for, among other things, limiting new fiscal projects subject to review to those with total investment of KRW 50 billion or more. The amendments also called for an internal review for projects with total investment of KRW 10 billion to just under KRW 50 billion by an operating division, promoting improvements in the operating division's capability to review projects. The amendments also allowed a ministry concerned to carry out project reviews prior to the establishment of mid- and long-term plans, and set the end of March as the annual deadline for review for new fiscal projects, in order to bring the review process into sync with the budget process. Overseas resource development projects were excluded from review, given that their economic feasibility was analyzed by a principal entity from overseas resource development funds.

## 2. Role of the Economic Planning Board (EPB)

Government appraisal of investment projects started in the 1960s, when the first economic development plan was established and implemented in earnest. Specifically, it was in 1962, when the first five-year economic development plan was introduced. The government selected investment projects for the economic development plan that could contribute to development goals, and utilize the nation's limited resources such as capital, foreign funds, technology and workforce in the most efficient way possible. In other words, the government started to review investment projects with efficiency as the top priority. At that time, the investment appraisal business was in its infancy, in terms of technical methodologies, and limited to evaluating and determining how much the investment contributed to policy goals. In fact, this was insufficient to clearly verify any project's merits, according to systemic and quantitative criteria.

In the 1970s, as the economy began to grow quickly after years of development efforts, the size of investments also increased, which in turn had a bigger impact on the national economy. As the establishment and implementation of investment plans became complicated, more sophisticated methodologies and techniques were needed. This required comprehensive and systematic investment plans and appraisal systems. Accordingly, the Economic Planning Board (EPB) began to introduce a more sophisticated investment appraisal system. Korea was then unfamiliar with such systems; as a result, the nation prepared a manual and conducted training by introducing methodologies then used by advanced foreign institutions, such as the World Bank and experts from other countries. Once a system was established, it was used to examine the validity of introducing foreign capital for major investment projects. Such activities began with considerable enthusiasm, which continued for the next two to three years.

However, this new policy failed to obtain its objectives by 1973, due to the following reasons:

The number of experts needed to evaluate investment projects was not sufficient. The internal rate of return (IRR), as calculated by non-professionals, had many problems and

was not sufficient for practical application. Applicable methodologies and techniques also did not exist at the time. Instead, methodologies and techniques for investment appraisal were limited to theoretical applications. Generally, adapting theories to practical use result in shortcomings. Development of methodologies suitable for Korea's situation, and sophisticated in terms of theory, required a number of trials and errors, as well as continuous improvement efforts. However, that was not then the case, and the conditions for developing such methodologies had not been created. Also, a dedicated task force to execute plans had not been established. An agency in charge of other matters took on these responsibilities, resulting in inefficient execution of the work at hand. At that time, a few unqualified staff evaluated a considerable number of different projects in cooperation with other equally unqualified experts, who had other unrelated responsibilities. Investment appraisal, by its nature, requires a professional task force and sufficient human resources. However, the government was not able to allocate the large budget necessary to hire a workforce capable of carrying out these tasks. The government was naïve to believe that once the appraisal began, it would take root in due time. Such complacency was one of the causes of failure. The social atmosphere at the time, which was not ready to accept an investment appraisal system, and a lack of awareness also contributed to the failure. This was due in part to the inadequate methodologies then available. It was difficult to develop an appraisal system at this time, when Koreans were not able to embrace the concept of measuring the validity of an investment project with objectivity, and using it as a yardstick for due diligence.

Although the efforts to set up an investment appraisal system did not succeed immediately, this does not mean that no gains were made either. Manuals were prepared and distributed in 1970, 1972 and 1973, enhancing the understanding on the investment appraisal methodologies and techniques. In addition, the planning abilities of public agencies and private enterprises were significantly improved. By 1976, after undergoing a number of trials and errors, there was a consensus that investment appraisal was required for economic development to review problems in the economy and economic policies. As a result, the government decided to implement a new investment appraisal system. Task forces were established in January 1977 (Business Analysis Office of EPB), and expanded as a bureau (Investment Appraisal Bureau) by the end of 1977. A total of four offices had been opened by July 1979, and have been maintained ever since.

Investment appraisal is not conducted exclusively by the EPB. Most government agencies with economy-related responsibilities, in fact, perform investment appraisal to some degree. However, their appraisal tasks are different from the concepts of the investment appraisal discussed above. Specifically, the EPB conducts budgeting, and approves the introduction of foreign capital. Moreover, the EPB plays the important role of allocating resources, meaning that the EPB's investment appraisal is the basis of the government's investment appraisal system. As the EPB's function is closely related to each government agency, government agencies are also encouraged to adopt such methodologies.

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The government is involved in making investment decisions for government projects, and some private projects as well. The EPB plays a major role in making investment decisions by conducting budgeting and approving foreign capital. In terms of the EPB's authority to authorize investment projects through its organizational structure, the Budget Office deals with budgeting, and the Economic Cooperation Bureau handles the introduction of foreign capital. Also, special cases are administered by various relevant departments. The Investment Appraisal Bureau reviews investment projects to ensure that the EPB's business projects are approved and executed based on the needs of the national economy, and makes suggestions to ministers in various relevant departments. Before the inception of the Investment Appraisal Bureau, each department reviewed investment projects, which often led to insufficient analysis due to the nature of the investment appraisal business. Even now, the Investment Appraisal Bureau only reviews major projects of a certain size or bigger, in addition to projects that have great influence on the national economy, since the Bureau has a limited capacity (the Bureau can analyze 15-20 projects at a time). Examination of other projects still depends on a traditional simplified analysis from relevant departments.

The Investment Appraisal Bureau reviews the following projects:

- New government investment and financing with a total cost of KRW 10 billion or more;
- Public loan projects with a total loan of USD 10 million or more;
- Commercial loan projects with a total loan of USD 5 million or more;
- Foreign investment project with a foreign investment of USD 3 million or more; and
- Other important projects recognized by the Minister of Economic Planning Board.

Projects to be reviewed are classified by funding sources, in order to managed workload. the classification is made to allow the Investment Appraisal Bureau to evaluate major projects according to financing sources, and to prevent it from being overwhelmed with cases beyond its capacity, as the size of projects may vary according to financing source. For commercial loan projects, the limit has decreased from USD 10 million or more to USD 5 million, to avoid excessive investments in regard to Korea's economic stabilization policy.

The appraisal processes and analysis methods are different from one another, since investment projects differ depending on industry. For example, in case of manufacturing, the appraisal process focuses on producing goods at the international cost, and securing sufficient demand for such goods. Meanwhile, for social overhead capital, the appropriateness of timing and size of investment in relation to demand, and the existence of alternatives that can accomplish the same target at a lower construction cost, are mainly reviewed during the appraisal process.

Even though the analysis methods differ depending on the industry, discount cash flow (DCF) analysis is commonly used to determine the merits of any project. The flow of costs is



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forecasted by analyzing investment costs, operating expenses and other wealth effects, and the flow of benefits or income derived thereof. Then, the two values are compared using the discount cash flow analysis to verify a project's investment merits. Since the cost-benefit analysis, which assesses the monetary social costs and benefits of a capital investment project, has technological limitations, a system approach which studies the relevance to the overall system and traditional qualitative analysis are also used as supplementary methods. In addition, a financial analysis, which assesses profitability or business performance of investment projects, and economic analysis, which reviews the benefits to the national economy are used simultaneously.

Korea was encouraged to prepare and use a manual, which specifies the general rules and guidelines for the appraisal and analysis. Currently, manuals have been published for the manufacturing, agriculture and transportation sectors, and further efforts have been made to supplement existing manuals, and publish manuals for other sectors.

### **3. Project Appraisal Undermined in 1990s**

Investment project reviews headed by the Economic Planning Board until the early 1990s was considerably undermined in 1994, when the Review and Evaluation Bureau was disbanded with the consolidation of the Ministry of Finance and the Economic Planning Board, as the new Ministry of Finance and Economy. The Budget Office was not able to sufficiently review the results of feasibility assessments of major projects submitted by each operating division, due to a lack of expertise and time. Feasibility assessments at that time were merely a means for an operating division to secure project budget funds. Indeed, out of 33 projects, for which feasibility studies were carried out between 1994 and 1998, only one project was ruled infeasible.

**Table 2-1 | Results of Feasibility Study Conducted between 1994 and 1998**

(Unit: KRW 1 million)

Competent ministry	Number of projects	Budget	Result		Under study
			Feasible	Infeasible	
Ministry of Construction and Transportation	15	12,829	9	1	5
Korean National Railroad	6	730	6	0	0
Ministry of Agriculture and Forestry	1	102	1	0	0
Ministry of Maritime Affairs and Fisheries	16	12,770	14	0	2
Ministry of Culture and Tourism	5	930	1	0	3
Ministry of Environment	1	405	1	0	0
Ministry of Science and Technology	1	600	0	0	1
Total	44	28,366	32	1	11

Note: The only project ruled infeasible after feasibility study was for Ulleung Airport. The study was carried out from 1997 to 1998.

Source: Improvement of Efficiency of Public Projects by the Planning and Budget Committee, press release, September 22, 1998.

Furthermore, as there were no government-wide guidelines in place for feasibility assessment of major projects, the coefficients used for feasibility assessment were not consistently applied across operating agencies. The social discount rate, used to convert future values into present values, was 13 percent across the board in the early 1980s. This rate was too high for some investment areas, and it was reduced to 10 percent for some industries, such as electric power generation. Regarding feasibility assessment for expressway projects, factors such as maintenance costs, vehicle operating costs, or value per hour were all applied differently for different projects. The value per hour applied to all types of feasibility studies for expressway projects in the early 1990s indicated that each project used different vehicle types and values.

Major improvements were made to feasibility studies in the wake of the 1997-1998 Asian financial crisis. The original budget for 1998, which was passed during the regular session of the National Assembly in November 1997, was based on an estimated economic growth rate of 10.8 percent. However, the economic growth rate was expected to plummet due to the subsequent currency and financial crisis, requiring substantial budget restructuring to overcome economic turmoil. The need to restructure overall annual expenditures led to a review of priorities in public projects. In 1998, the Planning and Budget Committee

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used and cited glaring problems with the feasibility studies, arguing that feasibility studies performed under the supervision of each ministry lacked objectivity and reliability, and that there were no uniform and standard guidelines in place for feasibility studies.

In formulating the 1999 budget, the Planning and Budget Committee's assertion that feasibility studies for new large projects could not be left up to each ministry was convincingly poignant. Ministries nevertheless made counterarguments, claiming that feasibility studies require each of their unique expertise, and that no single country allows a budget authority to carry out feasibility studies by itself. This confrontation was finally settled by introducing the pre-feasibility study system, in which the Planning and Budget Committee conducts preliminary feasibility studies before a competent ministry sets out a full-fledged feasibility study. The Enforcement Decree of the Budget and Accounts Act was amended in April 1999 to require that any new large project be carried out with a pre-feasibility study, feasibility study, basic design, implementation design, compensation, and construction. The Planning and Budget Committee established the Public and Private Infrastructure Investment Management Center at the Korea Development Institute to undertake pre-feasibility studies, and provided pre-feasibility study funds for the Center.



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## Chapter 3

### Troubles with Public Investment Management in Korea

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## Troubles with Public Investment Management in Korea

As addressed in the section above, the Korean government embarked on a thorough reform of the corporate, financial, and public sectors after the economic crisis. The public sector reform undertook far-reaching measures to restructure government ministries and public programs as well. The government had found that there were large capital cost projects with negative social rates of return prior to the crisis. These projects should have been screened out at or before the prefeasibility stage. Powerful political interests, however, were able to evade the approval process, or hide the project in the budget, with a weak appraisal and approval system.

For example, the Kim Dae-Jung Administration that took office in February 1998 organized a task-force to reassess the feasibility of the Seoul-Busan Express Railway (KTX) Project. The KTX construction was the largest single construction project in Korean history. The baseline cost had increased from 5.5 trillion Korean Won (\$5.5 billion USD) to KRW 18.5 trillion (\$18.5 billion USD). At the time, critics noted that the feasibility study team had knowingly underestimated the costs to make the project seem feasible. A special committee investigated the results of the feasibility studies conducted in the late 1990s. Since the 1970s, line ministries had conducted feasibility studies to procure government budgets for the projects. Between 1994 and 1998, 32 from a total of 33 large-scale projects were evaluated as feasible in main feasibility studies conducted during that period. The feasibility study team now seemed heavily under the influence of relevant line ministries or powerful politicians. They tended to underestimate costs and overestimate benefits, which combined, led to higher B/C ratio results.

Six points in Korean PIM explained what went wrong and why. First, the feasibility studies on these huge projects were influenced heavily by interest groups, including line ministries, finance or economic planning ministries, local governments, politicians at the National Assembly, and other powerful political groups. The line ministry, directly in charge of the project implementation, was operating under a conflict of interests. Finance

or economic planning ministries, less likely to be influenced by conflict of interests, were usually lacking in expertise and knowledge of the projects. Local governments, as well as the politicians at the National Assembly, were the most heavily subjected to conflict of interests. Establishing a clear and transparent ownership scheme of the project appraisal and approval system, therefore, was very much needed.

Second, throughout the PIM process, there were no independent review processes at all. An independent review concerning the the quality of the appraisal, or approval of a project, is important. This quality control could be performed by an internal agency, such as a research entity, NGO, university, etc., by a central government agency entrusted with oversight of line ministries, or agencies that design and appraise the projects or programs. Until the end of 1998, there was no independent body or agency in Korea to make a neutral review of appraisal and approval decisions. Without an independent review, therefore, final judgments on big projects were likely to be skewed to be feasible.

Third, “economic value,” in general, was not isolated from “social value” in appraisal or approval decisions. While economic values were easily quantifiable through the methodology of cost-benefit analysis, social values, such as the degree of policy consistency, environmental impact, or balanced-development goal, etc., were not quantifiable. Indeed, there were no rules on how to combine the two values. Sometimes, ‘social values’, without transparency, interrupted the approval decision, leading to approval for projects that were ultimately not feasible.

Fourth, a lack of standardized guidelines and databases was another factor that contributed to the failure in PIM control. While a number of manuals and guidelines for cost-benefit analysis and feasibility studies had been published by various countries and experts, a Korean version of standardized guidelines was yet to be formally announced. A poor knowledge database that was underdeveloped and updated only sporadically prevented a functional approval assessment system.

Fifth, capital project budgeting by the government was frequently inconsistent with the Medium Term Expenditure Framework (MTEF) budget. The budget system plays a critical role in determining the quality of any PIM project. In Korea’s case, the timing of the stages in each project cycle was simply not followed. Instead, there existed a great disjoint between projects cycles and budget cycles, which raised problems of inconsistency between capital cost management and budgeting, especially for MTEF. Although MTEF budgeting has been adopted since 2004, the project appraisal and approval process has generally been regarded as one budget estimate, while MTEF budgeting was considered a wholly different budget.

Sixth, the interested groups, including the line ministry, the finance ministry, local governments, and politicians, took serious care of feasibility studies results for the projects at the ex ante stage. However, no group paid attention to how and what needed to be done in the later implementation stages. Following the completion of the appraisal and approval, nobody would care about how the projects were carried out, which may help explain the poor outcomes and performance management.





2011 Modularization of Korea's Development Experience  
Public Investment Management Reform in Korea:  
Efforts for Enhancing Efficiency and Sustainability  
of Public Expenditure

## Chapter 4

### Institutional Framework for PIM Reform

1. Recent Change from Bottom-Up to Top-Down Budgeting
2. New PIM Initiatives

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# Institutional Framework for PIM Reform

## 1. Recent Change from Bottom-Up to Top-Down Budgeting

The budget process in the Korean government has been undergoing a significant change. The government introduced the Medium Term Expenditure Framework (MTEF), together with top-down budgeting in 2004 for fiscal year 2005.<sup>2</sup> The reform is intended to address several defects found in the budgeting process. Prior to the introduction of the MTEF, budgeting was centered only on the following year, lacking a medium-term perspective. The MOSF and the National Assembly gave little consideration beyond the subsequent budget year. Line ministries had little information on the quantity of resources that would be available to them in the subsequent years, and their medium- to long-term planning function was severely limited. It was also difficult for the MOSF to identify and cope with the changing trends in public expenditure. Without a long-term view on the appropriate level of tax burden, the MOSF would simply allow ever-increasing public spending to accommodate rising demands from various sectors.

Before the introduction of the top-down process, budgeting relied excessively on a bottom-up approach. At the initial stage of budget preparation, the MOSF made rough estimates of the total size and the allocation of the next year's budget by sectors. But the estimates were not transmitted to line ministries, and therefore could not guide line ministries in preparing their budget requests. When reviewing their budget requests, the MOSF focused on the microscopic control of expenditures for individual public investment programs. The allocation by sector and the total size of the budget were determined at the last stage of budget preparation, by aggregating the expenditures for individual programs. As a result, the control of inputs assumed a major significance in budget discussions, and

<sup>2</sup> Potter and Diamond (1999), Schiavo-Campo and Tommasi (1999), and World Bank (1998) provide a useful guide on these kinds of reforms.

little attention was paid to outputs or outcomes. The accountability and autonomy of line ministries in preparing and managing their budget was also severely limited. Line ministries usually requested unrealistically large amounts, and massive cuts were therefore inevitable.

With the introduction of the MTEF and top-down budgeting, all these shortcomings have become mitigated. The annual budgeting exercise now starts with a discussion on fiscal management over the next five years including the current year, the budget year, and three out-years. Following this discussion, the MOSF transmits spending ceilings for sectors and programs to line ministries.<sup>3</sup> These ceilings encompass the general budget, in addition to special accounts and funds. Line ministries are asked to prepare their budget requests within these ceiling amounts. When reviewing the ministerial budget requests, the MOSF places less emphasis on the microscopic control of line items, and more emphasis on the strategic alignment of budget requests, with overall policy directions.

## 2. New PIM Initiatives

In order to overcome shortcomings in PIM, and to enhance efficiency and transparency of public investment, the government organized a cross-ministerial task force to develop an action plan. The task force was jointly headed by the Ministry of Planning and Budget<sup>4</sup> (Currently MOSF), and the Ministry of Construction and Transport (Currently Ministry of Land, Transport, and Maritime Affairs). It issued “A Comprehensive Plan to Enhance Efficiency of Public Investment” in July, 1999. The Plan introduced various policy measures, and designated solutions for weak points in the existing public investment management system.

One of the key features of the new public investment management was the intensification of the system of monitoring the project implementation process by the budgeting agency. For example, the Ministry of Planning and Budget (MPB) took ownership of the Preliminary Feasibility Studies (PFS), the results of which were reflected on budget allocation. With distrust of feasibility studies conducted by the line ministries, the MPB tried to take over these responsibilities. But the line ministries, especially the MLTM, resisted the idea. As a result, the PFS was established to settle the bargaining process that ensued, ultimately alleviating all resistance from the line ministries.

The Total Project Cost Management System (TPCM), under which the budget ministry checks cost increases from the baseline throughout the project life, was also strengthened. Introduced in 1994, the TPCM became an effective measure of government expenditure management after the financial crisis. Under the TPCM System, Re-assessment Study of

<sup>3</sup> Ceilings are set for 14 spending areas, such as social infrastructure, agriculture, education, and environment and then disaggregated into 56 programs. For example, social infrastructure has seven programs, including roads, railways, subways, ports, airports, housing, and water resources. Separate ceilings are also set within each program for the general account, in addition to various special accounts and funds.

<sup>4</sup> The former body of MPB was the Board of Planning and Budget that merged with the Office of National Budget to create MPB in May, 1999.

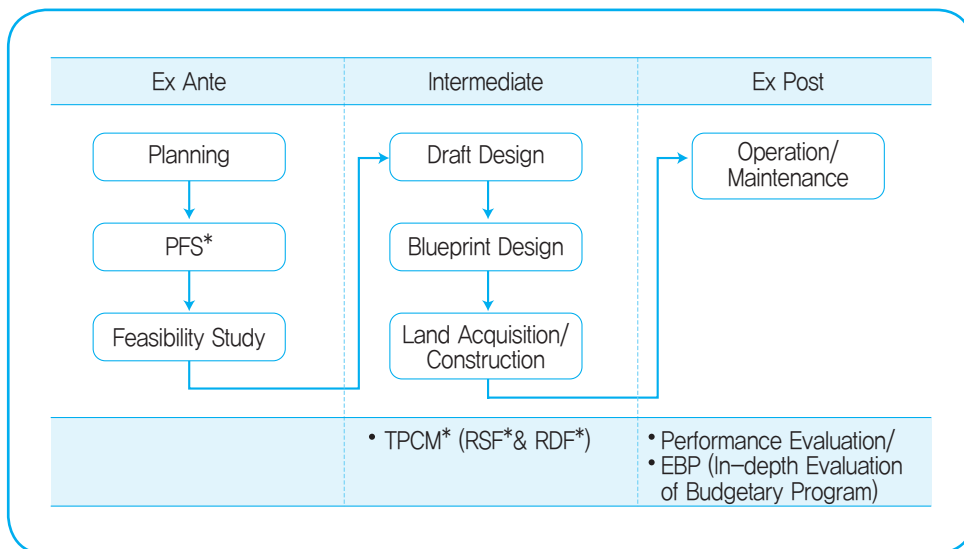
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Feasibility (RSF) and Re-assessment of Demand Forecast (RDF) were introduced in 1999 and 2006, respectively. RSF and RDF recast feasibility studies, and demand forecasts on projects under design development or construction, to decide whether the project may keep going. The RSF guideline and RDF system were developed and introduced after the PFS system was established. The guidelines of RSF and RDF adopt the same analytical methodology as that of the PFS.

