

KDI Public and Private Infrastructure Investment Management Center Annual Report 2021

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July 2022



Preface

The Public and Private Infrastructure Investment Management Center (PIMAC) at the Korea Development Institute (KDI) is dedicated to reviewing and evaluating public investment projects including major government-financed projects, public-private partnership (PPP) projects and public institutions investment projects in order to improve efficiency and transparency in their implementation. PIMAC has been acknowledged as a professional research institute where its studies focus on procedure and methodology related to public investment management, thereby contributing to solidifying the fundamental of the Korean economy.

From its establishment in 1999 up to 2021, PIMAC carried out 1,316 feasibility studies for government-financed projects, including Preliminary Feasibility Study (PFS) and Reassessment Study of Feasibility (RSF), which altogether contributed to fiscal savings worth KRW 218 trillion. PIMAC assisted with 4,856 cases of Public-Private Partnership (PPP) projects including Value for Money Tests, facilitating the implementation of PPP projects worth KRW 123 trillion in total. PIMAC performed 219 PFS and RSF for projects pursued by public and quasi-government organizations (public institutions), contributing to improving efficiency and financial soundness of public institutions projects. Through evaluation of 51 Special Tax Treatment Performance, PIMAC commits to both *ex ante* and *ex post* management of Special Taxation. In addition, through 251 research projects on guideline and policy related to public investment management, PIMAC endeavors to advance its evaluation method and improve regulatory setting of public procurement. In its performance, PIMAC has served to establish PFS as a model case of public assessment and to improve public investment efficiency and fiscal soundness.

The *2021 Annual Report of PIMAC* presents the highlights of PIMAC's activities since its establishment and the results of studies and researches conducted in 2021. We hope this report will help the readers understand PIMAC's continued efforts at

preemptively responding to social, economic, environmental and institutional changes and to improving the objectivity, transparency, and consistency of its analyses and results. PIMAC has been dedicated to maximizing the value-for-money of taxpayers by playing the role of gatekeeper in implementation of public investment projects and will promote its work to develop and establish well-organized evaluation systems.

July 2022

Kim Hyungtai

Executive Director

PIMAC, KDI

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Chapter I

Overview of the Public and Private Infrastructure Investment Management Center

Section 1. Foundational Purposes and Roles

The Public and Private Infrastructure Investment Management Center (hereinafter, 'PIMAC') of Korea Development Institute (hereinafter, 'KDI') plays important roles in the pursuit of public investment by examining and evaluating public investment projects with objectivity and rationality and studying relevant institutions and methodologies with the aim to contribute to reinforcing and improving the efficiency of public investment.

PIMAC conducts Preliminary Feasibility Studies (hereinafter, 'PFS') for major government-financed projects and Reassessment Studies of Feasibility (hereinafter, 'RSF') for government expenditure management to ensure transparency in decision-making on government investment and contribute to the efficiency and stability of fiscal management. Also, to facilitate implementation of Public-Private Partnership (PPP) projects in an efficient manner, PIMAC provides not only direct support to competent authorities including Value-for-Money (VFM) analysis, reviews for refinancing gain sharing, supporting negotiation and dispute mediation, but also policy services to competent authorities, the private sector and foreign country officials through training on PPP projects and studies to develop detailed guidelines for project implementation and relevant policies.

PIMAC, moreover, is designated as a specialized institution to conduct PFS for public institution investment projects above a certain value. PIMAC objectively assesses the feasibility of the projects and provides information to the public

institutions for their decision-making on new investments, thereby improving the efficiency of the projects and helping ensure financial stability. In addition, PIMAC conducts PFS and in-depth evaluations of special taxation for *ex ante* feasibility assessment and *ex post* performance analysis of tax policies.

PIMAC is true to its role as a professional institution that validates feasibility of major public projects. To ensure its analyses and evaluations are objective and reasonable, it also continues working on research in relevant areas including methodologies. Furthermore, PIMAC organizes forums and training programs on public investment schemes and policies and pursues international cooperation and networking by strengthening cooperation with various overseas organizations including the World Bank, the Organisation for Economic Co-operation and Development, and the International Monetary Fund. In addition, PIMAC continues building on databases for the efficient management at all stages of PPP investment and exerts efforts to help Korean businesses advance into overseas markets by sharing global policy issues and strengthening economic cooperation with developing countries.

Section 2. History and Grounds for Its Mandate

1. History

PIMAC, KDI was established in January 2000 as an internal organ of KDI following the introduction of PFS under Article 9-2 of the Enforcement Decree of the Budget and Accounts Act in May 1999. Following the amendment to the Act on Public-Private Partnerships in Infrastructure in January 2005, PIMAC was launched as an institution annexed to KDI, and the Private Infrastructure Investment Center of Korea¹⁾ at the Korea Research Institute for Human Settlements transferred thereto. In January 2014, KDI was designated as a specialized institution for government-project

1) The Private Infrastructure Investment Center of Korea was established as part of the Korea Research Institute for Human Settlements in April 1999 following the development of the Comprehensive Measures to Attract Private Investment in Infrastructure in August 1998 and the proclamation of the Act on Public-Private Partnerships in Infrastructure in December 1998.

evaluation under Article 8-2 of the National Finance Act, and from 2008 to 2018, PIMAC, KDI was designated as the sole institute executing PFS for fiscal projects excluding national R&D projects. Meanwhile, since the introduction of PFS for Public Enterprises and Quasi-Government Agencies (although generally called ‘State-Owned Enterprises (SOEs),’ hereinafter referred to collectively as ‘public institutions’ unless otherwise stated) investment projects in January 2011, PIMAC, KDI was designated as a specialized institution for conducting PFS for public institutions investment projects, and also in accordance with Article 16 of the Operational Guideline of Public Enterprises and Quasi-Government Agencies, under Article 25-3 of the Enforcement Decree of the Public Institution Act. In addition, in September 2014, KDI was designated as a specialized institution for special taxation evaluation in accordance with Article 135-2 of the Enforcement Decree of the Restriction of Special Taxation Act.

<Table I-1> shows the history of PIMAC.

<Table I-1> History of the Public and Private Infrastructure Investment Management Center

Year	Public and Private Infrastructure Investment Management Center (PIMAC)	
	Public Investment Center (PIMA)	Private Infrastructure Investment Center of Korea (PICKO)
1998	<ul style="list-style-type: none"> The Public Project Efficiency Task Force was organized (Strategy and Budget Committee, Ministry of Construction and Transportation). 	<ul style="list-style-type: none"> The Comprehensive Measures to Attract Private Investment in Infrastructure were established in August. The Act on Public-Private Partnerships in Infrastructure was proclaimed in December.
1999	<ul style="list-style-type: none"> The Comprehensive Measures for Public Construction Project Efficiency were established (Ministry of Construction and Transportation). PFS launched for 24 projects in January. General guidelines and area-specific guidelines published in February. PFS legislated under Article 9-2 of the Enforcement Decree of the Budget and Accounts Act in May. 	<ul style="list-style-type: none"> The Korea Research Institute for Human Settlements established PICKO in April. Lee Kyu-Bang took office as the inaugural director (served consecutive terms) in April.
2000	<ul style="list-style-type: none"> Pilot application of analytic hierarchy process (AHP) to PFS. PIMA established in January. Kim Jay-Hyung took office as the inaugural director in January. 	<ul style="list-style-type: none"> The SOC Private Investment Support Group was organized (relevant ministries, PICKO, financial institutions, private businesses, academia, etc.).
2001	<ul style="list-style-type: none"> AHP fully introduced to PFS. 	<ul style="list-style-type: none"> Mid-/long-term PPP plans established (PPP Basic Plans).