For the line ministries, MLTM introduced an ex-post performance evaluation system in 1999. According to the Comprehensive Plan, the line ministries were supposed to evaluate the performance of a project within three years after the construction work was completed. In 2000, the Ministry amended the Enforcement Decree of the Construction Technology Management Act to incorporate the initiatives included in the Comprehensive Plan. The legal grounds for the PFS and TCPM's enforcement decrees and administrative guidelines were based on several laws, such as the Budgeting and Accounting Act, and the Fund Management Act. In 2006, the National Finance Act, combining fiscal-related acts, was legislated to stipulate diverse policy measures of public investment management.

With the establishment of a legal framework for public investment, projects would thereafter be implemented in accordance with the project process shown in [Figure 4-1]. Throughout the process, the budgeting ministry produced information necessary for decision-making on budgeting through PFS, RSF, RDF, and in-depth program evaluations. In the past, line ministries provided selective information to procure higher budgets. And the MPB (currently MOSF) would cut project budgets, and not always on a reasonable basis. New devices investigating the projects in detail have made it possible for the budgeting ministry to manage public investment in a more effective way.

**Figure 4-1 | The Implementation Process of Public Investment\***



Note: 1. With PIM reform, the evaluation works with asterisk (\*) are owned by MOSF.

2. PFS: Preliminary Feasibility Study

TPCM: Total Project Cost Management

RSF: Re-Assessment Study of Feasibility

RDF: Re-Assessment of Demand Forecast



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## Chapter 5

### PIM Reform Evolution and Performance

1. Effective Project Appraisal through Preliminary Feasibility Study (PFS)
2. Tightened Procurement and Capital Budget Implementation
3. Performance Management and Evaluation of Completed Projects

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# PIM Reform Evolution and Performance<sup>5</sup>

## 1. Effective Project Appraisal through Preliminary Feasibility Study (PFS)

### 1.1 PFS Initiative

The Preliminary Feasibility Study (PFS) Preliminary feasibility study denotes advance verification and evaluation of feasibility, carried out under the supervision of the Minister of Strategy and Finance (MOSF), in order to formulate budget and fund management plans for new large-scale projects. The purpose of the preliminary feasibility study is to prevent budgetary waste and contribute to enhancing the efficiency of financial management, by ensuring that new government-financed projects are implemented in a transparent and fair manner, according to established priorities based on an objective and neutral study of the feasibility of large-scale government-financed projects.

PFS is a brief evaluation of a project to produce information for budgetary decisions. Under the new procedure, the MOSF established the Public Investment Management Center (PIMA) within the Korea Development Institute (KDI), with the mandate to conduct research and an operational management role in implementing PFS.<sup>6</sup> The PFS is conducted by a multi-disciplinary research team organized by PIMA (now PIMAC), typically consisting of economists in academia, transportation researchers, and civil engineers. The mixture of specialists from different backgrounds and organizations helps to provide diverse ideas for the appraisal, and improve the transparency and objectivity of the decision-making process.

<sup>5</sup> Most of the content of this section is based on Jay-Hyung Kim, "Public Investment Management Study: Country Report for Korea," Public Investment Management: Global Synthesis, World Bank, 2012, forthcoming.

<sup>6</sup> In January 2005, the government of Korea passed an amendment to the 1999 Act on Private Participation in Infrastructure establishing the Public and Private Infrastructure Investment Management Center (PIMAC) as a new unit. PIMAC is a merger between Private Infrastructure Investment Center of Korea (PICKO) of Korea Research Institute for Human Settlements, established in 1999, and PIMA of KDI.



The MOSF directly organized two regular meetings, the mid-term report meeting and the final report meeting, with members of staffs from the budget and line ministries, PIMAC, and field specialists. Open discussions are held regularly on the PFS mid-term and final reports.

PFS aims to enhance fiscal productivity by launching large-scale public investment projects based on transparent and objective ex-ante project evaluations. The meaning of “preliminary” is two-fold: first, it means “provisional” evaluation which implies a brief examination; and second, it is an evaluation that precedes a detailed feasibility study. The National Finance Act of 2006 provides the legal framework for PFS.<sup>7</sup> Before the legislation, PFS was based on the Enforcement Decrees of the Budgeting and Accounting Act, and the Fund Management Act, which were both merged into the National Finance Act in 2006.

The coverage of PFS is so extensive that it has made notable changes in its project management purview since its inception. All new large-scale projects with a total cost of KRW 50 billion (about \$50 million USD) or more are subject to PFS. With the National Finance Act, PFS has expanded its scope to non-infrastructure (e.g. R&D) projects, while prior to the Act it was mainly conducted for infrastructure projects. Local governments and PPI (Private Participation in Infrastructure) projects are also subject to PFS, if the central government subsidy exceeds KRW 30 billion.

**Box 5-1 | Projects Subject to Preliminary Feasibility Study  
by Article 4 of the Enforcement Decree of the National Finance Act:**

- (1) Preliminary feasibility studies shall be conducted for new projects that fall under any of the following subparagraphs:
1. Construction projects, informatization projects and national R&D projects, of which total project costs amount to not less than KRW 50 billion, and for which government financial support amounts to not less than KRW 30 billion; and
  2. Projects in social welfare, health, education, labor, culture and tourism, environmental protection, agriculture, forestry, maritime affairs and forestry, industries and small&medium-sized enterprises, of which medium-term fiscal expenditure amounts to not less than KRW 50 billion (hereinafter referred to as “other non-invested financial projects”).
- (2) Construction projects as provided in paragraph (1)1 signify projects involving construction works such as civil engineering and architecture, and informatization projects and national R&D projects as provided in the paragraph denote projects subject to compilation of an informatization budget and an R&D project budget according to the Guidelines by Detailed Project Type of the Guidelines for Formulation of a Budget Bill.

<sup>7</sup> The hierarchy of the legal framework in Korea is, Constitution-Act-Enforcement Decrees-Ministerial Ordinance.

(3) Other non-invested financial projects as provided in paragraph (1)2 denote projects that do not fall under construction projects, informatization projects or national R&D projects as provided in paragraph (1)1, among those projects that fall under social welfare, health, education, labor, culture and tourism, environmental protection, agriculture, forestry, maritime affairs and forestry, industries and small&medium-sized enterprises according to the category/ sector classification under the program budget system.

(Example 1) Public medical informatization project of the Ministry for Health, Welfare and Family Affairs: This is a project falling under social welfare under the program budget system, but is classified as an informatization project.

(Example 2) Construction of the Gyeongju historic city culture center by the Ministry of Culture, Sports and Tourism: This is a project falling under culture and tourism under the program budget system, but is classified as a construction project.

The following types of projects are exempted from PFS: typical building projects, such as government offices and correctional institutions; legally required facilities, such as sewage and waste treatment facilities; rehabilitation and restoration works following natural disasters; projects implemented by international accords and by the South-North Korea exchange and cooperation program; and military facilities and projects related to national security.

**Box 5-2 | Projects Exempt from Preliminary Feasibility Study by Article 11 of the Enforcement Decree of the National Finance Act:**

1. Construction or expansion of public buildings, correctional facilities, and elementary and secondary education facilities;

(Note) Public buildings: buildings, adjunct facilities and the land thereof that the central government utilizes, or has decided to utilize, as office space for central administrative agencies and entities belonging thereto and as residential space for government officials. (See Articles 2 and 3 of the Government Building Management Regulations.)

2. Cultural property restoration projects;

3. National defense-related projects, which pertain to national security or require confidentiality;

4. Projects that pertain to inter-Korean exchange and cooperation or are pursued according to an international convention or treaty;

5. Simple improvement, maintenance and repair projects to enhance the efficiency of existing facilities including, but not limited to, road maintenance and repairs and upgrades of aged water supply systems;
6. Projects which need to be undertaken urgently to prevent disasters, support restoration, ensure facility safety and promote health and food safety, etc.;
7. Installation of facilities or implementation of a project that are mandated to be pursued according to applicable laws;
 

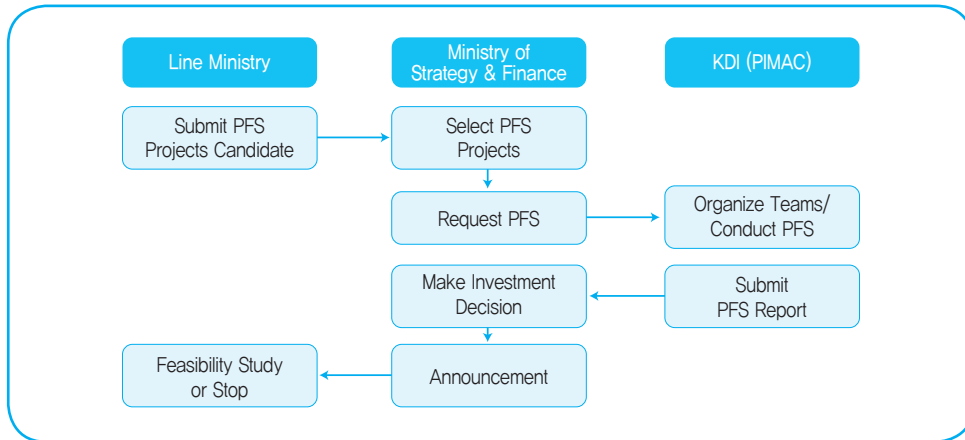
(Example) Statutory or necessary facilities: installation of sewage treatment plants, waste disposal facilities, utility-pipe conduits\*, etc.
- \* Facilities installed underground to preserve road structure and enable smooth road traffic by jointly accommodating necessary infrastructure (electric power, gas and water supply systems, drainage system, etc.)
8. Projects regarding which preliminary feasibility study generates no practical benefits such as provision of labor costs and ordinary expenses and provision of loans to government-contributed or assisted entities; and
9. Projects as determined by the Minister of Strategy and Finance that need to be implemented under national policies for such purposes as promoting balanced regional development or responding to urgent socioeconomic conditions

In every budget cycle for public infrastructure projects, the PFS procedure is as follows. In the first stage, a concerned line ministry submits a list of PFS candidate projects to the MOSF, and the MOSF selects the projects and requests PFS to be conducted by PIMAC at KDI. In cases where the head of a central government line ministry intends to reflect a project subject to preliminary feasibility study in a draft budget or fund management plan, he or she shall request to the MOSF that a preliminary feasibility study be conducted, in principle, by the year immediately preceding the previous year of implementation, in consideration of the period required for such study; provided, however, that there exist any urgent and unavoidable circumstances requiring implementation of the project, he or she may request a preliminary feasibility study regarding a project to be executed in the immediately following year.

The head of a government ministry shall prepare and submit a “written request for preliminary feasibility study” as specified: project plan (draft); need for project implementation; adequacy of the central government subsidy; amount and financing method of necessary resources; factors of balanced regional development (“need for technological development” in the case of an R&D project); and risks associated with project implementation and countermeasures, among others.

PIMAC organizes the research team, conducts the PFS, and submits the final PFS reports to the MOSF. In the middle of conducting the PFS and making a final decision, the PFS Review Committee takes charge of the whole review process.

Figure 5-1 | PFS Procedure

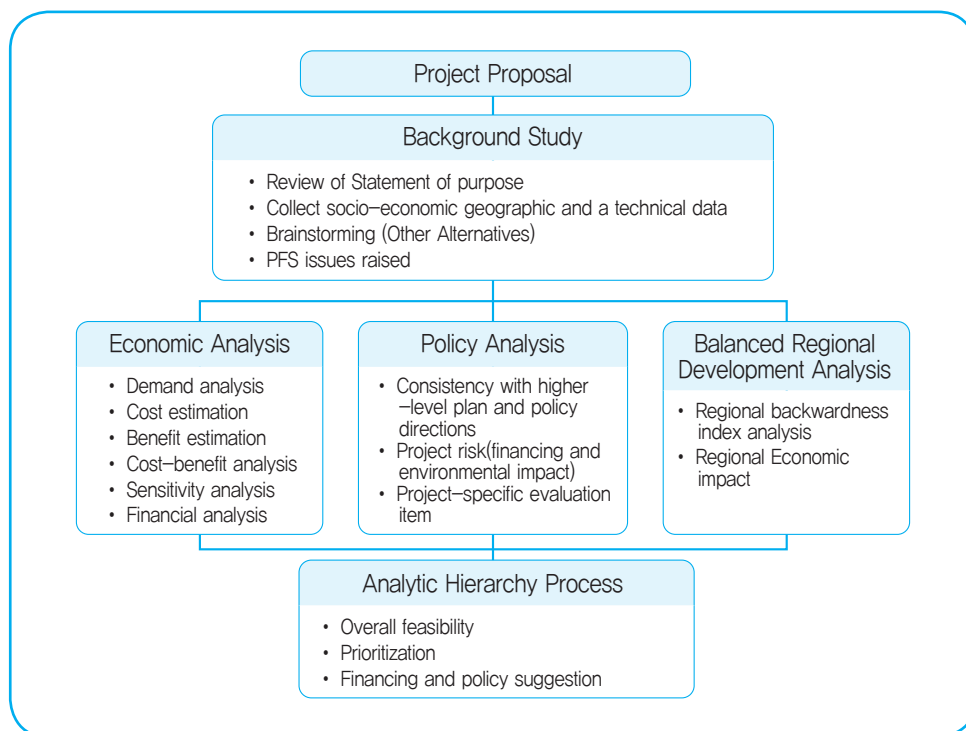


PFS is conducted in the following three phases: background study, main analyses, and synthesis. Background study reviews the statement of purpose and collects background data on socio-economic, geographic, and technical aspects of the project. And, PFS issues are raised in the background study through a brainstorming process.

The main analyses include economic analysis, policy analysis, and balanced regional development analysis. The backbone of the economic analysis is the Cost-Benefit Analysis. Benefits shall be calculated by estimating the needs for implementation of a project, and costs shall be computed by aggregating total project costs, and all other expenses incurred for the operation of the project. Economic benefits and costs of a project are estimated based on the forecast demand. The criteria of B/C ratio, NPV (Net Present Value), and IRR (Internal Rate of Return) are calculated based on the stream of annual benefit and cost. As of July 2007, a social discount rate of 5.5% in real terms is applied to the analysis, based on the trend of risk free interest rates in Korea.

Policy analysis examines the effects of the projects in qualitative and quantitative terms, including consistency with higher level policy, project risk and other project-specific considerations. In the category of consistency with higher level policy, the attitudes of the project owner and local residents toward the project, and preparedness of the project are examined. In the project risk category, the risk of funding availability and the environmental risks generated by the project are evaluated.

Figure 5-2 | Contents of PFS



Balanced regional development analysis evaluates the project from the perspective of regional dimension. The regional backwardness index, which is a composite index of eight characteristics for local entities, has been developed by the PFS guidelines.<sup>8</sup> The regional economic impact analysis is also conducted through MRIO (Multi-Regional Input-Output) model.

To synthesize the results of economic, policy, and balanced regional development analyses, AHP (Analytic Hierarchy Process) technique is applied in the PFS. AHP is a multi-criteria decision-making approach that combines quantitative and qualitative analyses into a decision under a hierarchical structure.<sup>9</sup> The uniqueness of AHP lies in creating a hierarchy for a complex problem, by establishing major/minor factors and examining the importance of each factor through pair-wise comparison. AHP enhances objectivity in decision-making by analyzing and managing the entire process of decision-making in steps. AHP also ensures consistency of weights derived from pair-wise comparison, guaranteeing the robustness of the decision-making process.

<sup>8</sup> Eight characteristics in a composite index are rate of population growth, percentage of workers in manufacturing industry, per capita road lengths, per capita vehicles, per capita medical doctors, percentage of aging people, percentage of urban land occupation, and percentage of local financing autonomy.

<sup>9</sup> For detailed information on AHP, see Saaty (1980)

In conducting an AHP, weights applicable to each evaluation item is to be determined within the scope of each of the following weight class, by project type without special circumstances:

- Construction projects: economic analysis (40~50%), policy analysis (25~35%), balanced regional development (20~30%);
- R&D and information projects: in cost benefit analysis, economic analysis (40~50%), technical analysis (30~40%), policy analysis (20~30%), while, in cost effectiveness analysis, economic analysis (30~40%), technical analysis (40~50%), policy analysis (20~30%); and
- Other non-invested financial projects: economic analysis (25~50%), policy analysis (50~75%).

### Box 5-3 | Outline of the AHP method

The AHP method is one of the decision-making methods that help systematically evaluate alternatives with different levels of preference when there are multiple decision-making goals or evaluation criteria. It was developed by Thomas Saaty in the early 1970s, and has been widely used for qualitative, multi-criteria decision-making. The AHP method gathers together evaluation attributes considered in decision-making as a homogeneous group, stratifies them into multiple levels, and analyzes and puts them together by each level to come to a final decision.

The AHP method reflects qualitative characteristics of public investment projects in evaluation and properly induces professional judgment by researchers participating in evaluation. Considering that a preliminary feasibility study is a step prior to a regular feasibility study and carried out in a short time with a small budget, the AHP method is significant in that it is simple and helps systematically analyze issues where decision-making is complex.

In general, the AHP method entails the following steps:

#### (1) Conceptualizing

The first step of AHP analysis to form a conceptual framework about evaluation, including its goal, items, alternatives, restrictions, evaluators, and interested parties. This conceptualization process allows evaluators to better understand the overall project like its characteristics and issues, and to share information and critical thinking about the project. This step should be carried out at the early stage of a preliminary feasibility study to ensure correct understanding of the project along with the rest of the study.

Brainstorming is often done for efficient and effective conceptualization. It is a group creativity technique to uncritically enumerate as many considerations as possible about the concerned project and consider them one by one.

Preliminary feasibility studies entail the two following steps of brainstorming: the first step is brainstorming at the level of individual projects to increase understanding through meetings among the project manager and joint research teams, visits to the responsible ministry and involved agencies, and visits to the concerned region. The second step is brainstorming at the level of all corresponding projects. The KDI preliminary feasibility study management team discusses the research results of the project with all the researchers participating in projects, to designate issues that are not found at the level of individual projects. This provides an opportunity to hear expert opinions from researchers performing preliminary feasibility studies on relevant or similar projects, to ensure exchange of valuable information.

## (2) Structuring

Next is structuring to review evaluation items identified at the conceptualization step and finalize evaluation standards, gather them into homogeneous groups, and hierarchize these groups at an appropriate level.

Evaluation items identified at the conceptualization step can vary in terms of importance and scope, ranging from the trivial to the important, and from the detailed to the comprehensive. Also, as no terms were precisely defined in advance, evaluators may have different understandings of the same terms. For instance, economic feasibility analysis can mean cost-benefit analysis, and in some cases, can include aspects like ripple effects on the regional economy. As such, to finalize evaluation standards, the meaning of first identified evaluation items should be clearly defined to minimize potential for misunderstanding.

Once evaluation items for comprehensive evaluation are finalized, it is time to gather items with different levels of importance and scopes into homogeneous groups and stratify these groups into an appropriate level. In general, the items at a low level become detailed evaluation standards that concretize high-level items. At the highest stratum is a comprehensive evaluation of preliminary feasibility, the final goal of decision-making. Preliminary feasibility is evaluated based on the results of economic feasibility analysis and policy analysis. Policy analysis involves basic evaluation items and project-specific evaluation items: basic evaluation items are those included in any preliminary feasibility study, and project-specific evaluation items are those which should be given due consideration in evaluating the concerned project.

The lowest stratum of the AHP hierarchy is divided into an alternative to “implement a project” and an alternative “not to implement a project.” Project proposals, of which implementation is determined at this step, are those judged to be the best from among multiple alternatives presented for preliminary feasibility study. This means the final goal of decision-making is that researchers participating in preliminary feasibility study must decide whether to implement an optimal alternative of their choice.

### (3) Weighting

This step is where the level of relative importance is determined among evaluation items at each stratum of the hierarchy structure. Evaluators repeatedly answer questions that compare the relative importance (or preference) between evaluation items regarding all the pairs of two evaluation items belonging to the same group and stratum. This pair-wise comparison process represents evaluators' judgment as verbal expressions and grants quantified scores corresponding to such expressions. Relative evaluation through pair-wise comparison requires a credible evaluation scale. Such scale should be set in a scope that can reflect the maximum differences possible. The AHP method uses a scale of nine points as a basic type, based on research results in the cognitive psychology area.

Scale of importance used for pair-wise comparison

Verbal judgment	Quantitative scoring
Extreme preference	9
Between extreme preference and very strong preference	8
Very strong preference	7
Between very strong preference and strong preference	6
Strong preference	5
Between strong preference and weak preference	4
Weak preference	3
Between weak preference and equal preference	2
Equal preference	1

Note: Saaty and Vargas, 1982.

As the weights of economic feasibility analysis and policy analysis at the highest stratum have a big impact on the weighted sum, the previous guidelines set the scope of preliminary weights (45-56%) for economic feasibility analysis to reduce motivational bias, in the case of road and railroad projects.

These guidelines set the calculation scope of weights for different analysis areas as in Table according to the change in the "2009 operating guidelines for preliminary feasibility studies":



### Scope of preliminary weight calculation

Classification	Economic feasibility	Technical feasibility	Policy feasibility	Balanced regional development
Construction project	40~50%	-	25~35%	20~30%
R&D · Informatizat	30~50%		50~70%	-
Other non-investment finance areas	25~50%	-	50~75%	-

For the weights of low-level evaluation items, Saaty's nine-point scale is used to measure the relative importance between two items through pair-wise comparison, and ultimately estimate the relative weights of each item.

In AHP analysis, the degree of consistency in answers is represented as an 'inconsistency ratio.' An inconsistency ratio of 0 means the answerers keep perfect consistency in pair-wise comparison. According to Saaty, if the inconsistency ratio is less than 0.1, pair-wise comparison is judged to have rational consistency, and if it is less than 0.2, an acceptable level of inconsistency is recognized. If the ratio is 0.2 or higher, consistency is lacking, suggesting the need for reevaluation. These guidelines set the maximum allowable inconsistency ratio at 0.15, and respondents who exceed the 0.15 ratio are required to increase consistency through feedback.

#### (4) Scoring

This step is to score preferences for alternatives based on each evaluation item. From evaluation items chosen in advance, economic feasibility analysis and balanced regional development analysis (level of regional development, ripple effects on the regional economy, etc.) use quantitative indexes like the BCR, regional development index, and index of ripple effects on the regional economy. Other evaluation items are qualitatively evaluated based on information collected during the study process.

During the scoring process, special care should be taken to ensure that specific evaluation items are scored independently from other data. For instance, a general attitude toward project feasibility should not be reflected in the scoring of individual evaluation items. The evaluation items of regional development and ripple effects on the regional economy have different scoring standards, but their scoring is often connected because they belong to the same mid-level classification: "balanced regional development." One of the strengths of the AHP method is increasing human information processing ability, since it determines whether to pursue a project based on one characteristic by evaluation item.

## **(5) Synthesizing**

This step entails calculating the weighted sum of each alternative by multiplying the weight of each evaluation standard, by the score of alternatives for each standard. An alternative with the highest weighted sum from among alternatives compared is chosen in the AHP model.

As mentioned in the discussion of evaluator selection, a comprehensive evaluation of preliminary feasibility by the AHP method has a group decision-making characteristic. As such, a process is necessary to combine the weights of evaluation items, scores of alternatives, and weighted sums used and given by individual evaluators into the evaluator group's common weights, scores, and weighted sums.

The first way to combine individual evaluator evaluations is to convert the results of all pair-wise comparison matrixes determined by individuals into the group's pair-wise comparison matrixes, using a geometric mean, and then apply the eigenvector calculation method. The second is to apply the eigenvector calculation method to individuals' pair-wise comparison matrices to come up with priority vectors for weights and scores, and then determine a geometric mean on these vector values. These guidelines adopted the second way because it is more appropriate for reflecting comprehensive judgment by an expert group.

## **(6) Feedback**

Feedback is another feature of the AHP analysis that renders it more useful. This review process provides respondents with low consistency in their answers with information on inconsistency, and allows them to perform decision-making again to reduce inconsistency in decision-making. If a decision-maker fails to properly answer formalized questions, the AHP hierarchy structure should be reconsidered. This is also true when the definition and explanation of any element comprising the AHP hierarchy structure is incorrect. If the degree of inconsistency is severe and consistency does not improve in the feedback process, the hierarchy structure of evaluation items needs to be reorganized, or the concepts of stratum and elements need to be defined or explained again before an AHP survey is conducted again.

A project manager of a preliminary feasibility study should use a group dynamics technique to draw a comprehensive opinion by consensus. Specifically, if the results of decision-making drawn from AHP analysis are not robust, all evaluators can get together and explain the basis for their evaluation through discussion and debate to build a stronger consensus. Also, the AHP analysis can be conducted again in the process of discussion and debates, to narrow differences in evaluators' opinions.

## **(7) Concluding**

The last step of the AHP method is to choose between an alternative to implement a project and an alternative not to implement a project, based on weighted sums drawn from feedback, and to come up with policy suggestions. The final deliverable

from the AHP analysis is the weighted sum of an alternative to “implement a project” and an alternative “not to implement a project or status quo,” each calculated by multiplying the weight of each evaluation standard by the scores of the alternatives for each standard. Under the previous guidelines, if the “project implementation” alternative receives a higher weighted sum (higher than 0.5) than the alternative “not to implement a project,” the project is considered feasible. This mechanical way of drawing a conclusion was instituted because the final results of a preliminary feasibility study are basic data to be used for a binary decision, as to whether or not to allocate a budget to pursue a project.

However, there are limitations when judging whether to implement a project based on AHP analysis results: the first is when evaluators’ opinions do not coincide. In such case, rather than making a binary decision about whether or not to implement a project, it is desirable to state each evaluator’s opinion and their reasons in the report. The second is when the difference between the alternative to implement a project and the alternative not to implement a project based on their weighted sums is insignificant, with the result that there is no robustness in decision-making. Often asked when deciding whether or not to implement a project based on an AHP weighted sum is whether the difference between AHP weighted sums of 0.51 and 0.49 is big enough to make a binary decision about a project’s feasibility. The previous guidelines required a binary decision, despite the fact that this question could not be stated with confidence because the ultimate goal of preliminary feasibility studies is to ascertain whether or not the project is feasible. Nevertheless, the previous guidelines tend to rely excessively on AHP analysis results, despite the limits of an AHP analysis.

In consideration of this, these guidelines establish a grey area as follows to ensure a cautious approach in making a final decision:

$$0.5 - 0.05 < \text{AHP weighted sum} < 0.5 + 0.05,$$

$$\text{Namely, } 0.45 < \text{AHP weighted sum} < 0.55$$

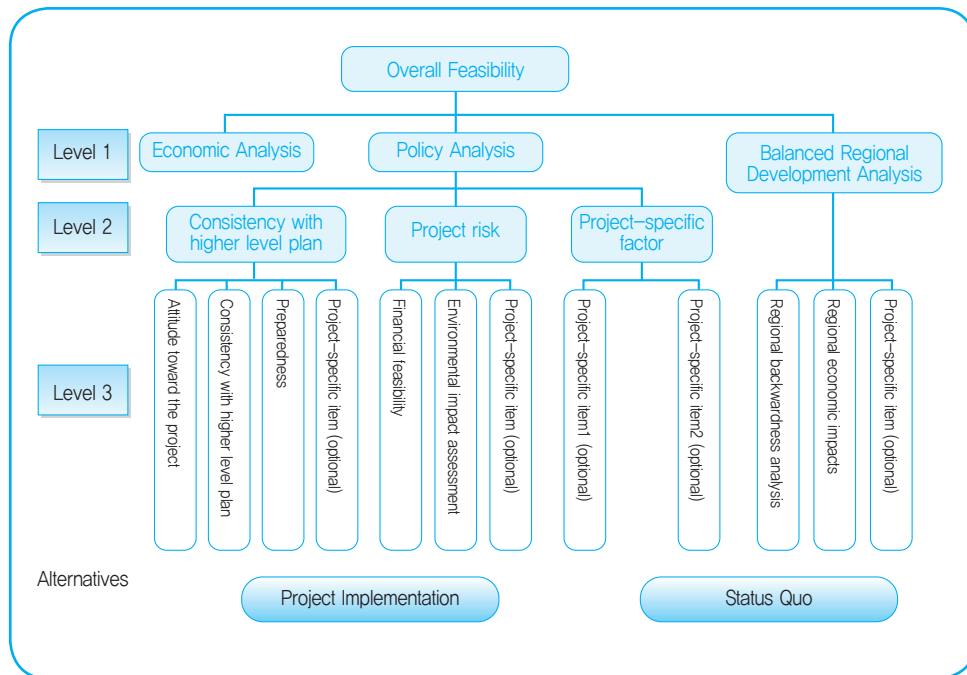
The grey area refers to an area where the weighted sum may change if the researchers change opinions. If the AHP score falls in a grey area, the researchers need to take a cautious approach in making a comprehensive conclusion through AHP analysis.

As a group decision support system, the AHP method also enables the synthesis of decisions of multiple decision makers. In PFS, the PFS team members who are from different organizations with different specialties score the feasibility of a project through the AHP technique. Each team member may have a different view on the level of feasibility. Diverse views are synthesized into a single score, which results in a final decision on a project’s feasibility. A group of seven or eight experts who are part of the PFS team form an advisory committee that scores the feasibility of a project. [Figure 5-3] is the prototype of the AHP structure to synthesize the analysis results of a project. Given the prototype, each

PFS team is allowed to add project-specific evaluation criteria on level three. And, the PFS team sets the weight of each criterion through pair-wise comparisons. At the bottom level of the hierarchy, there are two alternatives of “Project Implementation” and “Status Quo” which means “Not-Implementing the Project.” The scores of the two alternatives are scaled to be summed into one score. Hence, if the “Project Implementation” alternative earns a score above 0.5, the project is evaluated as feasible.

In order to ensure that the results of PFS are used effectively for budget and fund management planning, the Minister of Strategy and Finance gives notice to the ministry concerned, immediately upon the completion of such a study. For the purpose of implementing a project, the feasibility of which has been confirmed in accordance with the results of preliminary feasibility study (e.g.: AHP  $\geq 0.5$ ), the head of a central government ministry may request a budget for the project to the Minister of Strategy and Finance, in consideration of the urgency and financing conditions of the project, as well as conditions for implementation, such as consultation with local government authorities.

Figure 5-3 | Structure of AHP in PFS



## 1.2 Performance of PFS

Based on the PFS results, only a group of projects assessed to meet the investment criteria can be approved and implemented. <Table 5-1> shows the number of PFS conducted from 1999 to 2010. A total of 466 projects were evaluated, from which were 192 road projects and 86 railway projects. There were 29 seaport projects, 34 culture and tourism projects, 34 water supply projects, and 91 other projects, including construction projects for welfare facilities, airports, industrial complexes, and others.

**Table 5-1 |** Number of PFS by Sector (1999~2010)

(Unit: No.)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Sum
Road	11	11	20	9	10	24	11	27	30	12	22	5	192
Railway	2	7	14	8	7	13	6	10	5	2	5	7	86
Seaport	1	5	1	2	3	1	2	5	1	4	2	2	29
Culture & Tourism	3	2	5	2	5	2	1	5	2	3	2	1	34
Water Resources	1	1	-	5	5	3	3	1	1	2	12	0	34
Others	1	4	1	4	2	12	7	4	7	15	20	15	91
Sum	20	30	41	30	32	55	30	52	46	38	62	30	466

<Table 5-2> shows the proportions of feasible projects. 282 projects, or 60.5% of 466, were evaluated as feasible. The proportion of feasible projects for the road sector was 57.3%. The seaport project showed the highest rate of feasibility at 79.3%, and the projects in the culture and tourism sector showed the lowest rate of feasibility at 44.1%. The rejection ratio of 39.5%, or 184 out of 466 projects, seemed extremely high, compared to the ratio of 3.0%, or one out of 33 projects in 1994-1998, before the reform.<sup>10</sup>

<sup>10</sup> See Section 2 for the rejection ratio, 3.0% or 1 out of 33 in 1994~1998, before the reform.

**Table 5-2 | Proportion of Feasible Projects by Sector (1999~2010)**

(Unit: %, No.)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total Projects (A)	Total Feasible Projects (B)	(B)/(A) (%)
Road	45.5	27.3	30.0	33.3	72.7	87.5	36.4	63.0	63.3	75.0	50.0	80.0	192	110	57.3
Railway	50.0	57.1	35.7	75.0	71.4	53.8	83.3	40.0	25.0	100.0	80.0	85.7	86	50	58.1
Seaport	100.0	80.0	100.0	50.0	100.0	100.0	100.0	40.0	100.0	100.0	50.0	100.0	29	23	79.3
Culture & Tourism	100.0	-	40.0	-	-	100.0	100.0	40.0	50.0	100.0	-	100.0	34	15	44.1
Water Resources	100.0	100.0	-	-	60.0	66.7	66.7	100.0	100.0	50.0	91.7	-	34	23	67.6
Others	100.0	75.0	-	75.0	50.0	66.7	71.4	50.0	42.9	46.7	78.9	86.7	91	61	67.0
Average	63.2	50.0	34.1	43.3	60.6	74.5	63.3	53.8	56.5	68.4	67.7	86.7	466	282	60.5

<Table 5-3> and <Table 5-4> show the results of PFS, in terms of B/C ratio and AHP score. Until 2002, there was no technique to combine B/C ratios and the results of policy analyses. Thus, overall PFS results were announced as “Feasible” or “Non-feasible,” along with the B/C ratio. During the period between 1999 and 2002, nine projects were evaluated as “Non-feasible,” despite the fact that their B/C’s were greater than one. The reasons for this were mostly related to negative environmental impacts and difficulties in funding available for local government projects. On the other hand, 10 projects with B/C scores of less than one were evaluated as “Feasible.” The most important reason for this was balanced regional development.

**Table 5-3 | Results of PFS (1999~2002)**

(Unit: No., %)

Year	B/C ≥ 1		B/C < 1		Total (A)	Feasible (B)	(B)/(A) (%)
	Feasible	Non-feasible	Feasible	Non-feasible			
1999	8	1	5	6	20	13	65.0
2000	14	3	1	12	30	15	50.0
2001	12	2	2	25	41	14	34.1
2002	11	3	2	14	30	13	43.3
Sum (%)	45 (37.2)	9 (7.4)	10 (8.3)	57 (47.1)	121 (100.0)	55	45.5

<Table 5-4> shows the PFS results during the period between 2003 and 2010. From 2003, AHP technique was officially employed to synthesize the economic and policy analyses. From then on, the PFS results were announced in terms of B/C and AHP scores. Over this period, 228 projects, or 65.9% of 346 projects, were evaluated as “Feasible.” Five projects with B/C greater than one received AHP scores of less than 0.5, and eventually became “Non-feasible” projects.” On the other hand, 71 projects with B/C less than one received AHP scores of greater than 0.5.

The PFS has contributed to enhancing fiscal efficiency by preventing non-feasible projects from being launched. Between 1999 and 2010 out of a total of 466 projects, PFS has saved taxpayer’s money, allowing funds to be put to other-presumably better-uses.

**Table 5-4 | Results of PFS (2003~2010)**

(Unit: No., %)

Year	B/C ≥ 1		B/C < 1		Total (A)	Feasible (B)	(B)/(A) (%)
	AHP ≥ 0.5	AHP < 0.5	AHP ≥ 0.5	AHP < 0.5			
2003	18	0	2	13	33	20	60.6
2004	27	1	14	13	55	41	74.5
2005	15	1	4	10	30	19	63.3
2006	21	2	7	22	52	28	53.8
2007	19	0	7	20	46	26	56.5
2008	16	0	10	12	38	26	68.4
2009	25	1	17	19	62	42	67.7
2010	16	0	10	4	30	26	86.7
Sum (%)	157 (45.4)	5 (1.4)	71 (20.5)	113 (32.7)	346 (100.0)	228	65.9

## 2. Tightened Procurement and Capital Budget Implementation

Procurement and capital budget implementation for public investment programs and projects have mostly been overseen by a budget management system called the Total Project Cost Management System (TPCM) in the Ministry of Strategy and Finance. TPCM aims to enhance fiscal productivity and to ensure high quality of public construction work by properly adjusting and managing total project costs (TPC) throughout the implementation stages of a project. The MOSF established the TPCM in 1994, and has been revising the “Guidelines for Total Project Cost Management” on an annual basis.

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The following construction projects are subject to the TPCM system:

- Projects implemented by the central government or its agents, or by local governments or private institutions relying on central government funding;
- Projects whose construction period exceeds two years; and
- Civil engineering projects whose TPC exceeds KRW 30 billion (USD 30 million), or architectural projects whose TPC exceeds KRW 10 billion (USD 10 million).

The TPC includes all the cost items accrued throughout the life of the project, including design, land acquisition, and construction costs, regardless of whether the source of funding is the central government, local governments or private institutions.

Project costs should be managed by the construction phase and by construction unit, in reference to total construction cost. The construction costs are not arbitrarily interchangeable between project phases or between construction units. While increases in construction size or construction costs are inevitable, the minister in charge of the project is to consult with MOSF about adjusting TPC.

## 2.1 TPCM by Project Phase

**Project conception phase:** The minister in charge of the project should make an appropriate estimate of the total cost and duration of the project, and ask the MOSF for a PFS if the estimated total cost in the project conception phase is 50 billion won or more. In case of local government projects, the minister in charge should ask MOSF for a PFS if the funding of the project relies on a central government subsidy of 30 billion won or more.

**Phases of PFS and (detailed) feasibility study:** The minister in charge should report on the project size, TPC and project duration to MOSF for all the projects that have been evaluated as feasible by PFS; the budget should be drawn up by the end of January. Detailed feasibility studies should cover the life cycle cost of the projects resulting from all technological, environmental, social, and financial aspects, as well as land acquisition.

**Draft design phase:** It is recommended that enough money and time be spent in drafting design, to prevent significant and frequent design modifications in the subsequent construction phases. The design team should collect various opinions from target citizens, interests groups and related government authorities to minimize public discontent expected during the construction phase. The minister in charge should consult value-engineering (VE) experts at least once before the end of this phase to prevent overestimation of costs and excessive construction.

**Blueprint design phase:** The construction size should not be modified significantly in this phase. When design modification or change in construction size is unavoidable, the minister in charge should discuss the matter with the MOSF. The minister in charge



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should also consult value-engineering (VE) experts at least once before the end of this phase, to prevent overestimation of costs and excessive construction.

**Contracting phase:** MOSF informs the Administer of the Office of Public Procurement Administration of the total construction cost with the minister in charge. In calling for bids and awarding contracts, the Administrator shall determine expected prices within the maximum of the total project cost. The Administrator shall, upon receiving a request from the head of a central government agency to award a contract, consult with the Minister of Strategy and Finance before giving public notice of a tender, if the total project cost on the request for awarding a contract exceeds the total project cost notified by the MOSF. In regard to a project for which a government-funded or government-invested institution has the authority to award a contract independently, the institution shall consult with the head of the competent central government agency and the MOSF before giving public notice of a tender, if the total project cost on the request from the department in charge of the project for awarding a contract exceeds the total project cost notified by the MOSF. When the contract cost exceeds the informed cost, the Administer of the Office of Supply Administration should discuss the matter with the MOSF.

**Construction phase:** The minister in charge should try to minimize increases in cost, except when a new construction technique or new equipment is to be introduced to enhance the quality of the product substantially. When the costs do increase, changes in construction size and/or construction duration are inevitable; the minister in charge should submit a written explanation and discuss it with the MOSF.

The line ministry is allowed to set construction contingencies for up to 8% of the contract price of a project, in order to cope with inevitable design modifications and legal amendments. The line ministry can change the TPC within the limit of contingencies at its own discretion. Contingencies apply only to the construction phase of a project.

In general, an increase in construction size through design modifications is not allowed, except for unavoidable cases. The base cost for the TPCM system is the contract cost determined by bidding, not the cost estimate at the end of the design phase. “The indicator adjustment formula” set by the Office of Supply Administration is applied to re-calculate project costs, incorporating inflationary effects.

When a project under implementation violates the TPCM guidelines, the MOSF can cut off or withhold budget allocation for the project. The minister in charge can impose sanctions on design teams, prohibiting invitations to tender bids on construction projects when their work has resulted in a substantial cost increase, due to unsatisfactory performance, or when they, intentionally or not, fail to estimate the appropriate construction costs. The minister in charge can petition the MOSF for changes in costs and project duration at any time through the Budget Information Management System, when necessary.

## 2.2 Initiatives of Re-Assessment Study of Feasibility (RSF) and Re-Assessment of Demand Forecast (RDF)

The Re-assessment study of Feasibility (RSF) aims to check unnecessary cost increases by re-affirming the feasibility of projects under implementation, and scrutinizing the adequacy of the cost increases. The MOSF conducts the RSF on a project if the PFS has not been conducted although it falls under the PFS coverage, or if the TPC has increased by more than twenty percent (excluding inflationary effects and increases in land acquisition cost) of the cost confirmed by the MOSF at the previous phase of the project. Also, according to the amendment of the National Finance Act in 2009, the Board of Audit and Inspection is entitled to request MOSF that the RSF be conducted.

### Box 5-4 | Requirements for Reassessment Study of Feasibility by Article 49 of the Guidelines for Total Project Cost Management (TPDM)

1. Where no preliminary feasibility study has been conducted because the total project cost of a project did not reach the size subject to the preliminary feasibility study, but the total project cost has increased to the size subject to the preliminary feasibility study in the course of implementing the project;
2. Where a project subject to the preliminary feasibility study was reflected in the budget or fund management plan and has been implemented without a preliminary feasibility study;
3. Where the total project cost of a project, excluding price increases and increases in compensation cost for losses on the land and other property necessary for the implementation of a public interest project, has increased by not less than 20/100, in comparison with the total project cost fixed through the consultation with the Minister of Strategy and Finance;

(Note 1) In the case of a project for which no adjustment to the total project cost was made in the preceding phase, whether the total project cost has increased by not less than 20/100 shall be judged based on the total project cost as of the preceding phase, which was fixed through the consultation with the Minister of Strategy and Finance.