Year	Public and Private Infrastructure Investment Management Center (PIMAC)	
2002	<ul style="list-style-type: none"> Revalidation study of feasibility introduced in January. (Revalidation study of feasibility renamed reassessment studies of feasibility (RSF) in 2007.) 	<ul style="list-style-type: none"> Prepared grounds for the establishment of mid-/long-term PPP plans (amendment to the Act on Public-Private Partnerships in Infrastructure).
2003	<ul style="list-style-type: none"> Shim Sang-Dal took office as the second director in August. 	<ul style="list-style-type: none"> Kim Heung Soo took office as the third director in February.
2004	<ul style="list-style-type: none"> Pilot PFS in informatization launched in April (three projects). 	<ul style="list-style-type: none"> An international seminar on PPP held in September. An international seminar on PPP criteria and process held in November.
2005	<ul style="list-style-type: none"> PIMA and PICKO were merged (under Article 23 of the PPP Act (Act No. 7386)) to form PIMAC, an affiliated body of KDI in January. Jeon Hong-taek took office as the inaugural executive director in January. BTL (Build-Transfer-Lease) newly included as a PPP type; Value-for-Money (VFM) tests introduced in January. The International Conference on the Risk Analysis and Management of PPP in Infrastructure Projects was held in December (IMF, World Bank, ADB, Partnerships UK). 	
2006	<ul style="list-style-type: none"> Kim Jay-Hyung took office as the second executive director (took consecutive terms as the third and fourth executive director) in April. PFS and RSF legally institutionalized (under Articles 38 and 50 of the National Finance Act (Act No. 8050)) in June. 	
2007	<ul style="list-style-type: none"> The scope of PFS expanded (national R&D projects and informatization projects). The Asia-Pacific Ministerial Conference on Public-Private Partnerships for Infrastructure Development held in October. Review on Refinancing gain sharing introduced in December. 	
2008	<ul style="list-style-type: none"> PIMAC designated as agency administering PFS (excluding national R&D projects) under Operational Guidelines for PFS Simplified PFS (preliminary cost review) introduced. (Simplified PFS renamed as project plan review in 2012.) 	
2009	<ul style="list-style-type: none"> The Knowledge Sharing on Infrastructure Public-Private Partnerships in Asia held in May (ADB, ADBI, World Bank Institute). 	
2010	<ul style="list-style-type: none"> The scope of PFS expanded (other non-investment fiscal projects). ("Other non-investment fiscal projects" recategorized as "other fiscal projects" in 2012.) 	
2011	<ul style="list-style-type: none"> PFS for public institution investment projects introduced in January. PIMAC designated as specialized agency administering PFS for public institution investment projects in January. The International Conference on Performance Evaluation and Success Cases of Public-Private Partnership Projects held in August (IMF, World Bank). 	
2012	<ul style="list-style-type: none"> Park Hyun took office as the fifth executive director in February. 	
2013	<ul style="list-style-type: none"> Kim Kang-Soo took office as the sixth executive director (served consecutive terms as the seventh executive director) in July. 	

Year	Public and Private Infrastructure Investment Management Center (PIMAC)
2014	<ul style="list-style-type: none"> • The law on the introduction to PFS for special taxation (Restriction of Special Taxation Act) amended in January. • PIMAC designated as specialized agency to perform PFS for fiscal projects (under Article 8-2 of the National Finance Act (Act No. 12161)) in January. • KDI designated as specialized agency to perform evaluation of special taxation (under 135-2 of the Enforcement Decree of the Restriction of Special Taxation Act (Presidential Decree No. 25590)) in September. • International Conference on Strengthening the Management of Public Investment: Korean and International Experiences in celebration of the 15th anniversary of the introduction of PFS held in October. • International seminar in celebration of the 20th anniversary of the introduction of public-private partnership held in December (Ministry of Economy and Finance, World Bank, ADB).
2015	<ul style="list-style-type: none"> • Evaluation for special taxation performed in January.
2016	<ul style="list-style-type: none"> • Kim Kiwan took office as the eighth executive director (served consecutive terms as the ninth executive director) in March. • PFS for public institution investment projects legally institutionalized (under Articles 40 of the Act on the Management of Public Institutions (Act No. 14076)) in March. • PIMAC designated as specialized agency to perform PFS for public institutions investment projects (under Article 16 of the Operational Guidelines for PFS for Public Enterprises' and Quasi-Government Institutions' Projects) in November.
2017	<ul style="list-style-type: none"> • General Guidelines for Performance of PFS established in April.
2019	<ul style="list-style-type: none"> • Government diversified special agencies that perform PFS (KDI, Korea Institute of Public Finance (KIPF) according to the National Finance Act and the Operational Guidelines for PFS) in May. • Kim Hyungtai took office as the tenth executive director (served consecutive terms as the eleventh executive director) in December. • International Conference on Public Investment Management in celebration of the 20th anniversary of the introduction of PFS held in December (Ministry of Economy and Finance, World Bank).
2020	<ul style="list-style-type: none"> • PPP policy change from enlisting of 53 eligible PPP facilities to expanding to all public facilities in March. • RSF for public institution investment projects legally institutionalized (under Article 40-3 of the Act on the Management of Public Institutions (Act No. 17128)) in March. • Guidelines for Total Project Cost Management for Public Enterprises and Quasi-Government Institutions enacted in September.
2021	<ul style="list-style-type: none"> • Pilot study on preliminary feasibility review performed.

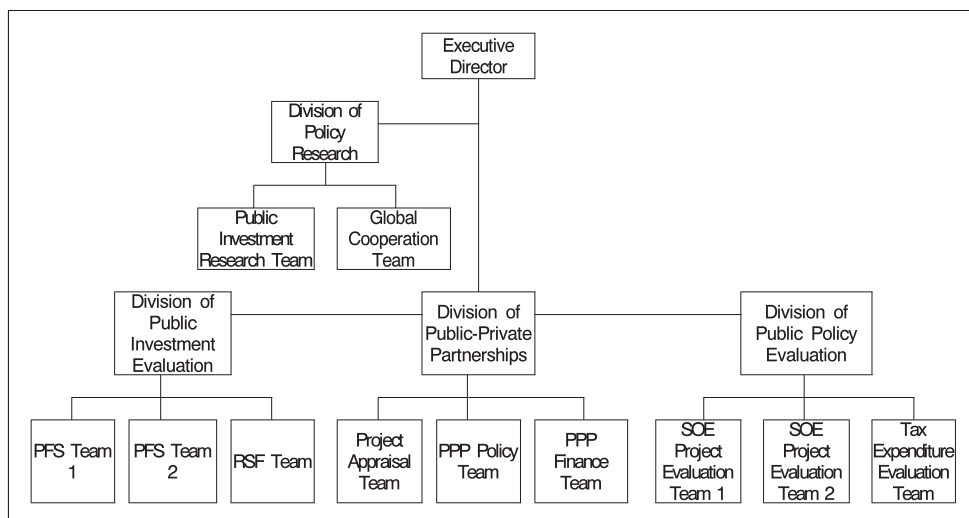
2. Grounds for Mandate

The assessment of major government-financed projects including PFS is carried out based on Article 38(Preliminary Feasibility Study) and Article 50(Management of Total Project Cost) of the National Finance Act, along with related guidelines. PIMAC of KDI is designated as an institute specialized in evaluation of fiscal projects according to Article 8-2(Designation of Survey and Research Institutes Specialized in Evaluation of Fiscal Projects) of the National Finance Act. PPP projects in Korea are implemented based on the Act on Public-Private Partnerships in Infrastructure (hereinafter, 'the PPP Act'). For PPP projects, PIMAC offers comprehensive support services including feasibility studies for major PPP projects and project plan evaluations under Article 23(Establishment of Public and Private Infrastructure Investment Management Center) of the PPP Act. Meanwhile, PFS and RSF for public institutions investment projects according to Article 40(Budget Compilation) and Article 40-3(Feasibility Review and Disclosure of Results Thereof) of the Act on the Management of Public Institutions, along with related guidelines. PIMAC of KDI is designated as an agency that performs PFS on public institutions investment projects according to Article 16 of the Operational Guidelines for PFS for Public Enterprises' and Quasi-Government Institutions' Projects, which is grounded on Article 25-3(Preliminary Feasibility Study) of the Enforcement Decree of the Act on the Management of Public Institutions. Performance evaluation of special taxation is based on Article 142(Ex Ante and Ex Post Management of Special Taxation). KDI is designated as specialized institution that performs evaluation for special taxation according to Article 135-2(Designation of Institutions Specialized in Surveys and Research for Assessment, etc. of Special Taxation) of the Enforcement Decree of the Restriction of Special Taxation Act.

Section 3. Organization and Staff

PIMAC, KDI consists of four divisions: Division of Public Investment Evaluation, Division of Public-Private Partnerships, Division of Public Policy Evaluation, and Division of Policy Research. These divisions, respectively, have team-level organizations, which are as follows: The Division of Public Investment Evaluation consists of Preliminary Feasibility Study Team 1, Preliminary Feasibility Study Team 2, and Reassessment Study of Feasibility Team. The Division of Public-Private Partnerships is divided into Project Appraisal Team, PPP Policy Team, and PPP Finance Team. Teams that belong to the Division of Public Policy Evaluation are SOE Project Evaluation Team 1, SOE Project Evaluation Team 2, and Tax Expenditure Evaluation Team. Finally, Public Investment Research Team and Global Cooperation Team comprise the Division of Policy Research. The organization chart and tasks are shown as follows.

[Figure 1-1] Organization Chart



As of May 2022, PIMAC had 106 staff members consisting of experts in various disciplines including economics, business management, accounting, transportation, and civil engineering.