(Example) Where the engineering design works have been carried out for a project without making an adjustment to the total project cost at the phase of basic design, it shall be judged whether the total project cost as of the phase of engineering design has increased by not less than 20/100 in comparison with the total project cost as of the preceding phase (preliminary feasibility study or feasibility study), not the total project cost as of the phase of basic design.

(Note 2) Where the total project cost has been changed twice or more in the phase of construction, it shall be judged whether the total project cost has

increased by not less than 20/100 in comparison with the total project cost as of the phase of engineering design, not the total project cost at the time of the immediately preceding change.

[Note 3] "Increases in compensation cost for losses on the land and other property" mean the price changes as a result of an appraisal, etc., excluding the portion accruing according to changes in the volume subject to compensation.

4. Where it is found as a result of a re-assessment of demand forecast that the estimated demand for a project has decreased by not less than 30/100 in comparison with the estimated demand as of the preceding phase, or where it is found in the course of a feasibility study or basic or engineering design works that the estimated demand has decreased by not less than 30/100 in comparison with the estimated demand as of the preceding phase;
5. Where a project was reported to the Budget Waste Reporting Center in the Ministry of Strategy and Finance as a budget waste case and the Minister of Strategy and Finance concludes that it is highly probable that the project will become a waste of budget, as a result of overlapping investments, etc.;
6. Where the Board of Audit and Inspection of Korea requests to conduct a Re-assessment of Feasibility Study on a project as a result of its audit, or where the National Assembly demands to conduct a Re-assessment of Feasibility Study on a project by its resolution;
7. Where the Minister of Strategy and Finance or the head of each central government agency concludes on other ground that a Re-assessment of Feasibility Study is required.

The line ministries conduct the RSF on a project with miscellaneous changes in construction costs and report it to the Minister of Strategy and Finance. The RSF guidelines suggest that the RSF should include, but not be limited to, the following components:

- Outline of a project
- Analysis of background data and project issues raised
- Analysis on adequacy of the plan, including size of the project
- Economic analysis, including cost-benefit analysis
- Policy analysis
- Overall assessment, including judgment whether or not to continue a project, and if the TPC increase is adequate.

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While the PFS focuses on evaluating the feasibility of a project, RSF puts relatively more emphasis on finding alternatives to cut down the size and cost of a project. The MOSF reflects the RSF results on adjusting TPC. When RSF results show that a project will not be feasible, the RSF team works to curtail project size, in order to improve its feasibility. When no alternative way to secure the feasibility of the project is located, the MOSF decides to halt implementation of the project altogether.

Re-assessment of demand forecast (RDF) is a device that verifies the demand for public investment projects conducted in the past with the latest information available. By minimizing inevitable forecasting errors, RDF aims to improve efficiency of expenditures by managing demand fluctuation of large-scale, long-term infrastructure projects throughout project phases.

Transportation facilities, including roads, rails, airports, and ports that are subject to TPCM, can also be subject to RDF. RDF is conducted during any of the following phases, when the requirements for re-assessment are met: i) before or during bids for the basic plan or feasibility study; ii) before or during completion of the draft design; iii) before or during completion of the detailed design; iv) during construction; and v) when it is deemed necessary, the Minister of Strategy and Finance or the head of a central government agency may request to conduct the RDF before or during conducting a feasibility study or design development.

The RDF shall be conducted when substantial changes in demand forecasts occur, as stipulated in the following: i) when the RDF is deemed necessary because a significant decrease of demand is anticipated, due to material changes in the premises on which a demand forecast has been made, or errors have been made during implementing methodology for a demand forecast; ii) when the RDF is deemed necessary because a project has been converted to a PPP project from a conventional government procured project; iii) when more than five years have passed since the last demand forecast; and iv) when it is deemed necessary by the Minister of Strategy and Finance or the head of a line ministry.

The RDF belongs to the MOSF. In order to ensure objectivity and transparency during the RDF process, the Minister of MOSF or the minister of the line ministry that is responsible for the RDF may contract a specialized institution (s) to conduct the RDF. When the RDF is completed, the Minister of MOSF reports the results to the minister of the interested line ministries. When it is identified that a demand forecast for a project has decreased by 30% or more, however, the MOSF begins the RSF and notifies the minister of the line ministries, in accordance with RSF guidelines.

## 2.3 Performance of TPCM, RSF and RDF

<Table 5-5> shows the total number of TPCM projects, and projects whose total project costs (TPC) were adjusted during 1994~2005.<sup>11</sup> The total number of TPCM projects increased sharply in 1999, when the public investment management system was established. The proportion of projects for which the TPC increased grew from 54.0% in 2002 to 71.8% in 2005. However, the percentage of the projects where the TPC increased by more than 20 percent substantially decreased from 11.9% in 1996 to 3.7% in 2004.

**Table 5-5 |** Number of Projects with Substantial Change in TPC

(Unit: number of projects, %)

Year	Projects under PCM (A)	Projects that TPC adjusted (B)	B/A (%)	Increase in TPC by over 20% (C)	(C)/(A) (%)
1994	218			-	-
1995	207			19	9.2
1996	159			19	11.9
1997	189			20	10.6
1998	183			17	9.3
1999	459			15	3.3
2000	483			24	5.0
2001	602			26	4.3
2002	602	325	54.0	10	1.7
2003	667	392	58.7	15	2.2
2004	698	493	70.6	26	3.7
2005	760	546	71.8		

<Table 5-6> shows that line ministries in charge of the projects requested to increase project budgets by 1.96 trillion Won, and about half (49.5%) of the requested amount (0.97 trillion Won) was adjusted into the TPC. While the 95.7% of requests for TPC increases due to miscellaneous design changes were accepted by the MOSF, only 43.2% of requests due to substantial design change were adjusted into TPC.

<sup>11</sup> The source of the statistics is a press release by MOSF. The MOSF has not announced adjustment results of total project costs since 2006.

**Table 5-6 | Sources of Total Project Cost Adjustment**

(Unit: Bill. Won, %)

	Miscellaneous design changes	Substantial design changes	Sum
Request for TPC increase (A)	233.1	1,732.0	1,965.1
Projects that TPC adjusted (B)	225.3	748.0	973.3
(B)/(A) (%)	96.7	43.2	49.5

Note: Miscellaneous design changes include changes due to factors of traffic safety and unexpected ground condition; and substantial design changes include changes in route, changes in the type of bridges and tunnels to be built, and increase in quantity to incorporate request by local government or local citizens.

<Table 5-7> shows the trend of requests to increase TPCs. During 1996~1999, the line ministries requested to increase 26.4% of TPCs and 42.1% of requested amounts in TPCs were subsequently adjusted. During 2000~2003, however, the requests dropped to as low as 4.4% of TPCs, and the acceptance rate also decreased to 22.7%

**Table 5-7 | Trend of requests for TPC increase**

(Unit: %)

	1996~1999	2000~2003
Request for TPC increase (A)	26.4	4.4
TPC adjusted (B)	11.1	1.0
(B)/(A) (%)	42.1	22.7

<Table 5-8> shows the number of RSFs conducted by sector during the period 2002~2010. The road projects take up the largest share in the sectorial distribution of RSFs. The RSFs on buildings (museums and tourism) takes 16%, in terms of the total number of RSFs conducted.

**Table 5-8 |** Number of RSFs by Sector (2002~2010)

(Unit: No.)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Sum
Road	1	2	4	10	11	10	11	27	25	101
Railway	0	1	0	0	2	0	1	7	1	12
Port	0	0	0	0	3	2	2	1	1	9
Buildings (Museums and Tourism)	0	3	4	3	1	5	1	6	5	28
Water Resources (Dam)	0	0	0	2	4	0	2	4	1	13
IT/R&D	0	0	1	0	0	0	1	0	1	3
Others	0	0	0	1	4	1	0	3	0	9
Sum	1	6	9	16	25	18	18	48	34	175

<Table 5-9> shows the change in TPC by RSF. The sum of the line ministries requested from 2002 to 2010 was a total of 68.9 trillion Won and the RSF results suggested adjustments in total TPC to 61.5 trillion.

**Table 5-9 |** Results of RSF (change in total project costs)

(Unit: Bill Won, %)

	TPC requested (B)	TPC by RSF (C)	(D)=(C)-(B)	(D)/(B)(%)
2002	434	384	-50	-12
2003	1,403	667	-736	-52
2004	2,014	1,249	-765	-38
2005	2,965	2,508	-457	-15
2006	4,058	3,735	-322	-8
2007	8,893	8,843	-50	-1
2008	13,526	11,997	-1,529	-11
2009	17,095	16,080	-1,015	-6
2010	18,604	16,087	-2,517	-14
Sum	68,998	61,552	-7,445	-11

Only two RDFs have been conducted since the RDF was introduced in 2006: the Fourth section of the Hamyang-Ulsan Expressway and Kyungin Canal project. Based on the results of RDFs, the MOSF decided to reduce the total costs for both projects.

### 3. Performance Management and Evaluation of Completed Projects

Three-tier systems of performance management and evaluation of completed projects were simultaneously introduced within the Ministry of Strategy and Finance. They are: (i) a Performance Monitoring System, (ii) a Self-Assessment System, and (iii) an In-Depth Evaluation System. <Table 5-10> explains the main features of these systems.

**Table 5-10 |** Systems of Performance Management and Evaluation

	Performance Monitoring	Self-Assessment	In-Depth Evaluation
Method	- Establish objectives and indicators, using the results in government budget operations (Prepare performance report)	- Provide a checklist of projects for review and keep track of which projects are operated properly, which are making progress, etc.	- Apply scientific evaluation methods on each project to analyze, spot problems, and provide alternatives (Prepare evaluation report)
Main responsible body	- Each ministry (Budget Division)	- Each Ministry (Budget Division) and budget authority	- Each Ministry (Project Management Division)
Applicable project	- All policies and programs	- Most programs (20~30% of all)	- Individual programs and projects
Merits	- An overall progress report can be produced, but not enough information can be given on individual project basis.	- Trade-off between Performance Monitoring and Program Evaluation	- Detailed information can be given on individual project basis but due to excessive time and costs, this method is not suitable for all projects.
Application	- Used in management of performance of an organization, as reference material for setting budgets, and in preparation of performance budget reports	- Used in improvement of project operating method, and as (deliberation) reference for setting budgets	- Used in improvement of project operating method.



### 3.1 Performance Monitoring System

The performance monitoring system (PMS), which was first employed in the spring of 2003, requires line ministries to establish performance goals and indicators, prepare annual performance plans and performance reports, and submit them to the MOSF at the start of the annual budget cycle. The MOSF is in charge of establishing the system in place by examining the status of PMS in line ministries, coordinating implementation, and providing results to resource allocation agencies.

PMS covers only part of ministries' investment programs, as those activities not involving large sums of expenditure are excluded from performance monitoring. Also, activities for which the benefits of performance monitoring are expected to be small (such as wages and salaries, "basic program" expenditures,<sup>12</sup> and general administrative expenses) are excluded as well.

A performance report describes in a systematic way the degree to which goals have been met. It should list performance goals and indicators as originally set out in the performance plan; describe the performance in terms of goals and indicators; explain the reasons for any poor performances; summarize the assessment; and describe future plans. Optionally, it can include audit results by the Board of Audit and Inspection and summary findings of program evaluations. According to MOSF, the performance reports should not only state whether goals have been met, but also why. When poor performance is not due to uncontrollable factors such as an unexpected change in economic circumstances or in laws and regulations, the program will receive an extensive review by the budget authorities. When it is difficult to identify the reasons for poor performance, a program evaluation is planned.

To the extent that PMS is composed of strategic goals, performance goals, and performance indicators, it is very similar to the performance management framework employed in the U.S., the U.K., and Australia. But a significant difference exists in its coverage. PMS is confined to a subset of activities carried out by the ministries. In the case of the Ministry of Education, Science and Technology, for example, PMS programs took up only 30 percent of total expenditures in 2004 and 2005. In contrast, the countries mentioned above monitor the performance of all their major programs. The pilots on performance budgeting that were carried out in 1999~2002 covered all expenditures of line ministries. When significant difficulty was encountered in developing performance indicators, MOSF decided to change the design of the system and cover only those programs for which clear performance targets could be established.

The PMS, like its pilot project, has not been very successful thus far. There exists only lukewarm support from the MOSF. Line ministries are also showing little enthusiasm for the PMS. In most cases, performance indicators prepared by line ministries are not derived from ministerial missions in a systematic fashion. Most importantly, performance reports are not open to the public, giving little incentive for line ministries to take it seriously.

<sup>12</sup> In Korea, programs with small and recurrent costs are designated "basic programs" after negotiation between line ministries and the MOSF. Others are designated "major programs."

## 3.2 Program Review System: Self-Assessment of Budgetary Programs

The program review system in self-assessment of budgetary programs (SABP) was introduced in 2005 by the MOSF to enhance links between performance evaluation and budget allocation. It is designed after the Program Assessment Rating Tool (PART) of the U.S. federal government. This program requires line ministries to assess their own programs with spending levels above a certain threshold. The assessment is supposed to cover all ministerial programs in a cycle within three years. The assessment will be based on 14 questions common to all types of programs, and a few additional questions specific to different types of programs.<sup>13</sup> <Table 5-11> shows the contents of the checklist for the SABP.

**Table 5-11 | Contents of Checklist for the SABP**

Classification	Checklists
Design and Planning (30)	<ul style="list-style-type: none"> <li>· Program purpose</li> <li>· Rationale for government spending</li> <li>· Duplication with other programs</li> <li>· Efficiency of program design</li> <li>· Relevance of performance objectives and indicators</li> <li>· Relevance of performance targets</li> </ul>
Management (20)	<ul style="list-style-type: none"> <li>· Monitoring efforts</li> <li>· Obstacles of program implementation</li> <li>· Implementation as planned</li> <li>· Efficiency improvement or budget saving</li> </ul>
Results and accountability (50)	<ul style="list-style-type: none"> <li>· Independent program evaluation</li> <li>· Results</li> <li>· Satisfaction of citizens</li> <li>· Utilization of evaluation results</li> </ul>

Source: Korea Institute of Finance (2008).

Answers to the questions take the form of “yes (1)” or “no (0).” In case of the questions regarding the achievement of program objectives and customer satisfaction, 4-scale answers (1.00, 0.67, 0.33, 0.00) are given. A weight is assigned to each question and the overall assessment is based on the weighted sum of the answers. Programs are then classified as “effective (85-100),” “moderately effective (70-84),” “adequate (50-69),” “ineffective

<sup>13</sup> Types of programs are infrastructure investment, procurement of large-scale facilities and equipment, provision of direct services, capital injection, subsidies to private entities, grants to local governments, and R&D.

(0-49),” and “results not demonstrated.“ The MOSF reviews the results of the ministerial self-assessments and takes them into account when preparing annual draft budgets and the National Fiscal Management Plan. <Table 5-12> explains the linkage between SABP results and budget allocation in 2007. The programs rated as ineffective went through a 53% budget cut, compared to 2006’s budget. The main reason for this linkage between SABP results and budget allocation is that the MOSF encouraged ministries to make use of assessment results in their budget requests, announcing that a 10% budget cut would be imposed on the programs rated as ineffective.

**Table 5-12 |** Linkage between SABP results and Budget Allocation (2007)

(Unit: million Won, %)

	'06 Budget (A)	'07 Budget (B)	(B)-(A)	(B-A)/(A) [%]
Effective	889	887	2	-0.2%
Moderately Effective	3,316	3,565	249	7.5%
Adequate	29,718	28,997	721	-2.4%
Ineffective	1,143	538	-605	-52.9%
Total	35,066	33,987		

Source: Korea Institute of Finance (2008).

In 2008, the classification of programs was changed: “very effective (90-100),” “effective (80-89),” “adequate (60-79),” “ineffective (50-59),” and “very ineffective (0-49).” As a result of assessments for 384 programs in 2008, 11.5% and 2.6% of programs were rated as effective and very effective, respectively, while approximately 27% of programs were evaluated as either very ineffective or ineffective.

**Table 5-13 |** Result of Self-Assessment of Budgetary Programs (2008)

(Unit: %)

Year	Total (quantity)	Very Ineffective (0-49)	Ineffective (50-59)	Adequate (60-79)	Effective (80-89)	Very Effective (90-100)
2008	384	3.6	23.4	58.9	11.5	2.6

Source: Ministry of Strategy and Finance

In 2009, as a result of the assessments for 551vprograms, 4.7% of programs were rated as “above effective,” while 24.1% of programs were “below ineffective.” In 2010, among 482 programs evaluated, 6.8% were rated “above effective,” while 27.4% were rated “below ineffective.”

**Table 5-14 |** Result of Self-Assessment of Budgetary Programs (2009~2010)

(Unit: %)

Year	Total (quantity)	Above effective	Adequate	Below Ineffective
2009	551	26(4.7%)	393(71.2%)	132(24.1%)
2010	482	33(6.8%)	317(65.8%)	132(27.4%)

Note: “Above effective” includes rates of “very effective” and “effective”. “Below ineffective” includes rates of “very ineffective” and “ineffective”.

Source: Ministry of Strategy and Finance.

### 3.3 Program Evaluation System: In-Depth Evaluation Program

Under the current legal and administrative framework, two methods of performance evaluation of public infrastructure investment are available. One is a performance evaluation, as stipulated by the Enforcement Decree of Construction Technology Management Act. The other is In-depth Evaluation of Budgetary Programs (IEBP), under the Performance Management System.<sup>14</sup> IEBP analyzes the different factors in different stages contributing to the performance of a government program by using scientific and systematic techniques. The IEBP results are applied to improving and reforming the operating program systems.

The Enforcement Decree of the Act requires the spending agency to file a performance evaluation report for construction projects whose total costs are 50 billion Won or more. In accordance with the Act, MLTM established “Guidelines for performance evaluations of construction projects,” effective as of 2001. The guidelines outline necessary details, including the timing and methodologies for conducting performance evaluations required by government agencies.

Despite the Enforcement Decree of the Construction Technology Management Act that requires the spending agency to file a performance evaluation report within three years of completion, only a small number of performance evaluation reports have been produced. One of the reasons why so few decrees have had any effect is that there is no sanction against their violation. The performance evaluation is in fact a self-evaluation conducted by spending agencies that have no incentive to implement the evaluations. To draw lessons learned from the evaluation, one must find some problems during the implementation process of the project. The line ministry responsible for coordinating the evaluation has not taken an active interest in this new system.

The other reason for slow progress in performance evaluation is that there is no clear framework for evaluation. Performance evaluation tracks whether a project or program achieves its objectives and secures the expected outcome to determine its level of success.

<sup>14</sup> As was pointed out, Korea introduced a three-tier system for performance management and evaluation of budgetary programs: performance monitoring, program review and program evaluation. IEBP is a core part of program evaluation.

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The necessary structure for performance measurement has not yet been developed in any systematic way. Even though the guidelines outline performance measures, they do not provide methods of measurement, or reasons behind the task. In addition, some measurements are irrelevant in project evaluations. For example, changes in certain socio-economic indicators such as population, number of firms and employment, and local tax structure are too inclusive to have any meaningful impact upon a single road construction project. The guidelines do not provide how to distinguish the effects caused solely by the project from overall socio-economic changes in the area over the period.

Under IEBP, from 2005 to 2009, a total of 45 programs were evaluated, initiated and controlled by the MOSF team. With a wide coverage of areas for IEBP programs, the MOSF seemingly tended to distribute the programs relatively evenly across line ministries. Budgetary size was not considered as an essential criterion, since half of the selected programs have an annual budget of less than 100 billion Won (100 million USD). The period of program implementation varies from program to program; half of the programs had been in operation from four to ten years before being evaluated. Although, in principle, IEBP was established for a single program, eight programs containing three or more unit programs have been evaluated.

IEBP still has a lot of trouble with implementing and feeding back results. Since availability of its database was strictly limited, only 20 percent of the evaluation studies were subject to empirical analysis. Often, data for evaluation analysis do not exist, and government officials in line ministries and agencies have given little attention to them. Selection process for each IEBP has sometimes proved to be a tricky process, since different purposes and approaches were taken by the MOSF and line ministries.



2011 Modularization of Korea's Development Experience  
Public Investment Management Reform in Korea:  
Efforts for Enhancing Efficiency and Sustainability  
of Public Expenditure

## Chapter 6

### Private Involvement through Public Private Partnerships

1. Why Public-Private Partnership (PPP)?
2. Institutional Arrangements
3. Value for Money (VFM) Test on PPPs
4. Trends and Current Status of PPP Projects

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# Private Involvement through Public Private Partnerships

## 1. Why Public-Private Partnership (PPP)?

At the beginning of the 1990s, Korea found itself with a serious shortage of infrastructure facilities, such as roads, railways, seaports, and airports. Judging there would be limits to its ability to fund the needed construction of infrastructure facilities, the Korean government had come to realize the need to induce private sector participation in infrastructure investment as an alternative means of replenishing infrastructure. The government began to push for public-private partnership (PPP) projects in earnest with the August 1994 enactment of the Act on Promotion of Private Capital Investment in Social Overhead Capital.

The government intends to promote public-private partnership (PPP) projects because it lacks resources. Also, it can take advantage of the private sector's creativity and efficiency. When a PPP project is approved, to what extent can and should the private sector replace government sector investment? Although PPP projects can accelerate the establishment of social infrastructure by addressing the limited financial resources of the government, it is neither possible nor desirable to increase the amount of private investment with no limits whatsoever. Private sector investment means that the government borrows from future generations, and therefore is a loan to pay off in the mid- and long-term. The government is unable to increase loan amounts indefinitely.