<Table 1-2> Staff by Discipline

Discipline	No. of staff	Discipline	No. of staff
Economics	21	Law	5
Business management, finance, accounting	21	International cooperation, development cooperation, policy, etc.	11
Civil, architecture, environment engineering, etc.	16	Others (culture and tourism, water resources, etc.)	2
Urban planning and engineering, transportation, etc.	22	Administration and support, internship	8

Note: As of May 10, 2022.

<Table 1-3> Key Tasks

Organization		Tasks
Office of the Executive Director	Executive Director	<ul style="list-style-type: none"> Supervises studies, surveys, and support activities related to public investment projects (government-funded projects, PPP projects, and public institution investment projects), and special taxation.
Division of Public Investment Evaluation	Preliminary Feasibility Study Team 1	<ul style="list-style-type: none"> Conducts, supports, and manages PFS and project plan reviews for major public investment projects related to standardized types of projects, such as those in the transportation sector. Performs research related to government-funded project PFS guideline and policy.
	Preliminary Feasibility Study Team 2	<ul style="list-style-type: none"> Conducts, supports, and manages PFS and project plan reviews for major public investment projects related to non-standardized types of projects, such as those in the construction, informatization, culture, R&D, and other sectors. Performs research related to government-funded project PFS guideline and policy.
	Reassessment Study of Feasibility Team	<ul style="list-style-type: none"> Implements RSF, reassessments of demand forecast (RDF), reassessments of project plans, and assessments of design modification for the projects subject to total project cost management (TPCM). Performs research related to government-funded project RSF guideline and policy.
Division of Public-Private Partnerships	Project Appraisal Team	<ul style="list-style-type: none"> Performs feasibility studies of government-initiated PPP projects and supports and manages VFM for projects proposed by the private sector. Conducts, supports, and manages RDF and VFM reassessments of PPP projects. Performs research related to improving PPP policy and related field.
	Public-Private Partnerships Policy Team	<ul style="list-style-type: none"> Conducts, supports, and manages feasibility studies and reviews for BTL projects.

Organization		Tasks
		<ul style="list-style-type: none"> • Prepares and reviews PPP project request for proposals and announcement of third-party proposals. • Provides support for project proponent designation including negotiating for concession agreements and reviewing draft agreements. • Supports the PPP Project Deliberation Committee and the Dispute Settlement Committee. • Performs research related to improving PPP policy and related field.
	Public-Private Partnerships Finance Team	<ul style="list-style-type: none"> • Reviews refinancing gains for PPP projects, supports negotiation thereof. • Reviews and provides support for project condition adjustments and MRG payments. • Reviews and provides support for amendments to concession agreement following refinancing and project condition adjustments. • Performs research related to improving PPP policy and related field.
Division of Public Policy Evaluation	SOE Project Evaluation Team 1	<ul style="list-style-type: none"> • Performs evaluations (PFS, RSF, review of project plan, etc.) for public institution investment projects such as electric power projects and overseas projects. • Conducts studies on guidelines and policies on public institutions project evaluation for electric power projects and overseas projects.
	SOE Project Evaluation Team 2	<ul style="list-style-type: none"> • Performs evaluations (PFS, RSF, review of project plan, etc.) for public institution investment projects such as industrial complexes and land development projects. • Conducts studies on guidelines and policies on public institutions project evaluation for industrial complexes and land development projects.
	Tax Expenditure Evaluation Team	<ul style="list-style-type: none"> • Conducts and supports PFS and in-depth evaluation of special taxation.
Division of Policy Research	Public Investment Research Team	<ul style="list-style-type: none"> • Supports and manages research and studies performed by PIMAC and identifies mid to long term policy agenda. • Operates and manages the Public Investment Policy Forum. • Conducts training on public investment projects and develops and manages relevant databases.
	Global Cooperation Team	<ul style="list-style-type: none"> • Analyzes international trends in public investment. • Pursues international cooperation and public relations, and establishes and manages local and international networks and databases. • Provides consultation for foreign country officials.

Chapter II

Overview of Government–Financed Project Evaluations

PIMAC conducts government-financed project evaluations under Article 8-2 of the National Finance Act. These include PFS that aim to improve the efficiency of fiscal management by ensuring transparent and fair decision-making on major public investment projects based on priorities and RSF that aim to improve the efficiency of fiscal expenditures by ensuring stage-specific reasonable adjustment and management of project costs. Also, PIMAC conducts project plan VFM reviews, VFM reassessments, RDF, project design reviews, and assessments of design modification in accordance with PFS guidelines and TPCM guidelines.

<Table II-1> shows the track records of PIMAC’s government-financed project evaluations conducted from 1999 to date.²⁾

<Table II-1> Track records of government-financed project evaluations

(Unit: cases)

Year	PFS		RSF			
	PFS	Assessment of Project Plan	RSF	Reassessment of Project Plan	RDF	Assessment of Design Modification/ Pre-Feasibility Review of Design Modification
1999	20	-	-	-	-	-
2000	30	-	-	-	-	-
2001	41	-	-	-	-	-
2002	30	-	-	-	-	-

²⁾ In line with Article 8-6 of the National Finance Act, in-depth evaluation of government-financed projects were introduced in 2006, and a total of 53 projects were evaluated by PIMAC from 2006 to 2013.

Year	PFS		RSF			
	PFS	Assessment of Project Plan	RSF	Reassessment of Project Plan	RDF	Assessment of Design Modification/ Pre-Feasibility Review of Design Modification
2003	32	-	6	-	-	-
2004	55	-	6	-	-	-
2005	30	-	9	-	-	-
2006	52	-	19	-	-	1
2007	46	4	14	-	1	-
2008	38	7	21	-	1	-
2009	63	9	31	-	3	3
2010	48	6	31	3	1	1
2011	43	2	15	5	-	-
2012	35	6	11	4	1	-
2013	16	4	9	6	3	1
2014	34	10	18	11	7	-
2015	18	9	10	11	-	4
2016	23	-	11	15	1	8
2017	31	8	9	11	2	3
2018	22	5	4	7	-	6
2019	25	31	6	13	-	5
2020	19	14	2	12	-	9
2021	16	12	6	14	1	10
Total	767	127	238	112	21	51

Note: Number of projects refer to the projects that were completed within respective years and reviewed/evaluated by PIMAC

Section 1. Overview of Preliminary Feasibility Studies

1. History of PFS

A. Background and Track Records of PFS³⁾

1) Thorough review at preliminary stage

Successfully implementing large-scale government-financed projects requires thorough preliminary reviews of their political, economic, and technical feasibility. It is true that a preliminary assessment is also necessary for the private sector when they implement their own projects; however, a greater importance should be placed on the preliminary assessment of public projects given that they are considerably larger in scale and have greater ripple effects over the entire nation. Recklessly pursuing projects without thorough reviews of their feasibility will lead to the following risks.

First, projects with no demand or no economic feasibility may be pursued. Building a facility when there is no demand is nothing but a waste of budget. Should there be some demand but not enough for effective operation of the facility, the government would inevitably have to provide continued support, eventually leading to fiscal constraints in the long run.

Second, it may cause an unexpected cost overrun and frequent changes in project plans. The government budget is managed and executed in accordance with a detailed plan. When a project is launched without a thorough review in advance, an unexpected cost overrun might occur in the middle of the project implementation process. This, consequently, may cause some difficulties in fiscal management. Even though a preliminary review is conducted, a cost overrun may still possibly occur due to inflation or unexpected situations in the construction site. However, in this case, the amount exceeding the original budget would be much more limited, and it would

3) This section was adapted from Korea Development Institute, 1999, *Introduction to Government Procurement Projects and PPP Project System of Korea*.

likely be in the anticipated error range. Furthermore, lack of a thorough preliminary review might also cause frequent changes in the project plans, thereby increasing the overall project cost and delaying the completion date for the project.

Third, once a project is launched but then found to be not feasible, it is very difficult to halt it. In most cases, nullifying a project would be impossible, in reality, due to an angry backlash from the local government or local population. Even if it is possible to nullify the project, this means that the entire investment up to that point would be lost, and the problem of disposal of facilities built during the project implementation will be seriously raised.

Even if a project is assessed to be economically and technically feasible, some concerns in terms of policy, such as overall fiscal management, might be raised. The budget is not unlimited. Therefore, it is necessary to consider the priority of projects in a holistic manner for an efficient allocation of resources under budget constraints. This means that it is necessary to decide whether to push forward with the project by assessing the feasibility of the individual project as well as conducting a thorough comparison and review targeting the “potential project group” in a broader perspective.

2) Importance of PFS

PFS was introduced for the purpose of improving the existing feasibility studies. The importance of PFS can be found in that it presents a solution to the problems of existing feasibility studies that had been conducted before the introduction of the PFS regime. In other words, existing feasibility studies mainly focused on technical review and preliminary design because it is regarded that the target project would be implemented. However, PFS, as a pre-stage of the actual feasibility studies, focuses on evaluating the policy significance and economic efficiency that the target project had in the context of the overall fiscal management. That is, PFS is to suggest an efficient and realistic implementation plan for the project.