The lack of government financial resources, however, can curb investment in social infrastructure, leading to a drop in public sector investment against GDP, and hurting GDP growth itself. This may in turn impair the government's ability to pay off future debts. Given the effects of investment in social infrastructure on the national economy, many countries have promoted PPP projects, instead of cutting investment amounts, when they face the lack of financial resources.



By using private sector capital, it can also benefit from efficiency of the private sector, and invest in new areas, while saving costs. This may help to increase GDP growth, which in turn will make private sector more willing to participate in future PPP projects.<sup>15</sup> The problem with this is that most countries with limited experience in PPP projects will find it difficult to have clear-cut answers as to how much it can increase debt through PPPs. From a fiscal point of view, a key to PPP projects is whether a government can maintain fiscal adequacy and stability while utilizing PPPs.

Because of the financial crisis that hit Korea in late 1997, the promotion of PPP projects fell into a slump. So, the government made an across-the-board amendment, called the Act on Private Participation in Infrastructure in December 1998, which called for, amongst other things, reinvigorating PPPs through various government policies, including the minimum revenue guarantee (MRG). The government modified this law again in January 2005, expanding the range of facilities covered from economic infrastructure—such as transportation facilities like roads, railways, seaports, and environmental facilities—to social infrastructure, such as schools, military residences, housing and welfare facilities for the aged, and cultural facilities. It introduced the build–transfer–lease (BTL) method in addition to the existing build–transfer–operate (BTO) method, expanding the scope of participation in PPP financing and diversifying opportunities. In October 2009, the MRG was abolished and replaced by the government support measure for compensation of base (raw) cost, where the government shares investment risk for projects conducted with a public policy goal.

The PPP market in Korea has grown and developed into a stable and highly profitable financial market, thanks to the government’s systemic support and management to vitalize PPP programs over the past decade. The PPP market has solidified its position as a new mode of raising funds, to make up for green growth infrastructure funding. Private sector interest is increasing, and the government, through various policies, is working to reinvigorate green PPP financing, as part of its effort to upgrade its PPP promotion strategy.

<sup>15</sup> Chang-Yong Rhee and Hangyong Lee (2007) showed that PPP investments in Korea have negative correlations with public investments, with the former highly likely to crowd out the latter, at least partially. The results suggest that the promotion of PPP projects over the past decade has hardly led to the additional replenishment of infrastructure. Although PPP investments have failed to result in additional construction investment by reducing public investments, they are presumed to have made up for the void left by insufficient public investments, which couldn’t help but falling over the past decade for various reasons. Without PPP investment, public investment alone could not have supplied sufficient infrastructure. As such, it would be safe to say the expansion of PPPs has contributed to the replenishment of economic and social infrastructure in Korea.

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## 2. Institutional Arrangements<sup>16</sup>

The Korean Public-Private Partnership Act (PPP Act) and the Enforcement Decree, the principal components of the legal framework for PPPs, clearly define eligible infrastructure types, procurement types, procurement processes, the roles of the public and private parties, policy supports, and more. The act is a special legislation that precedes other acts. The act exempts PPP projects from strict government regulation in the area of national property management, and allows a special purpose company (SPC) to act as a competent authority.

The hierarchy of the legal arrangements for PPPs is:

- PPP Act
- PPP Enforcement Decree
- PPP Basic Plan
- PPP Implementation Guidelines

The PPP Act establishes the PPP Basic Plan and PPP Implementation Guidelines, which together address, in detail, policy directions, procurement steps, and government support.

Under the PPP Act, 46 infrastructure facility types in 15 sectors are eligible for PPP procurement. By listing eligible facility types in the PPP Act, the government aims to induce private capital to invest in sectors where additional investment is needed for the benefit of the public. Some argue, however, that the listing of eligible facility types may restrict the flexible and innovative application of PPP procurement to new types of facilities. These critics recommend modification of the act for more comprehensive application.<sup>17</sup>

Eligible procurement methods are mainly divided into build–transfer–operate (BTO) and build–transfer–lease (BTL), depending on the structure of the PPP project. Other procurement methods, such as build–operate–transfer (BOT) and build–own–operate (BOO), are applicable as well.<sup>18</sup> In BTO projects, ownership of the infrastructure facilities is transferred to the government upon completion of construction, and the concessionaire is granted the right to operate them to gain return on investment (ROI). Since the concessionaire recovers its investment cost directly from user fees, commercial viability is a key element for implementing BTO projects. Most BTO projects are transportation facilities such as roads, railways, and seaports. In BTL projects, ownership of the infrastructure facilities is transferred to the government upon completion of construction, and the concessionaire is granted the right to operate them and receive government payments (lease payment

<sup>16</sup> See the details of institutional arrangements of Korean PPP law and policies in my recent book, Kim, Jay-Hyung, et. al., *Public-Private Partnership Infrastructure Projects: Case Studies from the Republic of Korea*, Volume 1: Institutional Arrangements and Performance, Asian Development Bank, 2011 .

<sup>17</sup> According to the recent amendment of the PPP Act in 2009, a new type of PPP can be more easily eligible in the future, when appropriate, just by changing the Enforcement Decree rather than by changing the Act.

<sup>18</sup> Another type of procurement schemes, such as rehabilitate-transfer-operate (RTO) or rehabilitate-operate-transfer (ROT), is applicable as well.

plus operational cost) based on operational performance (e.g., availability, service quality, etc.) for a specified period of time. The BTL method is used for facilities where the concessionaire has difficulty recovering its investment cost through user fees. Facilities eligible for BTL projects mainly consist of social infrastructure, such as schools, welfare facilities, environmental facilities, military residence, etc.

**Table 6-1 |** Number of Eligible Infrastructure Facility Types by Sector, as of 2010

Sector	Infrastructure Type
Road (4)	Roads and ancillary facilities, non-road parking facilities, intelligent transportation systems, transfer centers
Rail (3)	Railways, railway facilities, urban railways
Port (3)	Port facilities, fishing port facilities, eligible facilities for new port construction
Airport (1)	Airport facilities
Water resources (3)	Multi-purpose dams, river-affiliated ancillary structures, waterworks
Communications (5)	Telecommunication facilities, information communication systems, information superhighway, map information systems, ubiquitous city infrastructure
Energy (3)	Electric source facilities, gas supply facilities, collective energy facilities
Environmental (5)	Excreta treatment facilities and public livestock wastewater treatment facilities, waste disposal facilities, recycling facilities, sewage and sewage treatment facilities
Logistics (2)	Distribution complexes and cargo terminals, passenger terminals
Culture and Tourism (9)	Tourist sites or complexes, youth training facilities, public/professional sports facilities, libraries, museums and art galleries, international conference facilities, culture centers, science museums, urban parks
Education (1)	Pre-school and school facilities
National defense (1)	Military residential facilities
Housing (1)	Public rental housing
Welfare (3)	Senior homes and welfare medical facilities and facilities for remarried seniors, public health and medical facilities, childcare facilities
Forestry (2)	Natural recreational resorts, arboretums

Source: Ministry of Strategy and Finance, Article 2, Act on Private Participation in Infrastructure. Seoul, Korea, 2010.

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PPP projects are categorized into solicited and unsolicited, depending on who initiates the project. For a solicited project, the competent authority, central or local government, identifies a potential PPP project and solicits proposals from the private sector. In the case of an unsolicited project, the private sector identifies a potential PPP project and requests designation of the project as a PPP from the competent authority. The concessionaire is selected under a competitive bidding process, although the initial proponent may obtain extra points in the bid evaluation.

Solicited projects have not attracted much intention from the competent authority because it takes considerable time and costs to initiate a PPP project, whereas unsolicited projects have been actively sought and implemented because the private sector assumes associated costs and risks. The government has recently made efforts to promote more solicited projects, since they can be implemented in line with the overall government infrastructure investment plan and priorities, unlike unsolicited ones.<sup>19</sup>

In order to facilitate PPP implementation, the PPP Act grants land expropriation rights to the concessionaire. The concessionaire may entrust the competent authority or the local government with the execution of the land purchase, compensation for loss, resettlement of residents, etc. The overall process of land acquisition or expropriation for public works, such as infrastructure facilities and public buildings, is prescribed by the Act on the Acquisition of Land, for Public Works and the Compensation (The Land Acquisition Act). Unless a special provision is provided in the PPP Act or relevant laws, the procedures under the Land Acquisition Act apply to the expropriation or use of land needed for the implementation of PPP projects. Under the Land Acquisition Act, land acquisition is carried out by the concessionaire or project company of the associated public works.

The government promulgates various kinds of financial and tax incentive policies that can facilitate green growth PPP financing. More specifically, the government provides (i) construction subsidies, (ii) compensation for base (raw) cost, (iii) infrastructure credit guarantees via the Infrastructure Credit Guarantee Fund, and (iv) tax incentives.

**Construction subsidies:** According to the PPP Act, the government may grant a construction subsidy to the concessionaire, if one is required to maintain the user fee at an affordable level. The timing of the subsidy is determined during the course of negotiating the concession agreement, and depends on the equity investment plan of the concessionaire. The subsidy is distributed annually or quarterly, and cannot be concentrated in a certain years. The timing of the distribution reflects the completion level of the project, and the schedule and scope of equity investment. The subsidy amount is determined in each individual concession agreement. When announcing a project, the government first discloses an approximate ratio of the construction cost that it is willing to subsidize. The exact ratio

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<sup>19</sup> Generally speaking, unsolicited project initiation is not well accepted in every country. Some selected countries with unsolicited projects are: Chile, India (sub-national), Pakistan, Philippines, Russian Federation (sub-national), United States (sub-national), and South Africa.

of subsidy to construction cost is determined through consultation, and is stipulated in the concession agreement. As a result, each project ends up with a different subsidy amount.

If the ratio of subsidy to construction cost is stipulated by the PPP Act or PPP Enforcement Guidelines, that ratio is included in the government's public notification. If it is not specified, the ratio is not included. The subsidy ratios for road or railway projects are stipulated in the guidelines. The government has set a subsidy guideline for road projects of between 20% and 30% of the total project cost. It has set a subsidy guideline for railway projects for up to 50% of total project cost. The ratio of subsidy to construction cost for environmental projects is stipulated by law to range between 50% to 80%, and therefore included in the government's public notification.

Generally speaking, more green-oriented projects are eligible for larger subsidies than other projects.

Compensation for base (raw) cost: In the new risk-sharing structure, the government assumes a portion of investment risk. This risk is limited to what the government's costs would have been for a public-financed project. The government payment is made to account for shortfalls in the actual operational revenue, compared to the share of investment risks by the government.<sup>20</sup> When the actual operational revenue exceeds the share of investment risks, government subsidies are redeemed on the basis of, and within, the limit of the amount previously paid. On the part of the private participant, subsidies are provided only when the actual operational revenue surpasses 50% of investment risk. [Figure 6-1] shows the mechanism under which this structure operates.

Infrastructure credit guarantee fund (ICGF): Since 1994, the ICGF has provided credit guarantees to concessionaires who want to obtain loans from financial institutions for PPP projects. According to the PPP Act, the ICGF is managed by the Korea Credit Guarantee Fund. The ICGF consists of annual government subsidies, guarantee fees, and investment returns. When the project guaranteed by the ICGF defaults, the ICGF subrogates on behalf of the project company. Additional government contribution can be granted if the funds are insufficient.

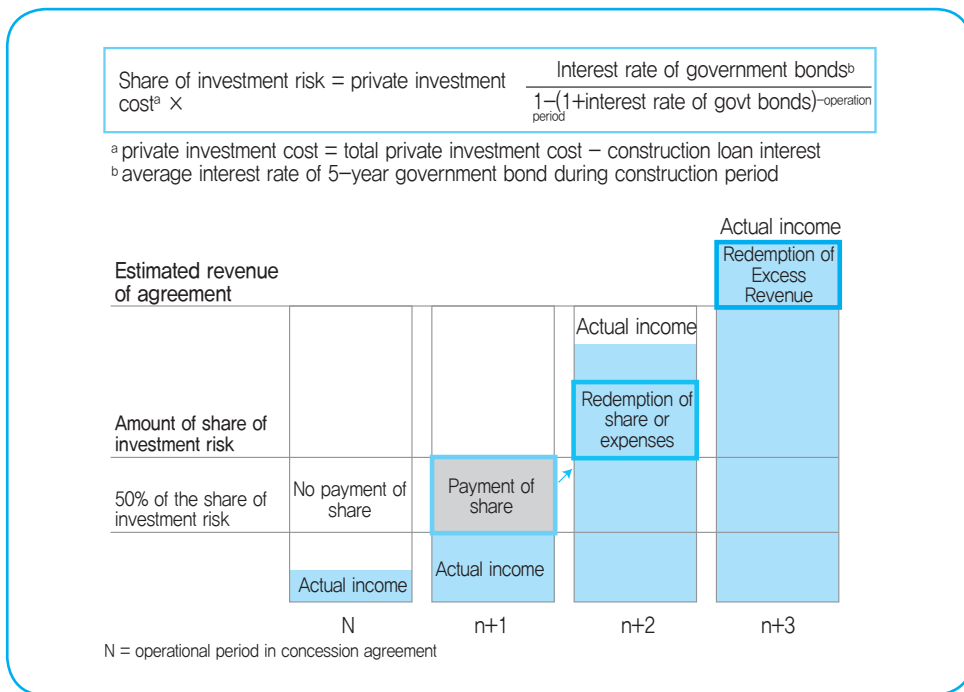
The limit of credit guarantees per concessionaire is KRW 100 billion, but in cases where the director of the management institution considers it necessary, the limit may be raised to KRW 200 billion. The guarantee fee has a maximum annual fee rate of 1.5%.

Tax incentives: To facilitate infrastructure financing, the government provides tax incentives stipulated in the PPP Act. Details of the tax incentives are also included in the PPP Basic Plan in four categories: special taxation, corporate tax, local tax, and exceptions from charges. The PPP Act directs the government to enact special taxation for infrastructure bond, value-added tax, foreign investment zone, and infrastructure fund. A separate taxation rate of 14% is applied to the interest revenue from infrastructure bonds. A 0% tax rate is

<sup>20</sup> Share of investment risks is the amount of operational revenue that guarantees the internal rate of return, comparable to the government bond's rate of return on the private sector's capital.

applied for the value-added tax for infrastructure facilities or construction services. Reduction of, and exemption from, tax obligations, including corporate tax, income tax, acquisition tax, registration tax, and property tax, are applied to foreign investment in foreign investment zones. With respect to dividend income distributed for the infrastructure fund, a 5% tax rate is applied to dividend income from equity investment up to KRW 300 million, and a 14% tax rate is applied to dividend income exceeding KRW 300 million. Local tax exemptions for PPP projects, which include an exception for three times the registration tax within the capital region, and an exemption from acquisition and registration taxes, are included as well.<sup>21</sup>

**Figure 6-1 | Mechanism of New Risk-Sharing Structure**



Source: Ministry of Strategy and Finance, Basic Plan for Private Participation in Infrastructure. Seoul, Korea, 2010.

21 The capital region includes the city of Seoul and Kyonggi province

### 3. Value for Money (VFM) Test on PPPs

Competent authorities, including the Ministry of Land, Transport and Maritime Affairs (MLTM) for transport infrastructure projects, undertake the initial development of the project. The MLTM is responsible for conducting the feasibility study and value-for-money (VFM) test, formulating invitations for proposals (IFP), evaluating proposals, designating the potential concessionaire, approval of engineering plans, and confirming project completion. Upon request, the public and private infrastructure investment management center (PIMAC), the Korean PPP Unit, provides technical assistance to the MLTM, including execution of the feasibility study, formulation of IFP, evaluation of the proposal, and support for negotiations. Until the end of 2004, the Ministry of Strategy and Finance strongly recommended that the competent authority consult with PIMAC at every stage of the implementation procedure. However, while encouraged, consultation was not mandatory. According to the amendment of the PPP Act in 2005, the feasibility study and VFM test for every unsolicited proposal need to be reviewed by PIMAC on a mandatory basis.<sup>22</sup>

The MOSF can request relevant data and information from the competent authority and related private concessionaire, in order to learn the status of PPP projects. Every competent authority should submit to the MOSF a quarterly status report of the current PPP implementation contents. The Minister of Strategy and Finance shall organize and chair an advisory group committee called the PPP Review Committee (PRC). The PRC is responsible for the review of the following: major policies for the PPP program, establishment and modification of the Annual PPP Plan, designation and cancellation of a solicited project, designation of a private concessionaire, and other matters that the Minister of Strategy and Finance proposes for promoting PPP projects.

Recently, PIMAC published guidelines for conducting the VFM test. The VFM test is separated into three phases: In the first phase, the main task is to decide whether to invest, or to confirm whether or not a project is worth the social benefit. When the project in review has gone through a feasibility study at the time of implementation as a publicly-financed project, the same study will be conducted, even though it is a PPP project. When the project in review had not gone through a feasibility study, but rather been determined of its feasibility based on the judgment by the relevant ministry, the same level of consideration is accepted in place of a feasibility study. Projects that are deemed feasible to implement as a PPP are carried on to the next phase.

Main point of the second phase is to decide whether to implement the project as a PPP. VFM review is carried out in order to determine whether a project is suitable for implementation as a private finance initiative (PFI), after comparing with the public sector comparator (PSC). The suitability of a project to implement as a PPP is determined by analyzing the results of qualitative VFM, and quantitative VFM, evaluation. The quantitative VFM compares the life-cycle costs of the PSC, compared to when implemented by PFI.

<sup>22</sup> In the case of BTO solicited projects, consultation is still recommended, whereas, in the case of BTL solicited projects, it is mandatory.

The qualitative VFM compares the level of service quality. When the project in review is deemed suitable to be implemented by PPP, it is then carried over to the third phase.

In the third phase, an alternative PPP implementation plan is explored and presented. Projects deemed suitable to be implemented by PPP are carried through additional financial analysis to calculate expected government subsidy amounts (compensatory portion for construction cost and operation cost). The subsidy amount serves an important guideline in the evaluation process for selecting potential concessionaires and during negotiations.

The following table shows the number of VFM tests conducted during the period between 2005 and 2010. 42 projects out of 131, almost 32%, were suspended through the VFM test. The primary reason for these projects' failure to deliver value for money was because of the conditions requested by the private sector at their unsolicited proposals.

**Table 6-2 | Total Number of VFM Test and Project Turn-Down Rate (BTO Projects)**

(Unit: No., %)

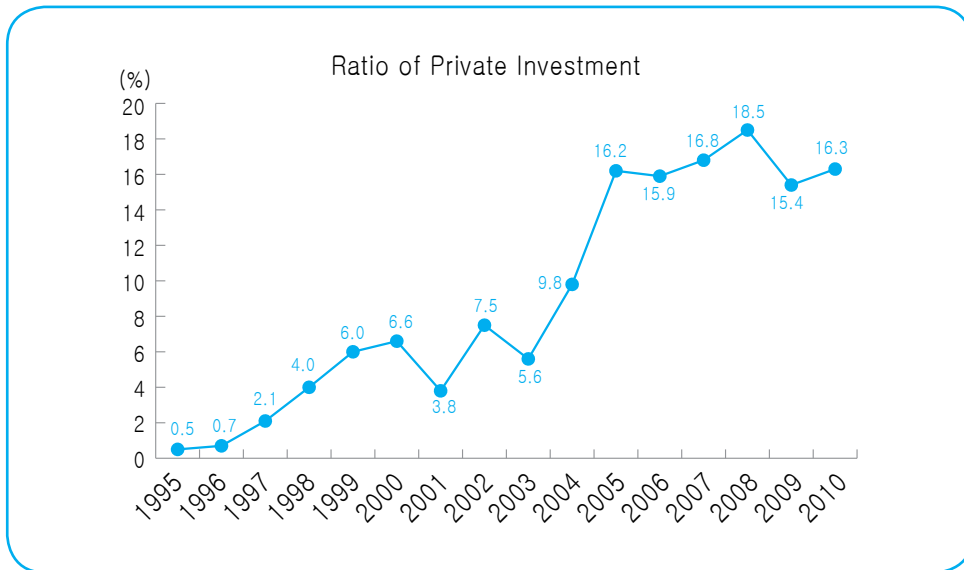
		2005	2006	2007	2008	2009	2010	Total
BTO	<b>Total number of VFM Test</b>	<b>20</b>	<b>24</b>	<b>24</b>	<b>42</b>	<b>35</b>	<b>17</b>	<b>148</b>
	Deliver value for money	11	21	15	29	13	10	<b>99</b>
	Do not deliver value for money	9 (5)	3 (3)	9 (7)	13 (12)	9 (4)	7 (5)	<b>49 (17*)</b>
	Project turn-down rate	45%	13%	35%	31%	41%	41%	<b>33%</b>

## 4. Trends and Current Status of PPP Projects

When PPP projects were first introduced in Korea in 1995, KRW 400 million was invested in PPP projects (mostly BTO projects), which was just 0.5% of total social overhead capital (SOC) investment. However, in 2008, KRW 3.7 trillion was invested in PPP/BTO projects, taking up about 18.5% of total SOC investment. [Figure 6-2] displays the increase in proportion of PPP investment to total SOC investment during the past 15 years.



**Figure 6-2 |** Percentage of Annual Public–Private Partnership/Build–Transfer–Operate Investment to Total Social Overhead Capital Investment (%)



Source: Internal Data (1995–2010) from the Ministry of Strategy and Finance, Korea.

As of the end of 2010, a total of 628 PPP projects were accepted, with cost estimates of KRW 95.9 trillion, either through BTO or BTL schemes. A total of KRW 70.2 trillion was invested in 227 BTO projects.<sup>23</sup> These projects were in various stages of development: 131 completed, 43 under construction, 14 in preparation for construction, 34 under negotiations, and five in preparation to be announced for request for proposal (RFP). Of these projects, concessionaires were chosen, with agreements signed for 188 projects. By sector, there were 62 road projects, 12 railway projects, 18 port projects, 75 environmental facilities, five logistics projects, and 42 other types of construction projects, including parking lots and culture and tourism projects. Of the 227 projects, 102 were national projects and 125 were local projects.

Among the signed BTO projects, the annual rate of return in real terms was 9.12% in 2000; this gradually declined to 8.13% in 2004, 6.66% in 2006, falling sharply to 5.13% in 2008.

As of 2010, a total of 401 BTL projects were under way, involving a total investment of KRW 25.7 trillion. These include 119 under construction, and 214 in operation projects. Among the BTL projects, 179 were projects for primary and middle schools, 87 were for environmental sewage facilities, 63 were for military residential facilities, and 24 were for cultural facilities.

<sup>23</sup> There exist several BOT and BOO scheme PPPs as well, but not many. Those projects are counted as BTO projects.

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Among the 46 legally-eligible facility types for PPP procurement, green growth infrastructure has been the main targets of active private participation. In particular, 12 light-rail-transit (LRT) projects, as well as 75 BTO environmental facilities, including waste management facilities, and 87 BTL environmental sewage facilities, have recently been taken through PPP schemes.

### Key Success Factors of Reforms and Lessons Learned

1. Demand for Better PIM after the Economic Crisis
2. Leading Role of the Korean Finance Ministry
3. Making an Independent Review
4. Presenting an Explicit Judgment Model of Analytic Hierarchy Process (AHP)
5. Publicizing the Analysis and Decision Making
6. Providing Standard Guidelines and Manuals for the Analysis
7. An Effective Series of Reforms along with Project Cycles

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# Key Success Factors of Reforms and Lessons Learned

Even if a new initiative meets the expectations of politicians and bureaucrats, it does not mean that it will be utilized directly in public investment decisions. When a new initiative result conflicts with their interests, neither politicians nor bureaucrats want to cede their authority for the sake of the initiative. They frequently regard the initiative as simply one source of information, and want to use it for their own purposes. Despite the gap between new initiatives and PIM decisions, Korean PIM reform in the last decade seems unusual in that new initiatives became an influential process in public investment decisions.

If the reform of new PIM initiatives merely plays a symbolic role, and there are some disincentives for politicians and bureaucrats to utilize it, how can one explain the success of the PFS, RSF or RDF in Korea? The question suggests the following implications and lessons for how PFS, RSF, and RDF initiatives can significantly contribute to public investment reform in Korea.<sup>24</sup>

## 1. Demand for Better PIM after the Economic Crisis

Ever since Korea's first Five-Year Economic Development Plan was unveiled in 1962, the country has had a long history of framing public investment as a tool for economic development. Under the unbalanced economic development strategy and authoritarian planning culture that then prevailed, the government concentrated its available capital in providing and expanding infrastructure, such as highways, railroads, harbors, and airports. The priority of investment projects was set according to its contribution to economic development, rather than by regional equity or convenience of users. A few authoritative

<sup>24</sup> Several parts of this section, particularly 7.1, 7.4, and 7.5, are based on a paper Kilkon Koh, "Beyond Technical Information Providers: The Expanded Role of Policy Analysts of Public Investment in Korea", *Improving Public Investment for Large-Scale Government Projects: Focusing on the Feasibility Studies*, KDI, 2008.

decision-makers prioritized projects, and public participation and inclusion of various values were limited. As a result, policy analysis of each project was mainly limited to physical design or for minimizing construction costs. This implies that the demand for policy analysis was very low during this period of intensive economic development in Korea, between the early 1960s and the late 1990s.

When major national-level infrastructure projects were completed, however, public investment problems were framed in a more complex way. People paid more attention to various problems such as land use, housing, job creation, regional equity, and environmental impact. Goals of public investment became better-specified and multiple groups established their own priorities. The weakening of the central government's political leadership brought out conflicts among interest groups. Local governments, which had been totally under the control of the central government, began to make their own regional development plans<sup>25</sup> in the 1990s. Thus, national economic development could no longer be the dominant factor for judging the value of public investment.

Koh (2008) pointed out that several factors reinforced the change in focus from national planning for development to multi-criteria investment review. First, some major projects launched during the early 1990s were deemed significant failures. For instance, the Kyung-Bu high-speed railroad, Busan's Second Subway line, Yeo-Su airport, and the Sae-Man-Geum landfill projects experienced at least two-fold cost increases, and three years of project time extension (Korea MOCT 1999). Those projects were independently implemented through political considerations, not as a part of a systematically analyzed plan. Second, local governments and line ministries planned more projects without enough coordination among related organizations. Frequently, local governments' long-term plans for public investment conflicted with the central government plans. Local governments tried to launch more projects and emphasized regional development. In contrast, the central government had to reallocate budgets, according to the national agenda rather than regional issues, which made it difficult to coordinate both.

Korea's economic crisis, which coincided with the period of the Asian Financial Crisis in 1997, changed the situation rapidly. Before the crisis, the national debt as a percentage of GDP was under 10%. However, the ratio continuously increased after 1997, and reached 26% in 2004. Such a significant increase of national debt was mainly due to the expansion of government expenditures, rather than to a decrease in revenue. Koh (2008) argued that the public's trust in the government plummeted, and a strong demand for administrative reform could no longer be ignored by politicians and bureaucrats. The opportunity was present for policy analysts to take on an expanded role in the public investment decision process.

<sup>25</sup> For instance, the major research institutes of local governments were launched since the 1990s—Seoul Development Institute (1992), Busan Development Institute (1992), Kyeonggi Development Institute (1994) and Incheon Development Institute (1995).

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## 2. Leading Role of the Korean Finance Ministry

PFS, Re-Assessment Study of Feasibility (RSF), and Re-Assessment of Demand Forecast (RDF) define a clear ownership of responsibility and provide high quality information for the decision-making process in budget allocation. Budget allocation usually involves bargaining between the budgeting ministry and line ministries. In the past, line ministries had ownership of the feasibility study, providing only selective information to procure more funds. The MOSF, on the other hand, used it to cut project budgets, although not always on a reasonable basis. PFS, RSF, and RDF mitigated the information asymmetry between the MOSF and line ministries, which in turn led to better decision-making. MOSF is responsible for the final decision of a project appraisal and allocating the budget, while the line ministries and agencies are responsible for identifying, designing, and prioritizing projects, while also forecasting their effects.

Through PFS, RSF, and RDF, the MOSF can produce its own information more reliably than ever before. These reports include information not just for binary decisions (i.e., feasible/non-feasible), but also provide policy suggestions to implement the project, and other useful information. Based on clear ownership and rich information, the MOSF is equipped with more bargaining power, and therefore can make better informed decisions.

The PFS, RSF, and RDF have contributed to the establishment of a public inquiry process at line ministries and lower-tier governments. The performance of these schemes has disseminated into other areas, and contributed to much more widespread public deliberation. Many local governments adopted a quasi-PFS system. Some line ministries introduced similar *ex ante* evaluation schemes, such as PFS and RSF. For example, the Ministry of Education, Science and Technology and the Ministry of Information and Communication, as well as the Ministry of Land, Transport and Maritime Affairs, developed their own evaluation schemes.

## 3. Making an Independent Review

Some level of review for the quality of the PIM is important. This quality control can be performed by i) an external agency (a research agency, NGO, university, etc.); ii) by central agency oversight over line ministries, and agencies that design and appraise their projects or programs; or iii) by a special committee established by the oversight central ministry or agency that consists of various stakeholders of especially important and technically complex projects. Establishing an independent body serves to buffer the political pressure and other undue influences throughout the project cycle.

Since 1999, most major investment projects with total costs exceeding 50 billion Won (50 US million dollars) have been subjected to analysis through the preliminary feasibility study (PFS), when line ministries or local governments request funds from the Ministry of

Strategy and Finance. The requirements for PFS have grown over time, and PFS is required not only for public investment projects, but also other projects, including cultural projects or national R&D projects.<sup>26</sup>

One surprising result is that an independent review by the Public and Private Investment Management Center (PIMAC) at the Korea Development Institute (KDI), with some help from the policy analysts, makes judgments on project desirability, and their explicitly quantified judgments are respected in most government decision-making. After performing the PFS, RSF, and RDF, PIMAC and policy analysts explicitly report their independent judgments to the budget agency, the Korean National Assembly, and the public. From 1999 to 2010, 466 projects were reviewed by the PFS, and from 2002 to 2010, 175 projects were reviewed by the RSF; almost all of them ultimately conformed to the judgments of analysts. The public recognition of PFS and RSF has also been notable. References to the PFS in the major newspapers in Korea have sharply increased over the years.

This is partly explained by the long tradition of KDI which, since 1971, has served as a leading think-tank for the Korean government for socio-economic policies. If KDI's policy analysis merely played a symbolic role, or there were some disincentives for politicians and bureaucrats to utilize analyses, such an independent judgment of the PFS, RSF, and RDF could not be possible.

#### 4. Presenting an Explicit Judgment Model of Analytic Hierarchy Process (AHP)

When KDI proposed experimental PFS scheme in 1999, the studies produced a considerable amount of information, such as the benefit/cost ratio, engineering assessments on projects, economic impact on regions, relevance to related laws and other plans, residents' and project initiator's commitment, financial feasibility, backwardness of regions, and environmental impact. However, information was provided in a parallel way, and not integrated into a final decision. Typically, when a project is acceptable from the point of backwardness of regions, but is less acceptable from the point of economic feasibility, analysts have difficulty judging whether the project should be accepted or rejected. Also, analysts hesitate to reveal their preferences clearly. They tend to avoid their responsibility by providing different interpretations and ambiguous conclusions.

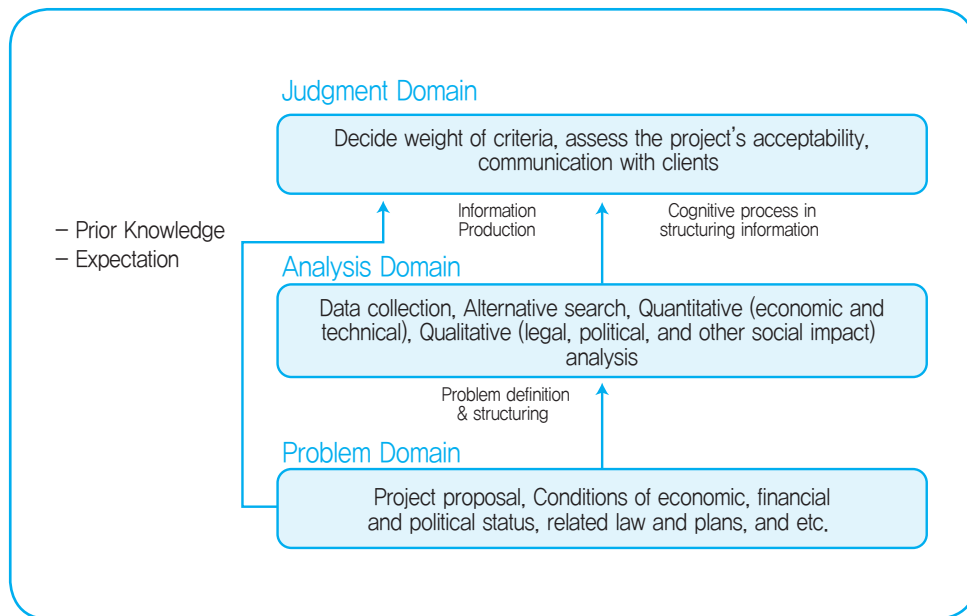
To overcome the arbitrary interpretation of results, KDI has developed a multi-criteria decision-making model. KDI reviewed the existing literatures of multiple-criteria decision models, such as the multi-attribute utility method (Keeney and Raiffa 1976), the Goal Achievement Method (Hill 1968), the Multi-Attribute Utility Theory (Von Neumann and Morgenstern 1944), and the outranking method (Roy 1991). Although these models have their own respective strengths, Koh(2008) explained KDI chose AHP (Analytic Hierarchy

<sup>26</sup> The Korean National Assembly also passed the National Finance Law in 2006 which supports PFS by providing stronger legal grounds.

Process) (Saaty 1980), because it has a strong theoretical foundation, is easy to apply, is flexible in including additional factors, and supports group decision-making. As shown in [Figure 7-1], AHP is applied to make judgments on the relative importance of criteria, and assesses a project’s acceptability based on their policy analysis information.

AHP is well designed for incorporating “qualitative social values” and “quantitative economic value” into a formal decision making process. The actual example used by KDI will help us understand the application of AHP in the PFS and RSF. The studies performed by KDI should include AHP results in their reports; the reports include who evaluated what in formal and explicit way. To avoid the arbitrary use of the AHP model, KDI developed manuals for its usage as well.

**Figure 7-1 | Integrating Quantitative and Qualitative Criteria through AHP**



Source: Koh (2008)

## 5. Publicizing the Analysis and Decision Making

Accuracy is one of the primary conditions for the better utilization of policy analysis and decision-making. Debates over underutilization of policy analysis heighten concern about its relevance and appropriateness. Because of the incompleteness of analytic methods, information produced by policy analysis contains a considerable amount of uncertainty and inaccuracy. At the same time, some information which is relevant to policy-making is not provided, due to the limitation of data, research skills, or lack of resources and time for analysis.



When projects are rejected in a PFS scheme, for example, line ministries or local governments may challenge the analysts' judgment. The challenge usually comes on two points: a miscalculation of economic benefits and costs, and a failure to consider important policy factors.

Koh (2008) presents that one typical way to challenge a PFS is to perform adversarial policy analyses. Groups which fail to get approval of their projects often mobilize analysts who are favorable to their position. They ask these analysts to produce results that dispute the earlier PFS results. In the presence of technical uncertainty and incompleteness of policy analysis, such an adversarial analysis could effectively undermine the validity of PFS. Difficulty in reaching consensus may cause stalemates, and the decision then goes into the realm of politics rather than that of policy analysis. Facing the challenge, KDI reduced the possibility of adversarial analysis by co-opting other analyst groups into their research and the PFS. When it built up the manuals for the PFS, KDI did not rely solely on its internal experts. Despite its strength in economic analysis and high reputation in developing economic policies, KDI lacked expertise in each public investment field. Thus, KDI invited experts from universities, private companies, and other government-funded research institutes, and asked many external analysts to review their work on PFS. Rather than relying on the most advanced techniques, KDI tried to adopt more reliable and widely-accepted methodologies. KDI also invited external analysts from different organizations to help them with their work on the PFS. At the same time, KDI frequently held meetings to hear other experts' opinions during its research. Although not all participants' opinions are reflected in its manuals and PFS, KDI has included different expert knowledge in its manuals. So, when contesting groups try to organize analysts to perform adversarial studies, it is difficult to find analysts who will totally disagree with the methods outlined in KDI's PFS scheme. At the same time, even if contesting groups organize an adversarial policy analysis, they have to spend considerable time and resources. As a result, without strong confidence that the PFS contains critical errors, local governments and line ministries do not often challenge KDI, by sponsoring adversarial policy analysis.

Another way of challenging the PFS is to argue that important project-specific factors had been omitted or mishandled. By emphasizing their project's unique characteristics, contesting groups can criticize the incompleteness of PFS. These criticisms are more frequent when contesting groups have no chance to participate in the PFS to present their concerns. However, KDI formally and informally requests line ministries and local governments to state clear project goals they want to include in the PFS. In some cases, if the project initiators request the inclusion of a certain groups of analysts, KDI includes them, or invites them to give their views during the PFS process. Although debates over the reliability and validity of KDI's assessment of project specific factors still occur, the inclusion of potentially debatable factors helps it to defend against possible criticism. Also, as contesting groups usually bear the burden of proof to show that the project-specific factors they emphasize are critical enough to override KDI's judgment, they face an uphill battle.

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As a result, within the public investment analysts' community, KDI's approach is widely accepted. The minutes of the National Assembly committees discussing PFS and the inspection reports prepared by the Board of Audit and Inspection did not include any criticism of KDI's methodology. In addition, rather than challenging KDI directly, line ministries and local governments try to bargain with the budget agency and the National Assembly. Thus, despite the potential risk to challenge to the accuracy of its analysis, KDI can successfully mitigate such a risk by setting up acceptable analysis manuals, and by including many external analysts and project initiators' intentions in its PFS process.

## 6. Providing Standard Guidelines and Manuals for the Analysis

There are three pillars of appraisal or evaluation: objectivity, consistency and transparency. In order to improve the objectivity of the evaluation, and secure consistency among projects, KDI has developed standard evaluation guidelines and manuals. PFS or RSF guidelines contain detailed descriptions of methodology and procedures for PFS or RSF implementation. The guidelines cover the following sectors: roads, railways, ports, airports, dams, cultural facilities, information industry facilities, and R&D investment.

The guidelines stipulate applying the same methodology and using the same or similar datasets for different projects within the same sector. For example, KT\_DB (Korea Transport Database) should be used for all the road and railroad projects, for consistency in evaluation results. These guidelines are being revised continuously through academic research. The fifth edition of the guideline for road and railroad projects was published in 2007.

KDI's standard guidelines and manuals triggered research on evaluation methodologies as well. While conducting PFS, for example, a series of evaluation issues were raised over its guidelines. PIMAC at KDI has been the hub of the research on these issues. Research results were incorporated into the revisions for PFS guideline. PFS also triggered the establishment of evaluation guidelines in line ministries. The MLTM, MOST, other central ministries, some local governments and the public enterprises like KORAIL have developed their own evaluation guidelines, for which the benchmark was the PFS guideline.

## 7. An Effective Series of Reforms along with Project Cycles

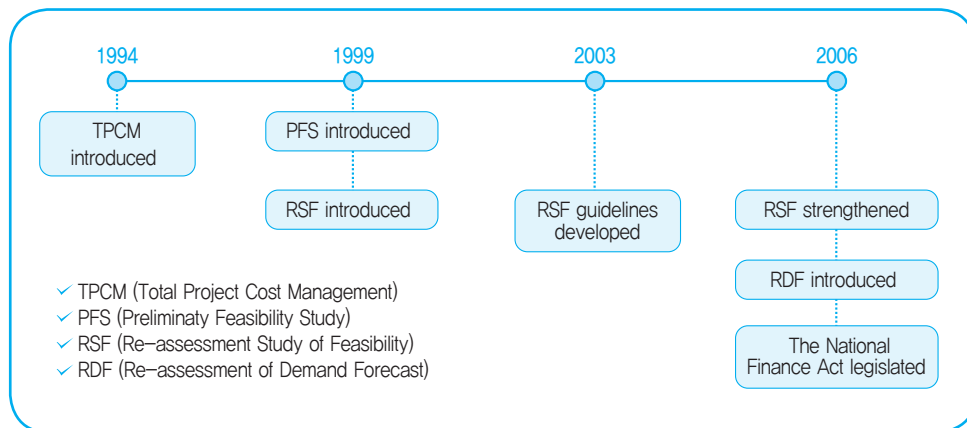
An effective series of PIM reforms contributed to the strengthening of infrastructure management in the following phases of project cycles. In particular, in 1999, PFS for the first time provided a way of reforming the TPCM (Total Project Cost Management) system. This provided the impetus to introduce RSF, the performance evaluation scheme, and RDF in 2003, 2004 and 2006, respectively. TPCM was introduced in 1994 to ensure the quality of public construction works, and establish high productivity in government expenditure by

properly adjusting and managing total project costs throughout different phases of a project. In order to enhance the efficiency of the TPCM, the RSF and RDF were added to the mix. The TPCM guideline stipulates that projects with total project cost increasing by more than 20% of the total project cost of the previous stage is subject to the RSF. And, if there is a high possibility that the demand forecast will fall by more than 30% from the previous stage, then the project is subject to the RDF.

The RSF guideline and RDF system were developed and introduced after the PFS system was established. The guidelines for RSF and RDF use PFS’s analytical methodology.

PFS triggered research on evaluation methodologies as well. While conducting PFS, a series of evaluation issues were raised over the PFS guideline. KDI was the hub of the research on these issues as well. Research results were incorporated into the revision of the PFS Guideline. PFS also triggered evaluation guidelines for line ministries. The line ministries, including the Ministry of Education, Science and Technology, the Ministry of Land, Transport and Maritime Affairs, some local governments and the public enterprise of KORAIL, have developed their own evaluation guidelines, of which the benchmark was the PFS guideline. The three-tier system of performance management and evaluation was adopted later.