Although cost-benefit analysis would be thoroughly conducted based on the details of draft design plans, it is appropriate to decide whether to pursue the project, or even conduct a feasibility study, before conducting any technical review that requires a large amount of money. In other words, the decision to implement a new project should be

made before conducting any technical review. This decision should be confirmed based on an accurate understanding of how the potential project is positioned within the entire budget management system and the higher-level plans for the whole and individual project sectors in addition to the overall framework of existing projects. Of course, technical issues are important, however, project implementation itself should be decided based on more fundamental factors. Those factors may include a review of purpose and importance of the project, right timing for project implementation, alternatives to the potential project, viability and concreteness of financing plans, and an evaluation on the ripple effect of the project.

Therefore, the aim of the preliminary feasibility study is basically to make a decision on whether to start a new project in terms of the national economy before conducting a full-fledged feasibility study. For this purpose, the preliminary feasibility study is conducted by a third-party organization that does not have any direct interests in the relevant project, and should be conducted in an objective and neutral manner. Furthermore, the implementation steps for a new project are set as preliminary feasibility study → feasibility study → design → compensation → commencement of construction. The budget is allocated, in principle, based on the individual steps, respectively. In doing so, the government amended the Enforcement Decree of the Budget and Accounting Act in March 1999 to require that project budgets be prepared in the order of a PFS, a feasibility study, basic design, working design, compensation, and construction.

In addition, PFS provide another important advantage as they facilitate the standardization of methods for project assessments by providing assessment guidelines.⁴⁾ This, consequently, will contribute to improving efficiency in resource allocation by securing the objectivity of the study results and establishing a comparison system for priorities among different potential projects for investment.

Another advantage of conducting PFS is that they could be used as the basic data for a feasibility study, which may be pursued based on the results of the PFS.

Those data, statistics, and information collected during a PFS are all necessary for a feasibility study. In addition, the model and criteria for evaluating the feasibility as

4) The Executive Guideline to Preliminary Feasibility Studies were prepared in 2017 and are in place.

well as the standard for various coefficients that were developed during the PFS can also be used for the feasibility study when necessary. Furthermore, it is more efficient for the budget management to use PFS to screen and narrow down primarily the number of potential projects subject to feasibility studies. In other words, the efficiency of resource allocation will be significantly improved by conducting PFS for a larger “potential project pipeline,” and it will eventually reduce the costs of feasibility studies. As elaborated above, introducing the PFS will help relevant personnel identify problems before they conduct a full feasibility study and significantly improve efficiency in budget management and fiscal soundness.

B. Legal basis of PFS

The PFS is conducted under Article 38 of the National Finance Act and Article 13 of the Enforcement Decree of the National Finance Act with the aim to establish budgets and fund management plans for large-scale projects. The Guideline to the Preliminary Feasibility Studies, which are mandated by the provision in Article 38(6) of the National Finance Act to clarify the selection of subjects of PFS, institutions to conduct PFS, methods, and processes, clearly state that PFS should be conducted by PIMAC and Korea Institute of Public Finance (KIPF) upon request of the Minister of Economy and Finance.

C. Evolution of PFS

As part of the government’s drive for public sector innovation, the (former) Ministry of Construction and Transport organized the Public Project Efficiency Promotion Group, and the group developed the Comprehensive Measures for Public Project Efficiency Promotion to eliminate inefficiency and waste in each stage of public construction projects. These measures aimed to ensure transparency in the planning and implementation of public construction projects, reduce construction costs, improve productivity, and establish a system for construction quality assurance and were pursued in consultation with relevant government agencies such as the Strategy and Finance Committee. In doing so, the PFS was introduced following legal and institutional reform of 1999 including an amendment to the Enforcement Decree of the

Budget and Accounting Act. <Table II-2> shows the major events of the PFS.

<Table II-2> Major Events of the PFS

Year	Event
1998	<ul style="list-style-type: none"> Public Project Efficiency Promotion Group organized (Strategy and Budget Committee, Ministry of Construction and Transport).
1999	<ul style="list-style-type: none"> Comprehensive Measures for Public Project Efficiency Promotion (Ministry of Construction and Transport). PFS initiated in January (24 projects). General and area-specific guidelines published in February. PFS legislated under Article 9-2 of the Enforcement Decree of the Budget and Accounting Act in May.
2000	<ul style="list-style-type: none"> Pilot AHP analysis in PFS.
2001	<ul style="list-style-type: none"> Full-scale AHP analysis as part of PFS.
2004	<ul style="list-style-type: none"> Pilot PFS for IT projects in April (three projects).
2007	<ul style="list-style-type: none"> Scope of PFS extended (to national R&D and IT projects). PFS and RSF legislated under Article 38(4) of the National Finance Act and Its Enforcement Decree in January.
2008	<ul style="list-style-type: none"> Simplified PFS (preliminary cost review) introduced.
2010	<ul style="list-style-type: none"> Scope of PFS extended (to other non-investment fiscal projects).
2012	<ul style="list-style-type: none"> Stricter PFS applied to welfare projects. PFS exemption requests became mandatory. Project plan review introduced “Other non-investment fiscal projects” recategorized as “other fiscal projects.”
2014	<ul style="list-style-type: none"> Employment effect analysis included as an evaluation item in policy analysis. Scope of PFS result disclosure extended and stricter criteria applied.
2016	<ul style="list-style-type: none"> Fiscal project evaluation advisory meeting → Fiscal Project Evaluation Advisory Committee. <ul style="list-style-type: none"> - Fiscal Project Evaluation Advisory Committee operation rules established. More AHP evaluators (two people added to the PFS staff per project). PFS requests made half-annually → quarterly (effective November 2016).
2017	<ul style="list-style-type: none"> Executive Guideline to Preliminary Feasibility Studies established. <ul style="list-style-type: none"> - Details on PFS process, analysis methods, criteria, etc.
2018	<ul style="list-style-type: none"> PFS for national R&D projects transferred to the Ministry of Science and ICT (commissioning).
2019	<ul style="list-style-type: none"> Fiscal Project Evaluation Advisory Committee → Fiscal Project Evaluation Committee. AHP governance reform (effective July 2019). Changes in policy analysis items (applicable to projects subject to PFS in 2019)

Year	Event
	first round). - Project conditions, policy impact (employment, living environment, environmental impact, and safety), and special evaluation items. • Changes in the balanced regional development evaluation system (capital and non-capital regions separated). • Welfare and income transfer project evaluation system reform. • Korea Institute of Public Finance included as a PFS institution.
2020	• Compulsory project plan review if PFS exempted for the sake of “state policy.”
2021	• Pilot project for Pre-feasibility evaluation on national facilities

2. Projects Subject to PFS and Types of PFS

A. Projects subject to and exempted from PFS⁵⁾

1) Projects subject to PFS

Construction, informatization, and national R&D projects⁶⁾ with a total project cost of KRW 50 billion or more and state funding of KRW 30 billion or more, and projects that fall under welfare, healthcare, education, labor, culture and tourism, environmental preservation, agriculture, ocean and fisheries, and industry and small and medium enterprises (“other fiscal projects”) with mid-long fiscal expenditures of KRW 50 billion or more, as defined below, are subject to PFS.

Construction projects refer to the projects that involve construction work such as civil engineering and building. Informatization projects are defined as the projects funded by informatization budgets in accordance with the project-specific guidelines under the Detailed Guidelines for Budget Policy. Other fiscal projects are projects that fall under welfare, healthcare, education, labor, culture and tourism, environmental preservation, agriculture, ocean and fisheries, and industry and small and medium

5) Adapted from Ministry of Economy and Finance, *Operational Guidelines for Preliminary Feasibility Studies*, January 2021.

6) Under Article 3(1) of Operational Guideline for PFS, details on the scope of national R&D projects subject to PFS, selection criteria, implementing agencies, methods, and processes are to be provided by the Minister of Science and ICT.

enterprises under the program budget scheme and that are not classified as construction or informatization projects.

PFS are applicable to all projects that receive the government's financial support including projects directly conducted by the state, projects commissioned by the state, projects subsidized by local governments, and PPP projects. When carrying out PFS of government-solicited PPP projects, PIMAC may also conduct feasibility studies under the Act on Public-Private Partnerships in Infrastructure.