**Figure 7-2 |** Chronological Series of PIM Reforms





2011 Modularization of Korea's Development Experience  
Public Investment Management Reform in Korea:  
Efforts for Enhancing Efficiency and Sustainability  
of Public Expenditure

## Chapter 8

### Concluding Remarks

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## Concluding Remarks

The period after the economic crisis in 1997 has witnessed many reform efforts to enhance efficiency and transparency in developing and managing public infrastructure investment programs in Korea. The Ministry of Strategy and Finance played a leading role to implement an effective appraisal and evaluation system, to tighten expenditure monitoring of total project costs, and to introduce a new budgeting system called the Medium Term Expenditure Framework (MTEF). An initiative of the preliminary feasibility study (PFS), introduced in 1999 and mainly conducted by the PIMAC at KDI, seems successful in handling the pass-or-fail bottleneck of the entire project selection process. The total project cost management system (TPCM), strengthened after the crisis, also appears to be working well. The result of a re-assessment study of feasibility (RSF) and re-assessment of demand forecast (RDF) has forced the rebuilding of the project itself, although there have not been many projects cancelled by RSF during TPCM. The introduction of a performance monitoring and evaluation system is still in its early stages in Korea. A greater emphasis on program evaluation is being called for in the future.

The main drivers of success in Korean PIM reform during the last decade have been identified as increasing external demand for a better PIM scheme after the economic crisis in 1997; establishment of clear ownership of the public inquiry process because the key roles in major PIM decisions have been moved to the budget ministry, from the line ministries; making an independent review by PIMAC at KDI, whose analysis was not a symbolic role but was ultimately considered seriously; presenting an explicit judgment model—the analytic hierarchy process (AHP) to prevent arbitrary interpretation; publicizing the whole analysis and decision making process so that any potential risk of challenges to accuracy has been reduced in advance; formally providing standard guidelines and manuals to stipulate the application of the same methodology and datasets; and the effective series of reforms, along with the project cycles such as PFS reform, with RSF and RDF coming later, and performance evaluation implemented lastly.

There is an increasing awareness among many countries that monitor and evaluate performance, which can provide complementary information on PIM progress. While a

performance-orientation has been reasonably established in the Korean government for the future, a greater use of performance contracts can be encouraged. A minister and his or her senior managers in line ministries and agencies can agree on a set of performance targets for each investment program, review progress, and discuss problems. The new budget process of MTEF has, of course, room for improvements. Performance management of public investment in line ministries should also be strengthened. The planning and budget divisions of individual line ministries should play a greater role in the coordination of ministerial policies and budget requests, unlike in previous years when they would simply compile budget requests from program divisions and send them to the MOSF with little modification. The role of the MOSF should be changed as well. As a central coordinator of government policies, the MOSF should strengthen its capacity for policy analysis and long-term forecasts. It should focus less on input control and pay more attention to outputs and outcomes.

The public private partnership (PPP) program has recently resulted in the rapid expansion of investment accounting over tens of KRW trillion in Korea. In order to encourage the successful implementation of PPP projects and sound fiscal management, Korea needs to find a new fiscal rule to monitor and control the PPP projects, like that of public investment and traditional PIM. In Korea, there have not been active discussions to develop a fiscal rule for PPP projects.<sup>27</sup> Additionally, there have not been sufficient discussions to establish a combined treatment of PPP and traditional PIM.<sup>28</sup> PPP investment has been treated separately from public PIM investment, and has not been under direct regulation of government expenditure.<sup>29</sup> However, in terms of settling government subsidies between competent authorities and private concessionaires, contracting future payment obligations for twenty to thirty years, determining whether or not the PPP assets are recognized as assets on the government's balance sheet, and forecasting future contingent government liabilities, there is a need to study and establish a combined fiscal rule, which regulates and maintains fiscal adequacy and stability not only for PPPs, but also for traditional PIMs.

In this respect, the government, should first assess whether the project is necessary from the perspective of the national economy, and then analyze whether the PPP option has VFM compared to the traditional procurement, and lastly, formulate a better PPP alternative, which is the most favorable from the government perspective. Although there are some differences in assessing government-initiated projects and PPP projects, the government should move towards a unified framework for project selection and implementation.

27 As an effort to control the size of PPP, however, the government recently announced a safeguard ceiling on PPP fiscal commitment, where total annual government payment on PPP projects should be less than 2% of the total government expenditure, at the Five-year National Fiscal Management Plan (2007-2011). See the details at Kim, Jay-Hyung, "A Safeguard Ceiling for Fiscal Commitment in Korean Public-Private Partnerships", a paper presented at the EWC/KDI International Seminar on Sustainability and Efficiency in Managing Public Expenditure, Honolulu, Hawaii, 2008

28 In 2004, the EU Statistical Agency (EUROSTAT) issued a ruling allowing to record as private investment PPPs that transfer to the private sector the bulk of construction risk and either of the performance or demand risk.

29 So far, the MOSF indirectly controls the PPP projects.

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## CHAPTER 1 GENERAL PROVISIONS

### Article 1 Purpose of the Guidelines

The purpose of these Guidelines is to provide clear and detailed course of action concerning the standards related to selecting projects subject to preliminary feasibility study pursuant to Article 38(4) of the National Finance Act, the institution that shall carry out the study, the methods and procedures thereof.

### Article 2 Definition of Preliminary Feasibility Study

Preliminary feasibility study denotes advance verification and evaluation of feasibility carried out under the supervision of the Minister of Strategy and Finance in order to formulate budget and fund management plans regarding new large-scale projects pursuant to Article 38 of the National Finance Act and article 14 of the Enforcement Decree thereof.

### Article 3 Purpose of Preliminary Feasibility Study

The purpose of preliminary feasibility study is to prevent budgetary waste and contribute to enhancing the efficiency of financial management by ensuring that new government-financed projects are implemented in a transparent and fair manner according to established priorities based on an objective and neutral study of the feasibility of large-scale government-financed projects.

## CHAPTER 2 PROJECTS SUBJECTS TO PRELIMINARY FEASIBILITY STUDY

### Article 4 Projects Subject to Preliminary Feasibility Study

- (1) Preliminary feasibility studies shall be conducted for new projects that fall under any of the following subparagraphs:
1. Construction projects, informatization projects and national R&D projects of which total project costs amount to not less than KRW 50 billion and for which government financial support amounts to not less than KRW 30 billion; and
  2. Projects in social welfare, health, education, labor, culture and tourism, environmental protection, agriculture, forestry, maritime affairs and forestry industries and small&medium-sized enterprise of which medium-term fiscal expenditure amounts to nor less than KRW 50 billion (hereinafter referred to as “other non-invested financial projects”).
- (2) Construction projects as provided in paragraph (1)1 signify projects involving construction works such as civil engineering and architecture, and informatization projects and national R&D projects as provided in the paragraph denote projects budget according to the Guidelines by Detailed Project Type of the Guidelines for Formulation of a Budget Bill.

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(3) Other non-invested financial projects as provided in paragraph (1)2 denote projects that do not fall under construction projects, and informatization projects and national R&D projects as provided in paragraph (1)1 among those projects that fall under social welfare, health, education, labor, culture and tourism, environmental protection, agriculture, forestry, maritime affairs and forestry, industries and small&medium-sized enterprises according to the category sector classification under the program budget system.

(Example 1) Public medical information project of the Ministry for Health, Welfare and Family Affairs: This is a project falling under social welfare under the program budget system, but is classified as an informatization project.

(Example 2) Construction of the Gyeongju historic city culture by the Ministry of Culture, Sports and Tourism. This is a project falling under culture and tourism under the program budget system, but is classified as a construction project.

#### **Article 5 Types of Projects Subject to Preliminary Feasibility Study**

- (1) The target of preliminary feasibility study are entire projects involving government financial support including, but not limited to, projects directly undertaken by the central government projects vicariously undertaken for the central government, local government-subsidized projects an Public-Private Partnership projects.
- (2) Among Public-Private Partnership projects, unsolicited projects shall be excluded from the targets of preliminary feasibility study. Such study shall be replaced by a Value for Money test conducted by the Public and Private Infrastructure Investment Management Center.

#### **Article 6 Definition of Total Project Costs**

- (1) Total project costs provided herein denote total expenses incurred for implementation of a project; provided, however, that in the case of a project that continues without a set period, whether such project is subject to preliminary feasibility study shall be determined on the basis of its total project costs for five years.
- (2) Total project costs as provided in paragraph (1) include the costs borne by the central government, local government, public agencies and the private sector and so forth.

(Note) Total project costs include all costs related to loans, which shall be excluded in calculating the amount of government financial support.

- (3) In principle, total project costs shall be based on the amount presented by the head of each central government agency. In the event total project costs change in the process of consultation with the Minister of Strategy and Finance, such changed amount shall be deemed the total project costs.

- (4) Total project costs by project type shall be as follows:
1. Construction projects: All expenses incurred for large-scale construction works including, but not limited to civil engineering and architecture; comprised of construction costs, compensation costs, facility incidental expenses and so forth (article 2 of the Total Project Cost Management Guidelines).
  2. Informatization projects; All expenses incurred for implementation of a system and so forth; comprised of equipment purchase costs, rents, software development costs, etc.
  3. With respect to national R&D projects, each of the following total project cost calculation standards shall respectively apply to R&D projects to establish the basis for research and pure R&D projects:
    - 3-1. R&D projects for the establishment of the research infrastructure: All expenses incurred for the establishment of research facilities and equipment, creation of a research complex and so forth; comprised of construction costs, compensation costs, facility incidental expenses, equipment construction and purchase costs, etc.

\*Research costs, operating costs, etc. incurred after construction of facilities shall be excluded from total project costs.
    - 3-2. Pure R&D projects: All expenses incurred for research, technological development and so forth; comprised of labor costs, direct research costs (including outsourced resource costs). Indirect costs, equipment costs, etc.
- (5) With regard to BTL projects among Public-Private Partnership projects, total project costs, not rents to be paid by the central government in the future, shall serve as the basis in calculating the amount of government financial support.
- (Example 1) BTL project undertaken under the supervision of the head of a central government agency: As the total project costs of such project fall under government financial support in their entirety, a project of which total project costs amount to not less than KRW 50 billion shall be subject to preliminary feasibility study:
- (Example 2) BTL project undertaken under the supervision of a local government: If the total project costs of a project amount to not less than KRW 50 billion and its total project costs multiplied by the ratio of future rents to be borne by the central government amount to not less than KRW 30 billion, such project shall be subject to preliminary feasibility study.

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## **Article 7 Definition of Medium-Term Fiscal Expenditure**

(1) Medium-term fiscal expenditure as provided herein denote fiscal expenditure under a medium-term project proposal submitted according to article 28 of the National Finance Act, which represents the aggregate fiscal expenditure incurred for the five-year period following the commencement of a new project; provided, however, that said term means aggregate fiscal expenditure incurred during the entire project duration in the case of a project with a set period of not longer than ten years.

(Example 1) Projects with no set period among new projects for 2010: Aggregate of the estimated fiscal expenditure for the period of 2010 to 2012 as specified in the medium-term project proposal (2009~2013) and the estimated fiscal expenditure for 2014

(Example 2) Projects with a set period of seven years among new projects for 2010: Aggregate of total fiscal expenditure during the project duration, i.e. aggregate fiscal expenditure for the period of 2010 to 2016

(2) Fiscal expenditure as provided in paragraph (1) denotes only the portion to be borne by the central government.

## **Article 8 Definition of New Projects**

New projects subjects to preliminary feasibility study mean those projects for which no central government subsidies have been provide including, but not limited to, feasibility study costs and design costs.

(Note) Projects, regarding which only the costs of advanced services performed in the process of project planning and envisioning were reflected, shall fall under new projects.

## **Article 9 Unit of Projects Subject to Preliminary Feasibility Study**

(1) With respect to the unit of projects subject to preliminary feasibility study, 'detailed projects' under the existing budget and fund account description structure shall serve as the basis thereof, in principle; provided, however, that if a detailed project consists of independent sub-projects and any of such sub-projects meets the requirements of a project subject to preliminary feasibility study, such sub-project shall be subject to preliminary feasibility study.

(Note) Budget and fund account description structure: area – sector – program – bundle project – detailed project

(Example) Examples of preliminary feasibility study for sub-projects: 'drug candidate exploration project by diseases', an independent sub-project of the future platform technology development project (bundle projects) – new medicine development project (detailed project) –implementation of preliminary feasibility study in 2008

- (2) In the case of contributed research institutes, specific research institutes, etc., if an independent sub-project included in institutional operating costs, special projects costs, major project costs and so forth meets the requirements of a projects to preliminary feasibility study, such sub-projects shall be subject to preliminary feasibility study.
- (3) In the case of a package project comprised of multiple individual bundle projects including, but not limited to, local development and tourist resort development, preliminary feasibility study shall be implemented for each individual bundle project, in principle.
- (4) Notwithstanding the provision of paragraph (3), in such case where it is more appropriate to evaluate two or more bundle projects as a single project in consideration of the features, purpose, implementation type and so on of such projects and the aggregate total project costs of such bundle projects meet the requirements for preliminary feasibility study, preliminary feasibility study may be conducted by combining two or more bundle projects as a single project.

**Article 10 Collective Preliminary Feasibility Study Regarding Medium and Long-Term Plans, Etc.**

As in the case of a medium and long-term plan for roads, railways and so forth, if individual projects included in such plan have a high level of interconnection and a possibility of affecting priorities, collective preliminary feasibility study may be conducted with respect to the individual projects included in such plan.

(Example) Medium and long-term plans subject to collective preliminary feasibility study: basic plan for road improvement (expressway), five-year plan for national highways, governmental-subsidized local roads, national railroad network established plan, etc.

## CHAPTER 3 PROJECTS EXEMPT FROM PRELIMINARY FEASIBILITY STUDY

**Article 11 Projects Exempt from Preliminary Feasibility Study**

- (1) Projects that fall under any of the following shall be exempted from the targets of preliminary feasibility study pursuant to the provision of article 13(2) of the Enforcement Decree of the National Finance Act:
  1. Construction or expansion of public buildings, correctional facilities, and elementary and secondary education facilities;

(Note) Public buildings: buildings, adjunct facilities and the land thereof that the central government utilizes, or has decided to utilize, as office space



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for central administrative agencies and entities belonging thereto and as residential space for government officials. (See Articles 2 and 3 of the Government Building Management Regulations.)

2. Cultural property restoration projects;
3. National defense-related projects which pertain to national security or require confidentiality;
4. Projects that pertain to inter-Korean exchange and cooperation or are pursued according to an international convention or treaty;
5. Simple improvement, maintenance and repair projects to enhance the efficiency of existing facilities including, but not limited to, road maintenance and repairs and upgrade of aged water supply system;
6. Projects which need to be undertaken urgently to prevent disaster, support restoration, ensure facility safety and promote health and food safety, etc.;
7. Installation of facilities or implementation of a project that are mandated to be pursued according to applicable laws;

(Example) Statutory or necessary facilities: installation of sewage treatment plants, waste disposal facilities, utility-pipe conduits\*, etc.

\*Facilities installed underground to preserve road structure and enable smooth road traffic by jointly accommodating necessary infrastructure (electric power, gas and water supply systems, drainage system, etc.)

8. Projects intended for simple income transfer including, but not limited to, direct cash payment or payment in kind to such beneficiaries as national basic livelihood beneficiaries and the disabled;

(Note) Projects which are intended to provide benefits to compensate for deficiency of beneficiaries and of which purpose is attained simultaneously with the delivery of benefits, etc. to beneficiaries

(Example) Basic livelihood benefits, basic old-age pensions, provision of helpers for mothers and newborn babies, payment of subsidies for income stabilization of farmers and fishermen, provision of money to cover chemical fertilizer purchase costs of farming households, etc.

9. Projects regarding which preliminary feasibility study generates no practical benefits such as provision of labor costs and ordinary expenses and provision of loans to government –contributed or assisted entities; and
10. Projects as determined by the Minister of Strategy and Finance that need to be implemented under national policies for such purposes as promoting balanced regional development or responding or responding to urgent socioeconomic conditions.

- (2) With regard to projects preliminary intended to increase income by using surplus funds and so forth among dung management projects, a profitability analysis or feasibility assessment, etc. conducted by an objective and reliable entity according to the Draft Fund Management Plan Formulation Guidelines shall replace a preliminary feasibility study.

**Article 12 Requirements for and Procedures of Exemption Regarding Projects Undertaken under National Policies**

- (1) Projects which need to be undertaken under national policies for the purpose of balanced regional development as provided in Article 13(2)10 of the Enforcement Decree of the National Finance Act denote those projects supporting infrastructure facilities and so forth that are implemented to redress serious regional imbalance and promote balanced provincial development.
- (2) Projects which need to be undertaken under national policies for the purpose of coping with urgent socioeconomic conditions as provided in Article 13(2)10 of the Enforcement Decree of the National Finance Act denote those projects pursued urgently in order to respond to grave changes in the conditions inside and outside of the Republic of Korea including, but not limited to, an economic recession, mass unemployment and sharp fluctuations in foreign exchange rates.
- (3) Projects determined by the Minister of Strategy and Finance as exempt projects as provided in Article 13(2)10 of the Enforcement Decree of the National Finance Act denote those projects which have completed each of the following procedures:
1. Completion of a concrete project plan including, but not limited to, the purpose, scale and implementation method of the project;
  2. Completion of consultation among the agencies concerned on a need to pursue the pertinent project under national policies;
  3. Finalization through the policy-making agencies concerned that the project will be implemented under national policies; and
- (Example) Policy-making agencies concerned
- Meetings chaired by the President including, but not limited to, the Cabinet Council and the Emergency Economic Planning Committee
  - Government committees subordinated to the President that decide major national policies pursuant to applicable laws including, but not limited to, the Presidential Committee on Regional Development and the Presidential Council on National Competitiveness
  - Other statutory regular meetings where pertinent ministers decide major policies such as the Economic Coordination Meeting

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4. Acknowledgment by the Minister of Strategy and Finance of the need to exempt preliminary feasibility study through collection of options from the Government-Financed Projects Evaluation Advisory Council.

### **Article 13 Simplified Preliminary Feasibility Study**

With regard to the projects exempt from preliminary feasibility study pursuant to Article 11 hereof, the Minister of Strategy and Finance may, when necessary, review their appropriate scale, total projects costs, efficient alternatives and so on by applying the method of preliminary feasibility study mutatis mutandis thereto, and reflect the results thereof in budget and fund management planning.

### **Article 14 Interim Measures Regarding Preliminary Feasibility Study**

- (1) Any projects for which feasibility study had been already completed or was underway prior to the enforcement of the preliminary feasibility study system pursuant to Article 3(2) of Addenda of the Enforcement Decree of the National Finance Act (before April 9, 1999) shall be excluded from the targets of preliminary feasibility study. In such case, feasibility study shall be conducted only to the extent that feasibility study costs for the projects concerned were separately reflected in a budget, and the feasibility study independently implemented by each ministry shall be excluded therefrom.

(Note) Feasibility study internally implemented by each ministry: feasibility study internally implemented by each ministry with basic project costs, policy research costs, contributions, etc.

- (2) Even in the case of projects regarding which feasibility study had been completed or was underway prior to the enforcement of the preliminary feasibility study system, any project that has not proceeded to an ensuing stage such as basic design as of January 2009 shall be subject to preliminary feasibility study, notwithstanding the provision of paragraph (1).

(Example) Projects included in the implementation plan for the national highway-replacement by pass project (1996~2026) and the medium and long-term project plan for central government-subsidized local roads (1996~2026), regarding which feasibility study had been completed at the time of the introduction of the preliminary feasibility study system shall be subject to exemption from preliminary feasibility study, in principle; provided, however, that among those projects included in said plans, any project regarding which a design has not been pursued as of January 2009 shall be subject to preliminary feasibility study pursuant to Article 14(2) hereof, and therefore it shall be required to conduct preliminary feasibility study before implementation of such project.

\*Concerning projects reflected in the second five-year national highway/local road plan (2006~2010), collective verification was already carried out in 2005.

## CHAPTER 4 SELECTION OF PROJECTS SUBJECT TO PRELIMINARY FEASIBILITY STUDY

### **Article 15 Principles to Select Projects Subject to Preliminary Feasibility Study**

The Minister of Strategy of Finance may select project to preliminary feasibility study upon request from the head of a central government agency or ex officio.

### **Article 16 Request for Preliminary Feasibility Study**

- (1) In cases where the head of a central government agency intends to reflect a project subject to preliminary feasibility study in a draft budget or fund management plan, he or she shall request to the Minister of Strategy and Finance that a preliminary feasibility study be conducted, in principle, by the year immediately preceding the precious year of implementation of the project in consideration of the period required for such study; provided, however, that if there exist any urgent and unavoidable circumstances requiring implementation of the project, he or she may request a preliminary feasibility study regarding a project to be newly executed in the immediately following year.
- (2) In cases where the head of a central government agency intends to request a preliminary feasibility study pursuant to the provision of paragraph (1), he or she shall prepare and submit a ‘written request for preliminary feasibility study’ as specified in Annex 1 twice a year (December for the first half of a given year and August for the second half of said year), in principle, in accordance with such procedures and manner as determined by the Minister of Strategy and Finance.

### **Article 17 Review of Project Prioritization and Concreteness of Project Plan**

- (1) In cases where the head of a central government agency requests preliminary feasibility studies for not less than two projects, he or she shall determine the priority of such projects in consideration of a medium and long-term financial management plan, direction of national policies, equality among different areas and so forth, and reflect such prioritization in a written request for preliminary feasibility study.
- (2) Prior to making a request for preliminary feasibility study, the head of a central government agency shall specify, through utilization of advance services, etc., the goal, scale, implementation system, budget and so forth of the pertinent project.