2) Projects exempted from PFS

As provided in Article 38(2) of the National Finance Act, the following projects are exempted from PFS:

- ① Construction or extension of public office buildings, correctional facilities, or elementary or secondary educational facilities
- ② Projects for the restoration of cultural heritage
- ③ Confidential projects relating to national security or national defense
- ④ Projects relating to inter-Korean exchange and cooperation or implemented under an agreement or treaty between states
- ⑤ Projects for simple amelioration, maintenance, or repair to improve the utility of existing facilities, such as road maintenance or repair or the improvement of decrepit waterworks
- ⑥ Projects urgently required for disaster recovery, safety, health, or food safety under Article 3, Subparagraph 1 of the Framework Act on the Management of Disasters and Safety
- ⑦ Projects approved by the competent Standing Committee of the National Assembly and that need to be implemented urgently for disaster prevention
- ⑧ Projects that need to be implemented by law
- ⑨ Projects for which PFS are of no practical use, for example, a subsidy or loan for personnel expense or operating expense of a funded or subsidized institution
- ⑩ Projects pursued by state policy for balanced regional development or urgent economic or social needs, which should meet all of the following requirements (if a project failed a PFS earlier due to insufficient economic feasibility, etc.,

such a project may be exempted from PFS only if economic or social conditions surrounding the project have changed, for example, the implementation of associated projects or developments in surrounding areas, or if the project has been replanned in consideration of the results of the previous PFS). In such cases, the details of the project exempted from PFS and the reasons for the exemption should be reported to the competent Standing Committee of the National Assembly without delay:

- Ⓐ The project should have a specific project plan formulated with regard to the purposes and scale of the project, a plan for implementation, etc.
- Ⓑ The project should be finally approved by the State Council as a project that needs to be implemented under national policies.

B. Types of PFS

Other than general PFS applicable to the projects mentioned above, a package PFS, project plan review, or pilot PFS may be conducted.

1) PFS on a package project

For a package project that consists of a multiple number of individual projects where individual project elements contained therein have strong correlations and are likely to influence priority, for example, five-year state road or state-supported provincial road plans, the individual projects contained in a single project package may be subject to a package PFS.

2) Assessment of Project Plan

If needed, the Minister of Economy and Finance may review projects exempted from PFS for their funding plans, mid-/long-term financial requirements, effective alternatives, among others, in a way comparable to PFS to determine the appropriate scale of the projects and reflect the findings in budgeting and funding plans.

3) Pilot PFS

Notwithstanding the scope and criteria of the PFS discussed above, the Minister of Economy and Finance, with a view to ensure efficiency in fiscal management, may conduct a pilot PFS if he/she deems it necessary to expand the scope of the PFS or conduct evaluations policywise. The pilot PFS may employ different analytical methods and techniques in consideration of the characteristics of the projects.

3. Process⁷⁾

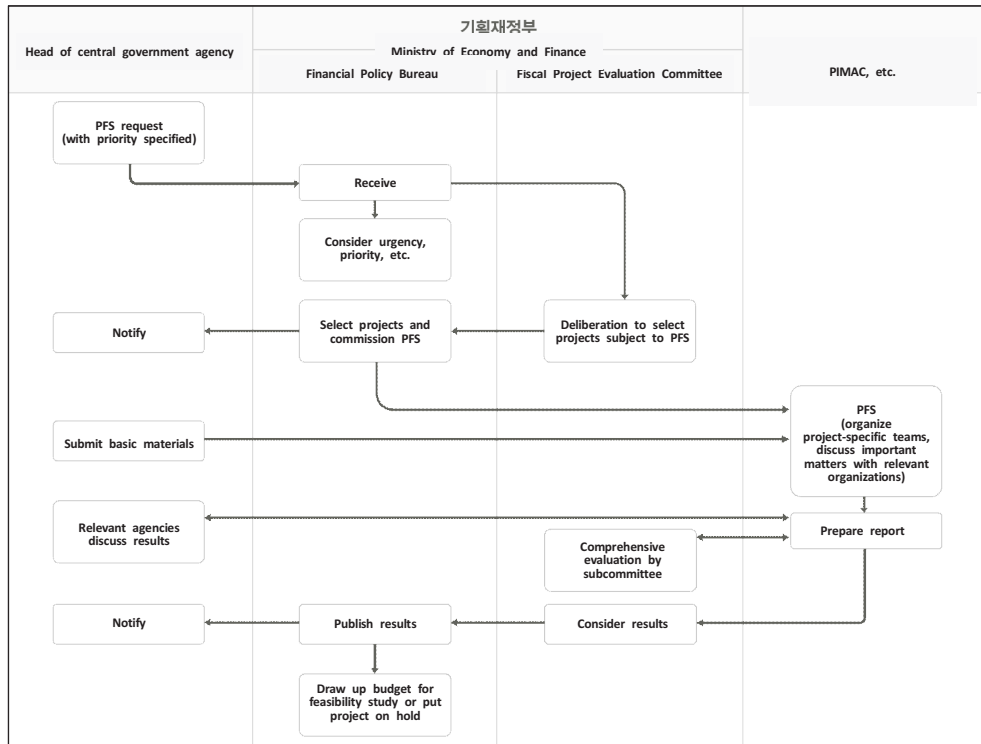
A. Designation of projects subject to PFS

Under the Operational Guideline for Preliminary Feasibility Studies, the Minister of Economy and Finance designates projects subject to PFS after deliberation by the Fiscal Project Evaluation Committee ex officio or upon request of the heads of central government agencies. If the head of a central government agency intends to include a project subject to PFS in its budget or fund management plan, in principle, he/she shall file a PFS request with the Minister of Economy and Finance at least two years prior to the implementation of the project given the time required for the study. However, if there is an urgent project or there is an unavoidable circumstance, a PFS may be requested for a new project scheduled for the following year.

The Minister of Economy and Finance reviews the central government agencies' PFS requests based on the PFS project selection criteria and designates projects subject to PFS after deliberation by the Fiscal Project Evaluation Committee. PFS may be conducted without the request of the head of the corresponding central government agency if deemed necessary in the view of budgeting, fund management planning, etc. PFS are commissioned by the Minister of Economy and Finance to KDI, the Korea Institute of Public Finance (KIPF), or the Korea Institute of S&T Evaluation and Planning (KISTEP) or the Science and Technology Policy Institute (STEPI) if a national R&D project. [Figure II-1] shows the selection process.

7) Adapted from Ministry of Economy and Finance, Operational Guideline for Preliminary Feasibility Studies, January 2021.

[Figure II-1] Selection of projects subject to PFS and implementation process

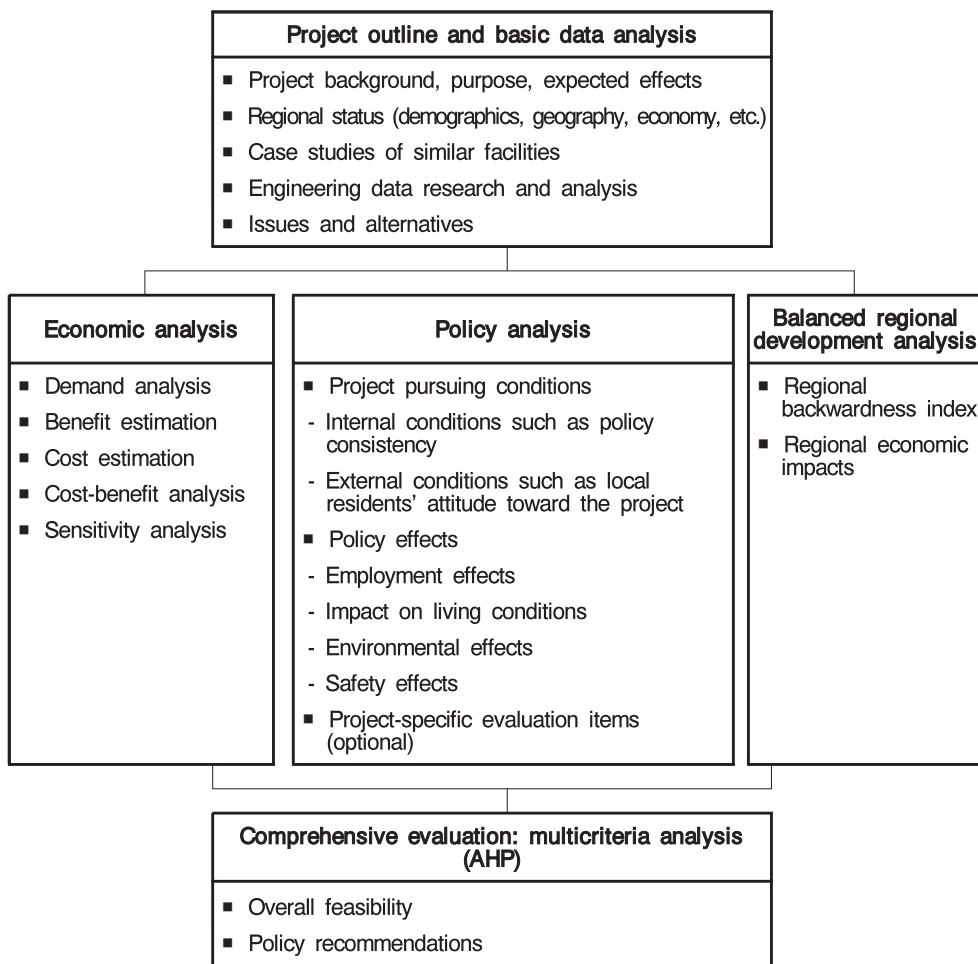


Source: KDI PIMAC website (<http://pimac.kdi.re.kr>).