### **Article 18 Written Request for Preliminary Feasibility Study**

- (1) A written request for preliminary feasibility study submitted by the head of a central government agency shall clearly state I. project plan (draft); II. Need for project implementation; III. Adequacy of the central government subsidy; IV. Amount and

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financing method of necessary resources; V. factors of balanced regional development ('need for technological development' in the case of an R&D project); and VI. Risks associated with project implementation and countermeasures, etc.

- (2) Such project plan (draft) as provided in paragraph (1) shall contain the purpose, related developments and scale of the project, total project costs, implementation system, financing method, performance of advance services, anticipated benefits thereof, etc.

(Note 1) See "Annex 1. Form of a written request for preliminary feasibility study."

(Note 2) Matters that must be clearly stated in a written request for preliminary feasibility study by project type:

- \* Construction projects: Planned project sites, major routes, whether the project is reflected in applicable laws or higher plans including a national land utilization plan or urban plan, future facility utilization plan, etc.
- Informatization project: Purpose and details of information services, targets and scope of such services, scope of system implementation, and information system utilization plan, etc.
- National R&D projects: Project implementation system, scale of necessary resources (budget, manpower, equipment, etc.) and a method to secure such resources, a method for differentiation and alignment of the project from and with existing ones, a plan to utilize R&D results, etc.
- \* In the case of a publicly invited bottom-up project, the technological area or task for which an application is made shall be specified in submitting said written request.
- Other non-invested financial projects: Purpose to be attained by implementing the project, specific target of support, requirements for support, amount or rate of support, procedures to implement the project, delivery system, etc.

### **Article 19 Advance Review of Informatization Projects**

- (1) In case where the head of a central government agency submits to the Minister of Strategy and Finance a written request for preliminary feasibility study regarding an informatization project, he or she shall also submit such to the Presidential Council on Information Society.
- (2) In the process of conducting an advance review of planned projects submitted by each ministry or reviewing and coordinating an informatization promotion plan by area, the Presidential Council on Information Society may present to the Ministry

of Strategy and Finance its opinion on whether the requirements for preliminary feasibility study have been satisfied, whether there exists any overlap or alignment between projects and so forth; provided, however, that in such case where the Presidential Council on Information Society submits its opinion based on an advance review, it shall engage in prior consultation with the Minister of Strategy and Finance to prevent any problem with the schedule of selecting projects subject to preliminary feasibility studies.

- (3) With regard to individual projects pursued by each ministry or projects jointly pursued by not less than two ministries, in such case where the Presidential Council on Information Society acknowledges, at its reasonable discretion, that it is appropriate to evaluate them as a single project by comprehensively considering the characteristics, purpose, implementation method, etc. of the projects pursuant to Article 9(4) hereof, it may recommend that such projects be included in the targets of preliminary feasibility study.

#### **Article 20 Advance Review of National R&D Projects**

- (1) In case where the head of a central government agency submits to the Minister of Strategy and Finance a written request for preliminary feasibility study regarding a national R&D project, he or she shall also submit such to the National Science and Technology Council.
- (2) With respect to planned projects submitted by each ministry, the National Science and Technology Council may present to the Ministry of Strategy and Finance its opinion on whether the requirements for preliminary feasibility study have been satisfied, whether there exists any overlap or alignment between projects and so forth; provided, however, that in such case where the National Science and Technology Council submits its opinion based on an advance review, it shall engage in prior consultation with the Minister of Strategy and Finance to prevent any problem with the schedule of selecting projects subject to preliminary feasibility study.

#### **Article 21 Re-request for Preliminary Feasibility Study**

- (1) With respect to projects for which preliminary feasibility study has been already conducted, reassessment thereof shall not be requested, in principle, in order to prevent any administrative waste in necessary manpower, budget and so on and to avert any irrational implementation of a project.
- (2) Notwithstanding the provision of paragraph (1), in cases where, from an objective point of view, there has occurred such a critical change in socioeconomic conditions related to a project that it would result in the preliminary feasibility study already performed to be significantly changed or where a project has been re-planned on a full scale based on reflection of existing preliminary feasibility study results, etc., a request for preliminary feasibility study may be made again.

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(Note) Simple adjustment of project costs and partial supplementation of a project plan shall not be deemed a change in conditions that allows a re-request for preliminary feasibility study

#### **Article 22 Ex Officio Selection**

(1) If deemed necessary, in his or her reasonable discretion, in connection with budget and fund management planning and so on, the Minister of Strategy and Finance may implement preliminary feasibility study even without a request from the head of the central government agency concerned.

(Example) When it is obviously expected from an objective point of view that total project costs will increase to KRW 50 billion or over considering the unit cost of a similar project, volume, etc. although total project costs presented by the head of central government agency amount to less than KRW 50 billion.

(2) The Ministry of Strategy and Finance shall implement preliminary feasibility study for projects requested by the National Assembly by resolution pursuant to Article 38(3) of the National Finance Act. In such case, the head of a central government agency shall formulate a concrete project plan regarding the pertinent project and submit a written request for preliminary feasibility study to the Minister of Strategy and Finance pursuant to Article 18 hereof.

#### **Article 23 Procedure for Selection of Project to Preliminary Feasibility Study**

(1) The Minister of Strategy and Finance shall select projects subject to preliminary feasibility study via the Government-Financed Project Evaluation Advisory Council as provided in Article 25 hereof after reviewing projects regarding which central government agencies request preliminary feasibility study in accordance with the standards for selecting projects subject to preliminary feasibility study as provided in Article 24 hereof.

(2) When necessary, the Minister of Strategy and Finance may request the head of a central government agency to additionally submit related materials on projects regarding which such agency requests preliminary feasibility study including, but not limited to, explanatory materials thereon and the rationale for prioritization.

#### **Article 24 Standards for Selection of Projects Subject to Preliminary Feasibility Study**

(1) In selecting projects subject to preliminary feasibility study, the Minister of Strategy and Finance shall comprehensively consider I. concreteness of a project plan; II. urgency of project implementation; III. requirements for central government subsidies; and IV. factors of balanced regional development ('need for technological development' on the case of an R&D project), etc.

(Note) Matters of detailed consideration by selection standard

- Concreteness of a project plan: Consider whether the plan is sufficiently specific including the purpose, implementation system, necessary budget and man power, and schedule of the project.
  - Examine whether major details of the project have been determined including the project site (architectural project) and routes (civil engineering project), in particular.
  - In the case of publicly invited bottom-up project among R&D projects, it shall be examined whether the area and details of the project have been specified (establishment of specific research areas or research task pools in advance when necessary).
  - Urgency of project implementation: Consider whether the project is consistent with investment prioritization under medium and long-term plans of the central government, direction of government policies, etc., and examine priorities among projects within the same ministry.
  - In considering priorities, the priorities presented by the ministry concerned shall be preferentially reflected absent special circumstances.
  - Requirements for central government subsidies: Consider the adequacy of government financial support including whether the project is entitled to a central government subsidy, method to share the financial burden, matching ratios, etc.
  - Factors of balanced regional development: Consider the ripple effects of the projects on the local economy, level of financial independence, impact to improve the region's degree of lagging behind, etc. in order to prevent the deepening of regional imbalance and enhance equality among different regions.
  - Need for technological development: Consider domestic and overseas research trends in related technological fields, socioeconomic ripple effects in the event of technological development , etc.
- (2) In selecting projects subject to preliminary feasibility study;, the Minister of Strategy and Finance may accurately ascertain factual relations and preferentially consider whether selection has been made within the scope of the selection standards as provide in paragraph (1) with regard to projects that fall under any of the following:
1. Projects regarding which it has been confirmed that a budget was requested without preliminary feasibility study in the process of budgeting notwithstanding that the projects are subject to preliminary feasibility study
  2. Projects regarding which the Presidential Council on Information Society and the National Science and Technology Council point out urgency of preliminary feasibility study based on their advance review;



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3. Projects regarding which the Ministry of Strategy and Finance and the ministry competent jurisdiction have completed consultation and agreed to pursue the project in the process of formulating a national financial management plan; and
  4. Other projects regarding which preliminary feasibility studies have been requested based on a decision in the meeting process by the ministries concerned.

#### **Article 25 Government-Financed Project Evaluation Advisory Council**

In order to collect opinion on major details pertaining to the operation of the preliminary feasibility study system from civilian experts as well as the ministries concerned, the Minister of Strategy and Finance may seek advice from the ‘Government-Financed Project Evaluation Advisory Council.’

(Note 1) Government-Financed Project Evaluation Advisory Council: A specialized council of the ‘Advisory Council on Fiscal Policies’ established under the Regulations on Installation and Operation of the Ministry of Strategy and Finance (July 31, 2008; Ministry of Strategy and Finance Directive No.30)

(Note 2) For composition and functions of the Government-Financed Project Evaluation Advisory Council, see the attached Detailed Operational Regulations of the Government-Financed Project Evaluation Advisory Council.

#### **Article 26 Modification of Project Plan**

- (1) In cases where it is necessary to change a project plan after the project is selected as one being subject to preliminary feasibility study, the head of a central government agency may request a change thereto based on prior consultation with the Minister of Strategy and Finance, only to the extent that such change is consistent with the original purpose and purport of the project.
- (2) Upon receipt of a request for change in a project plan as provided in paragraph (1), the Minister of Strategy and Finance shall determine whether to change such plan by comprehensively considering whether such change is consistent with the original purpose of the project, feasibility of the changed plan, opinions of the research staff for preliminary feasibility study and so on.

#### **Article 27 Withdrawal of Preliminary Feasibility Study**

If any of the following occurs in the process of conducting a preliminary feasibility study, such study may be withdrawn at the request of the head of a central government agency or by the Minister of Strategy ex officio:

1. When any law related to the project is enacted or amended after the project has been selected as one being subjects to preliminary feasibility study, and accordingly, the projects regarding which facility establishment or project implementation is mandatory under such law;

2. When it is confirmed that a project of less than KRW 50 billion was selected for such reasons as a mistake in total project cost estimation by the head of a central government agency in requesting that the project be subject to preliminary feasibility study; and
3. When a project plan submitted by a central government agency falls significantly below the level necessary for preliminary feasibility study, making it impossible to conduct such study.

## CHAPTER 5 PRELIMINARY FEASIBILITY STUDY IMPLEMENTATION SYSTEM

### **Article 28 Entities in Charge of Preliminary Feasibility Study**

- (1) At the request of the Minister of Strategy and Finance, the Public and Private Infrastructure Investment Management Center (PIMAC) of the Korea Development Institute (KDI) shall take Charge of conducting preliminary feasibility study; provided, however, that in the case of pure national R&D projects, the Korea Institute of Science and Technology Evaluation and Planning (KISTEP) shall take charge thereof.
- (2) The entities in charge of preliminary feasibility study shall select a project manager and organize research staff comprised of experts from various areas encompassing the academia, research institutes, private engineering companies and so on according to the characteristics of individual projects in order to efficiently manage tasks in compliance with general principles and standards of the preliminary feasibility study system.
- (3) The entities in charge of preliminary feasibility study may organize and utilize separate advisory councils when necessary to ensure professionalism and objectiveness in such study.

### **Article 29 Selection of Staff for Preliminary Feasibility Study**

- (1) Preliminary feasibility study may be carried out, based on classification thereof into internal tasks performed by the entities in charge of preliminary feasibility study and outsourcing tasks implemented by external experts, at their respective responsibility.
- (2) In cases where the entities in charge of preliminary feasibility study conduct such study by classifying such into internal and outsourcing tasks as provided in paragraph (1), they shall formulate the standards for dividing internal and outsourcing tasks and engage in prior consultation with the Minister of Strategy and Finance.
- (3) Research staff for internal tasks shall be selected in a manner appropriate to the project concerned with researchers' majors, research areas, and experience in performing preliminary feasibility studies and so on taken into account.

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- (4) Research staff for outsourcing tasks shall be selected through open competition in principle. With regard to government-run research institutes specialized by area (KOTI, KMI, National Information Society Agency, etc.), such staff may be selected through private contracts.

#### **Article 30 Period of Preliminary Feasibility Study**

- (1) The period of preliminary feasibility study shall be four months, in principle. Such period may be extended or shortened according to the nature, etc. of the project concerned.
- (2) In cases where it is deemed difficult to complete preliminary feasibility study within the originally planned period due to a request from the head of a central government agency for a change in the project plan as provide in Article 26 hereof or for review of an alternative therefor, he or she shall request extension of the period thereof.

#### **Article 31 Guidelines for Performance of Preliminary Feasibility Study**

- (1) In order to enhance consistency of preliminary feasibility study, the entities in charge of preliminary feasibility study shall formulate each of the following guidelines stipulating the basic principles thereof including, but not limited to, analysis standards and methods. Research staff for preliminary feasibility study shall conduct such study according to such guidelines:
1. General guidelines: Stipulate the standards commonly applied to the process of preliminary feasibility study including the economic analysis and social discount rates.  
  
(Example) Modification and complementation of the General Guidelines for Pre-feasibility Study (4<sup>th</sup> edition)
  2. Standard guidelines by are: Stipulate detailed matters concerning the methods and standards to perform preliminary feasibility study by project area including roads, railways, airports, harbors, water resources, informatization, R&D and other non-invested financial sectors.  
  
(Example) Modification and complementation of the Standard Guidelines for Pre-feasibility Study on Road&Railway Projects (4<sup>th</sup> edition)
- (2) The entities in charge of preliminary feasibility study may formulate separate guidelines stipulating matters that must be complied with by research staff in the process of performing preliminary feasibility study such as prohibition of any materials leakage.
- (3) In cases where at the time of the commencement of preliminary feasibility study, there arises any matter requiring complementation or modification in connection with

a study method and so on which was not reflected in the guidelines as provided in paragraph (1), the entities in charge of preliminary feasibility study shall give a public notice thereof to the research staff and disclose the details thereon on the web page thereof.

## CHAPTER 6 ANALYSIS METHODS FOR PRELIMINARY FEASIBILITY STUDY

### **Article 32 Details of Analysis for Preliminary Feasibility Study**

In preliminary feasibility studies, feasibility of project plans formulated by each ministry and possible alternatives thereof therefor shall be reviewed, and matters to be considered in the process of implementing those projects shall be analyzed in order to ensure reasonable decision-making on whether to implement those projects in the future, an appropriate time to implement them, the scale thereof and so on.

### **Article 33 Method of Analysis for Preliminary Feasibility Study**

- (1) The results of preliminary feasibility study shall be presented by comprehensively considering the evaluation results concerning an economic analysis, policy analysis and balanced regional development analysis.
- (2) Informatization projects and national R&D projects shall entail a technical analysis in addition to the evaluation items as provide in paragraph (1): provided, however, that a technical analysis may not be performed in the case of a project deemed a construction project based on material details thereof.
- (3) In the case of a project which is not confined to a specific region or of which effect is not limited to a specific region, a balanced regional development analysis may be omitted notwithstanding the provision of paragraph (1).

(Note) Evaluation items by projects type

- Construction projects: Economic analysis, policy analysis, balanced regional development analysis
- Informatization projects and national R&D projects: Economic analysis, policy analysis, technical analysis (or a balanced regional development analysis)
- Other non-invested financial project: Economic analysis, policy analysis

### **Article 34 Economic Analysis**

- (1) An economic analysis as provided in Article 33 hereof constitutes a core review process where the ripple effects of a project subject to preliminary feasibility study on the national economy and the adequacy of investment are analyzed. For such analysis, a Cost-Benefit Analysis shall be adopted as a basic methodology.

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- (2) For the purpose of a Cost-Benefit Analysis, benefits shall be calculated by estimating the needs for implementation of a project, and costs shall be computed by aggregating total project costs and all other expenses incurred for the operation of the project.

(Note) In general, a B/C ratio higher than 1 means existence of economic feasibility

- (3) In cases where a need for implementation of a project led by the private sector is raised in the process of an economic analysis and where it is deemed possible to secure investment from the private sector, a financial analysis may be carried out.
- (4) In the case of a project regarding which a Cost-Benefit Analysis is deemed inappropriate such as pure R&D projects and other non-invested financial projects, the ripple effects from a socioeconomic perspective or in terms of science and technology shall be estimated, based on which a Cost-Effectiveness Analysis may be performed.

### **Article 35 Policy Analysis**

- (1) In a policy analysis, evaluation items including, but not limited to, consistency and resoluteness of policies related to the pertinent project, risks associated with implementation of the project, and special evaluation items pertaining to the project shall be analyzed. quantitatively or qualitatively.
- (2) In performing a policy analysis, if it is deemed necessary to consider the environmental value of a project including, but not limited to, cultural and ecological value thereof, such shall be reflected in the special evaluation items for the project as provided in paragraph (1):

(Example) Projects to preserve cultural and historical sites where a number of cultural properties designated by the central, municipal or provincial governments exist or areas with a strong ecological importance such as mud flats and wetlands, or to promote environment-friendly use or tourism thereof.

### **Article 36 Balanced Regional Development Analysis**

In a balanced regional development analysis, factors affecting local development including, but not limited to, the labor inducing effects, the ripple effects on the local economy and improvement of the degree of regional under development shall be analyzed in order to prevent the deepening of regional imbalance and enhance equality among different regions.

### **Article 37 Technical Analysis**

In a technical analysis, adequacy of a technological development plan, possibility of the success of technological development, overlaps with existing technologies and projects and so on shall be analyzed

**Article 38 Comprehensive Evaluation**

- (1) In a comprehensive evaluation of the feasibility of a project, quantified numbers shall be produced based on application of the AHP (Analytic Hierarchy Process) method, a type of multi-criteria analyses, on the basis of the analysis results by evaluation item.
- (2) In conduction an AHP a provided in paragraph (1), weights applicable to each evaluation item shall be determined within the scope of each of the following weight class by project type absent special circumstances:
  1. Construction projects: economic analysis (40~50%), policy analysis (25~35%), balanced regional development (15~30%);
  2. R&D and informatization projects: economic analysis (30~50%), technical/policy analysis (50~70%); and
  3. Other non-invested financial projects: economic analysis (25~50%), policy analysis (50~75%).

(Note) In general, an AHP of 0.5 or higher means that implementation of the pertinent project is advisable.
- (3) In case where a collective preliminary feasibility study is conducted with regard to a medium and long-term plan in accordance with Article 10 hereof , feasibility of each individual project contained in such medium and long-term plan shall be deter preliminary feasibility study mined under the AHP methodology or in any other manner deemed appropriate in consideration of the synergy generated by alignment of individual projects, relationship with large-scale development plans and so on in carrying out the comprehensive evaluation of the project feasibility.

**Article 39 Policy Recommendations**

- (1) When necessary in addition to such comprehensive evaluation as provided in Article 38 hereof, risks associated with implementation of a project, other policy considerations and so forth may be presented as policy recommendations.
- (2) In the case of other non-invested financial projects, the need for implementation of an exemplary project and so forth may be presented as policy recommendation in the overall consideration of the characteristics of individual projects, possibility of fiscal expenditure expansion in the future, costs incurred for an exemplary project and reevaluation, etc.

**CHAPTER 7 EXEMPLARY PRELIMINARY FEASIBILITY STUDY****Article 40 Exemplary Preliminary Feasibility Study**

- (1) Notwithstanding the scope of and requirements for projects subject to preliminary feasibility study as provided in Article 4 hereof, the Minister of Strategy and Finance

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may conduct an exemplary preliminary feasibility study in order to enhance efficiency of financial management if it is deemed necessary to expand or evaluate, from the perspective of policies, the areas subject to preliminary feasibility study.

(2) An analysis method different from existing ones may apply to an exemplary preliminary feasibility study in consideration of the characteristics of a project.

(Example) Conducting a financial analysis in lieu of an economic analysis (B/C) or replacing AHP in numerical terms concerning feasibility of a project with qualitative descriptions, etc.

## CHAPTER 8 USE OF PRELIMINARY FEASIBILITY STUDY

### **Article 41 Notification of Preliminary Feasibility Study**

In order to ensure that the results of a preliminary feasibility study are effectively used for budget and fund management planning, the Minister of Strategy and Finance shall give notice thereof to the ministry concerned immediately upon the completion of such study.

### **Article 42 Alignment with Budget and Fund Management Plans**

For the purpose of implementing a project whose feasibility has been confirmed in accordance with the results of preliminary feasibility study (e.g.:  $AHP \geq 0.5$ ), the head of a central government agency may request a budget, etc. for the project to the Minister of Strategy and Finance in consideration of the urgency and financing conditions of the project as well as conditions for implementation thereof such as consultation with a local government.

### **Article 43 Disclosure of Preliminary Feasibility Study Results**

Upon completion of a preliminary feasibility study, the entities in charge thereof shall submit a final report thereon to the Minister of Strategy and Finance and disclose study results on the web page thereof, etc.

## CHAPTER 9 ADDENDA

### **Article 1 Date of Enforcement**

These guidelines shall enter into force on April 17, 2009.

### **Article 2 Applicable Examples Regarding Analysis Methods for Preliminary Feasibility Study**

Analysis methods for preliminary feasibility study under Article 32 through 39 hereof shall apply, beginning with those projects subject to preliminary feasibility study from the second half of 2008.







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