B. PFS process

The basic principles of PFS are as follows: First, analyze the project outline and basic data to highlight the issues relevant to the project. Second, estimate demand, benefits, and costs for economic feasibility analysis. Third, analyze the social conditions for project implementation, the policy effects, and (optionally) project-specific evaluation items for policy feasibility analysis. Fourth, to prevent regional imbalance from worsening and improve regional equality, specifically take the project's position in the national economy based on the analysis of factors that influence balanced regional development such as ripple effects over the regional economy, the region's relevant underdevelopment. Fifth, conduct multi-criteria analysis of the findings from the economic feasibility analysis, policy analysis, and balanced regional development analysis.⁸⁾

[Figure 11-2] PFS workflow



8) Since July 2019, a subcommittee meeting has been convened upon the completion of the analysis by the PFS implementing agency to evaluate the feasibility of the project comprehensively. For general construction projects, the comprehensive evaluation takes into consideration the findings from the economic feasibility analysis, policy analysis, and balanced regional development analysis. For informatization and other fiscal projects, economic, technical, and policy analysis or economic and policy analysis are taken into consideration, respectively. For welfare and income-transfer projects, findings from socioeconomic environment analysis, appropriateness of project design analysis, and cost-benefit analysis are scored out of 100 points during the comprehensive evaluation, and the results are determined based on the following criteria (revised in May 2019):

- ① If it scored 85 or more in all three areas, the project is considered feasible.
- ② If it scored less than 70 in two or more areas, the project plan is revised and the revised project undergoes PFS.
- ③ Otherwise, the project is deemed feasible with project plan improvements (in this case, the areas requiring improvements and concrete measures should be specified).

※ If considered feasible, projects subject to compulsory PPP adaptability review should undergo PPP adaptability review to determine if the project should be pursued as a PPP project.

- Notes: 1) Ministry of Economy and Finance, Operational Guideline for Preliminary Feasibility Studies, January 2021.
 2) For informatization projects, technical feasibility analysis is conducted in addition to the economic feasibility analysis, policy feasibility analysis, and balanced regional development analysis. Technical feasibility analysis may be omitted if the main content of the project is construction work.
 3) Balanced regional development analysis is not conducted for projects pursued in the capital region or if the project's spatial scope or its effects are not confined in a specific area.

<Table II-3> shows the summary of PFS including the background and legal grounds, conditions subject to PFS, and the PFS process and structure.

<Table II-3> Overview of PFS

Category	Overview
Background and legal grounds	<input type="checkbox"/> Overview of PFS <ul style="list-style-type: none"> • PFS is established by the Minister of Economy and Finance with the aim to draw up budgets and fund management plans for new large-scale projects. • Legal grounds: Article 38 of the National Finance Act and Article 13 of its Enforcement Decree. <input type="checkbox"/> Background and purpose of PFS <ul style="list-style-type: none"> • Implementation of numerous unreasonable projects due to poor performance of feasibility studies before 1999 • PFS were introduced to exert prudence in new investment in government-financed projects, thereby improving the efficiency of fiscal management.
Projects	<input type="checkbox"/> Projects subject to PFS <ul style="list-style-type: none"> • New projects that include government financial support as follows: <ul style="list-style-type: none"> : Construction, informatization, and national R&D projects with a total project cost of KRW 50 billion or more and state funding of KRW 30 billion or more. : Projects that fall under welfare, healthcare, education, labor, culture and tourism, environmental preservation, agriculture, ocean and fisheries, and industry and small and medium enterprises with mid-long fiscal expenditures of KRW 50 billion or more. • Package PFS are conducted if necessary to review correlations among individual projects included in a upper-level plan and their impact on priority. <input type="checkbox"/> Projects exempted from PFS <ul style="list-style-type: none"> • Projects that fall under Article 38(2) of the National Finance Act. <ul style="list-style-type: none"> : Construction or extension of public office buildings, correctional facilities, elementary or secondary educational facilities, cultural heritage restoration, etc. • Assessment of project plan: reviews appropriate scale of projects exempted from PFS.
Process and structure	<input type="checkbox"/> Process <ul style="list-style-type: none"> • PFS request (head of central government agency → Minister of Economy and Finance).

	<ul style="list-style-type: none"> • Selection for target project (reviewed by Minister of Strategy and Finance, Fiscal Project Evaluation Committee). • PFS (Minister of Economy and Finance → KDI PIMAC, KIPF). <p>□ Main contents of PFS</p> <ul style="list-style-type: none"> • Economic feasibility analysis: Cost-benefit analysis in consideration of the project's demands, benefits, costs, etc. (financial analysis if needed). <ul style="list-style-type: none"> ※ B/C: Expected benefits divided by costs, expressed in present value. • Policy analysis: Qualitative evaluation of important factors that cannot be quantified, hence not included in economic analysis, but are important to determine the feasibility of the project. <ul style="list-style-type: none"> ※ Conditions for project implementation, policy effects, project-specific evaluation items, etc. • Balanced regional development analysis: Reflecting higher-level national policy of balanced regional development. <ul style="list-style-type: none"> ※ Regional backwardness index, regional economic impacts, additional evaluation items, etc. ※ For projects in the metropolitan area, balanced regional development analysis is not conducted. • Comprehensive evaluation (AHP): Determine the feasibility of the project based on analysis results for each evaluation item. <ul style="list-style-type: none"> ※ AHP: Analytic Hierarchy Process to measure relative importance of factors to draw quantitative conclusions.
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Section 2. Overview of Reassessment Studies of Feasibility

1. Total Project Cost Management

In accordance with Article 50 of the National Finance Act and Articles 21 and 22 of its Enforcement Decree, the Guideline for Total Project Cost Management is introduced with the purpose of improving the efficiency of fiscal expenditures by rationally adjusting and managing the total cost of a large-scale project implemented with the national budget or fund for each stage of project implementation⁹⁾. The total

9) Adapted from Korea Development Institute, *General Guideline for Re-assessment of Feasibility Study* (second edition) (2012).

project costs are managed in various stages including project planning, PFS, feasibility studies, basic design, working design, procuring and contracting, construction, and completion. Also, changes in project durations are subject to review.

In order to improve the efficiency of fiscal investment and prevent budget waste in advance, the Guideline for Total Project Cost Management stipulates that projects that meet certain requirements should be subject to Reassessment of Demand Forecast and Reassessment Study of Feasibility. Or certain projects requiring adjustment of total project cost should be subject to Pre-feasibility review on design modification and Assessment of Design Modification as well as review of opinions by PFS implementing agencies. The detailed history of this system is as follows:

The Total Project Cost Management (TPCM) was first provided in Article 3 of the Enforcement Decree of the Budget and Accounts Act in 1989. The total project costs are managed in various stages of project implementation including project planning, PFS, feasibility study, basic design, working design, ordering and contracting, construction, and completion of the project. Also, changes in period of a project should be subject to initiation of a consultation process with MOEF in accordance with TPCM. After that, the Guideline for Total Project Cost Management was established in 1994, applicable to projects with total project costs of KRW 10 billion or more. In 1995, the total project cost threshold for projects subject to TPCM was raised from KRW 10 billion to KRW 50 billion, which was later further subcategorized into KRW 50 billion for civil engineering projects and KRW 20 billion for architectural projects in 1996. To put project cost management under tighter control, the concept of PFS was introduced and implemented together with the TPCM system in 2000. In 2003, Reassessment of Feasibility Study was introduced for projects with more than 20% increases in total project costs. In 2005, a set of total project cost adjustment criteria by sector, including roads and railroads, was established. In 2006, Reassessment of Demand Forecast was introduced for project with significant changes in demand during project implementation. In the same year, Pre-feasibility review on design modification was adopted in cases where professional investigation is required in the design change items for the project with changes in total project costs after the start of construction. In 2008, following the amendment to the Enforcement Decree of

the National Finance Act (July 23, 2008), the thresholds for projects subject to TPCM were lowered to KRW 30 billion for civil engineering projects and KRW 10 billion for architectural projects, although the numbers were brought back to KRW 50 billion for civil engineering and KRW 20 billion for architectural projects by the amended Enforcement Decree of the National Finance Act (November 10, 2010) in 2010. In 2013, exemption requirements for Reassessment Study of Feasibility were additionally adopted for civil engineering and informatization projects with state funding support of less than 30 billion won. In 2014, a clause was newly added to attach additional review of opinions by PFS implementing agencies if the size and amount of the project set in the PFS or feasibility study were exceeded when the total project cost is adjusted. In addition, the definition of total project cost in the construction sector has been changed to include site-related costs borne by the existing state-owned land or local governments. In 2016, costs related to state-owned land were excluded from the total project cost, and the informatization projects and R&D projects with aim to build foundations for research activities were newly subject to TPCM. In 2017, total project cost adjustment was added in line with the extension of the construction period, and in 2018, the scope of RSF and review of opinions by PFS implementing agencies was adjusted. In 2019, the PFS and RSF scheme were revamped.

<Table II-4> History of the TPCM

Year	Major changes in TPCM and government-financed project evaluations
1989	<ul style="list-style-type: none"> • TPCM established(amendment to the Enforcement Decree of the Budget and Accounting Act).
1994	<ul style="list-style-type: none"> • <i>Guideline for Total Project Cost Management</i> established for projects with total project costs of KRW 10 billion or more • TPCM project thresholds established (major investment projects with a project period of two years or more and with total construction costs of KRW 10 billion or more, projects with total construction costs of less than KRW 10 billion that require total project cost management).
1995	<ul style="list-style-type: none"> • TPCM thresholds change (total project costs KRW 10 billion → KRW 50 billion).
1996	<ul style="list-style-type: none"> • TPCM thresholds subdivided (KRW 50 billion for civil engineering projects, KRW 20 billion for architectural projects).
2000	<ul style="list-style-type: none"> • In order to strengthen the management of the total project cost, PFS was introduced

Year	Major changes in TPCM and government-financed project evaluations
	and managed closely with TPCM
2003	<ul style="list-style-type: none"> • RSF introduced for the projects with more than 20% increases in total project costs.
2006	<ul style="list-style-type: none"> • Reassessment of Demand Forecast was introduced for project with significant changes in demand during project implementation • Pre-feasibility review on design modification was adopted in cases where professional investigation is required in the design change items for the project with changes in total project costs after the start of construction.
2008	<ul style="list-style-type: none"> • Following the amendment to the Enforcement Decree of the National Finance Act(July 23, 2008), TPCM thresholds adjusted (KRW 30 billion for civil engineering projects, KRW 10 billion for architectural projects). • Simplified PFS introduced (projects with estimated total project costs of KRW 40 billion or more but less than KRW 50 billion, and projects for which project implementation has already been decided)
2009	<ul style="list-style-type: none"> • Total project cost criteria for simplified PFS removed; simplified PFS applicable to projects exempted from PFS. • Simplified RSF introduced (projects exempted from RSF).
2010	<ul style="list-style-type: none"> • In line with the amendment of the Enforcement Decree of the National Finance Act (November 10, 2010), TPCM thresholds was raised to KRW 50 billion or more for civil engineering and informatization projects, KRW 20 billion or more for architectural projects).
2013	<ul style="list-style-type: none"> • RSF exemption criteria added: projects exempted from PFS, and civil engineering and informatization projects with state funding of less than KRW 30 billion.
2014	<ul style="list-style-type: none"> • Costs of state-owned land and site-related costs borne by local governments added to the definition of the total costs of construction projects. • RDF baseline changed: estimates in the previous stage → estimates in the initial project • Facility-related other expenses recategorized from other incidental costs to construction costs. • PFS implementing agencies' opinions: opinions taken into consideration for total project cost adjustments in excess of the limits and amount ceilings set in the PFS or feasibility study.
2016	<ul style="list-style-type: none"> • Costs of state-owned land removed from total project costs (costs borne by local governments included). • New TPCM requirements for informatization and R&D projects (informatization plans, consultation process for total project cost adjustment, and adjustment standards)
2017	<ul style="list-style-type: none"> • New provisions on the adjustment of the total project costs on the grounds of the extension of the construction period.
2018	<ul style="list-style-type: none"> • Scope of RSF and review of opinions by PFS implementing agencies redefined.
2019	<ul style="list-style-type: none"> • PFS and RSF scheme revamped.

Here, total project costs refer to all costs required to implement the project as provided in Article 21(1) of the Enforcement Decree of the National Finance Act. They include costs borne by the central government, local governments, public institutions, and private players. The total project costs of a construction project include all costs incurred for construction such as construction costs, compensation costs, incidental costs, and etc. The total project costs of an informatization project refer to all costs incurred for system establishment, which include equipment purchases, rents, software development, and etc.

Projects subject to TPCM refer to the projects directly implemented by the state, projects commissioned by the state, projects implemented by local governments and public institutions(public enterprises, quasi-government organizations, and other public institutions as defined in Article 5 of the Act on the Management of Public Institutions) that are supported by the state's budget or funding support or subsidies, and projects implemented by private institutions. These projects are defined as civil engineering and informatization projects with a total project cost of 50 billion won or more and the state's budget support of 30 billion won or more, with a project period of 2 years or more, and construction projects with a total project cost of 20 billion won or more (including incidental construction costs such as electricity, machinery, equipment, etc.)

2. Reassessment Study of Feasibility

A. Requirements for RSF

The requirements for TPCM and RSF are provided in Article 50 of the National Finance Act.

- ① With respect to a large-scale project prescribed by Presidential Decree that takes at least two years for completion, the head of each central government agency shall determine the scale of the project, the total project cost, and the project period, and shall consult with the Minister of Strategy and Finance in advance.

The foregoing shall also apply to the modification or change of the scale of the project, the total project cost, or the project period already consulted.

- ② With respect to a project under paragraph (1) that falls under any of the following, as requested by the Board of Audit and Inspection based on the audit findings, the Minister of Strategy and Finance shall conduct a review of the feasibility of the project (hereinafter referred to as the “reassessment study of feasibility”) and report the results of the review to the National Assembly:
 - (1) A project for which a preliminary feasibility study has never been conducted because its total project cost did not reach the scale subject to a preliminary feasibility study, but the relevant total project cost has increased to the scale subject to a preliminary feasibility study during the course of the implementation of the project
 - (2) A project that has been implemented without undergoing a preliminary feasibility study, although it falls within the projects subject to a preliminary feasibility study, because the project cost was reflected in the budget
 - (3) A project of which total costs have increased to a threshold provided by a Presidential Decree
 - (4) A project for which the estimated demands for the relevant project have been decreased by a certain degree that shall be provided by a Presidential Decree due to changes in conditions of the project, etc.
 - (5) Other projects for which it is necessary to conduct an RSF to avoid, for example, waste of budget
- ③ Notwithstanding the provisions in Paragraph 2, RSF may be omitted in any of the following situations:
 - (1) If a significant part of the project has been constructed, hence significant sunk costs
 - (2) If there are no actual benefits of conducting an RSF, for example, where the increases in the total project costs are primarily associated with statutory costs and changes in higher-order plans
 - (3) If the project is pursued for balanced regional development and/or in response to urgent economic or social needs

- (4) If the implementation of the project is urgently needed for disaster prevention, recovery support, and/or safety
- ④ The Minister of Strategy and Finance shall conduct an RSF requested by the National Assembly by its resolution and report the results of the review to the National Assembly.
- ⑤ The Minister of Strategy and Finance shall prepare guidelines for the management of total project costs and shall notify the head of each central government agency thereof.

The requirements for RSF are provided in Article 49 of the Guidelines for Total Project Cost Management.

- ① In accordance with Article 50(2) of the National Finance Act and Article 22 of its Enforcement Decree, the Minister of Strategy and Finance shall conduct an RSF for any of the following:
 - (1) A project for which the PFS has never been conducted because its total project costs did not reach the PFS threshold provided in Article 38 of the National Finance Act, Article 13 of the Enforcement Decree of the same act, and the Operational Guideline for Preliminary Feasibility Study, but the relevant total project costs have increased to the PFS threshold during the course of implementation of the project
 - (2) A project that was subject to a PFS but has been implemented without undergoing a PFS by virtue of the state budget or fund management plans
 - (3) A project of which the total project costs, excluding inflation or increase in value of land, have increased due to increases in the project scale or area by a certain proportion that shall be provided by the Minister of Strategy and Finance based on the size of the project within the extent of 10% - 20% compared to the total project costs initially confirmed in consultation with the Minister of Strategy and Finance

The increases in the total project costs shall be calculated based on the total project costs estimated during the PFS. If the project did not undergo a PFS, the increases in the total project costs shall be calculated based on the initial total project costs

included in the budget, and if the project underwent an RFS, it will be based on the total project costs confirmed after the RFS.

To determine if the total project costs have increased by a certain proportion, the certain proportion shall mean 20% of the total project costs if the project's total costs are less than KRW 100 billion, or 15% of the total project costs if the project's total costs are KRW 100 billion or more.

- (4) A project for which an RSF has been requested to be conducted by the head of a central government agency under Article 39(2), or a project for which the demands estimated during an RSF under Article 40 have been decreased by 30% or more compared with the initial estimated demands from the PFS, basic plans, or a feasibility study
- (5) A project that has been reported to the Reporting Center on Extravagant Budget Spending of the Ministry of Strategy and Finance as a case of extravagant budget spending and that the Minister of Strategy and Finance deems it is highly foreseeable to waste the budget due to overlapping investments, etc.
- (6) A project for which an RSF has been requested to be conducted by the Board of Audit and Inspection Korea based on the audit findings or a resolution by the National Assembly
- (7) A project that the Minister of Strategy and Finance or the head of a central government agency deems it necessary to conduct an RSF, for example, in the event of any of the following subparagraphs:
 - a. A project that is continued without a second PFS after being considered to have insufficient feasibility from its first PFS
 - b. A project whose transport facilities development project operator, in consultation with the Minister of Land, Infrastructure and Transport pursuant to Article 19(3) of the National Transport System Efficiency Act, has requested that the Minister of Strategy and Finance take necessary measures since a significant difference has been found between the results of a feasibility evaluation under Article 18 of the National Transport System Efficiency Act and the results of a preliminary feasibility study under Article 38 of the National Finance Act

- c. A project, of which construction costs are managed by construction work type as categorized in Schedule 3 attached to Article 5(2) and for which design work is staggered, that experiences an increase in construction costs for a certain type of construction work by 20% or more compared with the total costs for that construction work determined under Article 1(3) (the same shall apply to aggregate costs for that construction work; reserve funds, if any, shall be included in the total project costs used as the baseline)
- ② Notwithstanding the provisions in Paragraph 1, the Minister of Strategy and Finance may not conduct an RSF if he/she deems that there is no practical use due to any of the following:
- (1) If a significant part of the project has been constructed, hence significant sunk costs
 - (2) If the increases in the total project costs are primarily associated with external factors such as statutory costs and changes in higher-order plans
 - (3) If the project is pursued for balanced regional development and/or in response to urgent economic or social needs as follows:
 - a. Projects for balanced regional development: infrastructure projects pursued to resolve significant imbalance among regions or to ensure balanced development among metropolitan areas, etc.
 - b. Projects in response to urgent economic or social needs: projects that aim to respond to important changes in internal or external conditions such as economic recession, massive unemployment, and sudden changes in foreign exchange rates
 - (4) If the implementation of the project is urgently needed for disaster prevention, recovery support, and/or safety
 - (5) If the project is exempted from the RSF under Article 38(2) of the National Finance Act and Article 11 of the Operational Guideline for Preliminary Feasibility Study
 - (6) If the project is a civil engineering or informatization project that receives state financial support of less than KRW 30 billion

Meanwhile, Article 49-2 of the *Guideline for Total Project Cost Management*

provides that, where the RSF is not conducted under any of the circumstances provided in Article 49(2) of the National Finance Act, Reassessment of Project Plan (formerly simplified RSF) may be conducted with the aim to consider the appropriate level of project scale, costs, and alternatives in a way comparable to an RSF.

B. Key elements of the RSF

Basically, RSF refers to the process to reexamine the feasibility of a project in the course of the project implementation. In this context, RSF is conducted by applying the sector-specific research methodology for PFS.

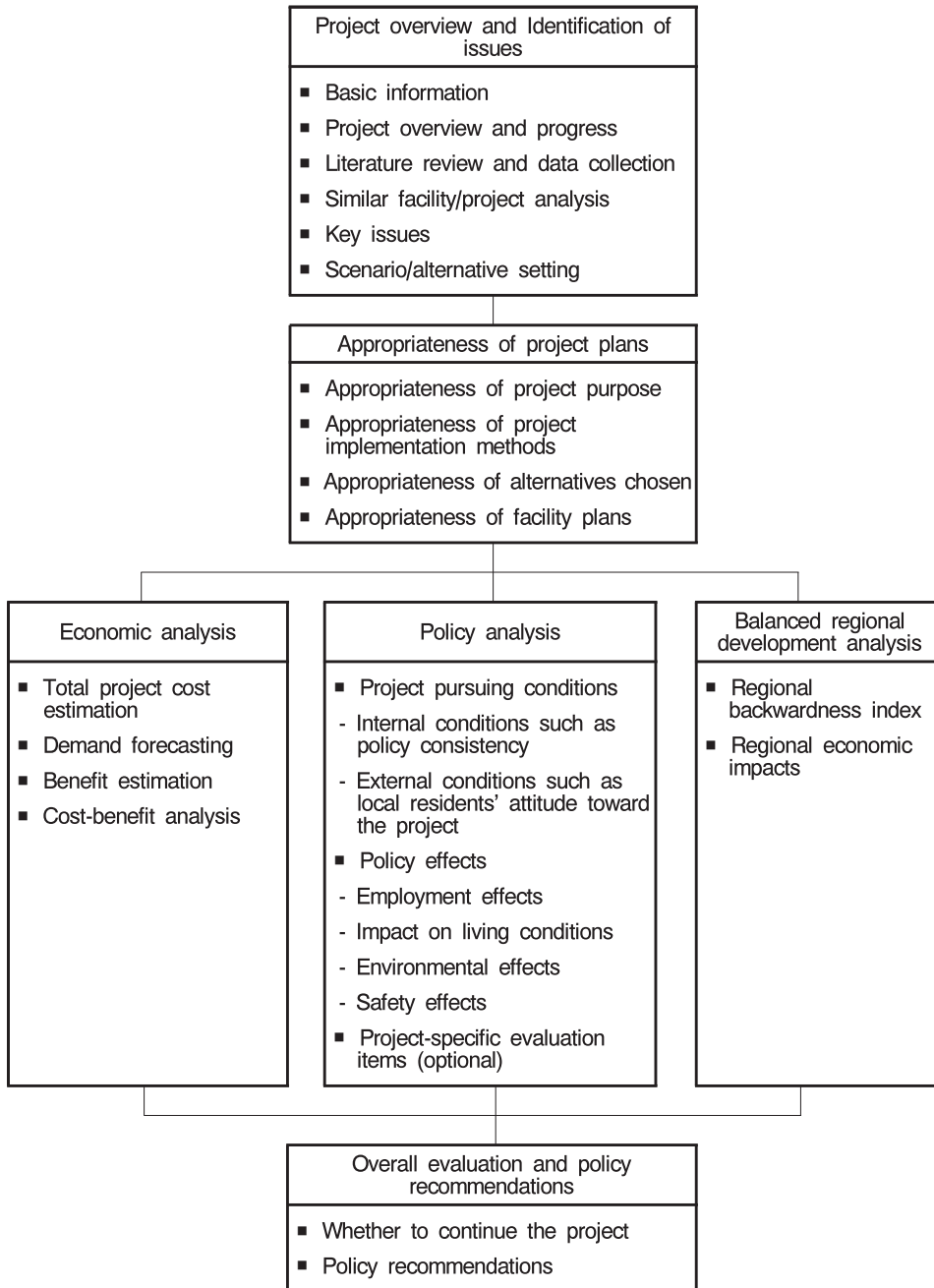
Article 51 of the *Guideline for Total Project Cost Management* provides the content of the RSF as follows: review the project overview and the key issues in the RSF, consider the appropriateness of the project plan, examine the findings from each stage of the RSF such as economic analysis, policy analysis, and balanced regional development analysis, and summarize the results to decide on the feasibility of the project and present alternatives. Reviewing the project overview and progress involves looking into the basic information of the project, including the project's background, objectives, and expected outcomes.

In addition, RSF reviews the progress of the project from the project initiation to the RSF as well as current status of budget execution. At the same time, RSF examines any changes in the total project costs and what has caused the project to undergo the RSF. Identifying the key issues in the RSF means to consider if the purpose of the project is appropriate, if there are any issues relating to the appropriateness of the project purpose, and if there are issues relating to the appropriateness of the project implementation strategy, economic analysis, policy analysis, technical analysis, and total project cost estimation including the selection of structure, and etc. Review of project plan includes examining the appropriateness of the project purpose, design standards of project plan, and alternatives selection.

In an economic analysis, the same criteria of PFS are applied, but the analysis is conducted by adjusting it to fit the nature of the RSF, for example, how to treat sunk costs. Sector-specific guidelines for PFS can be applied for demand forecasting, but the findings are presented in comparison with demand forecast results from the previous

stage. Total project costs are estimated based on construction-work-specific quantity and unit price estimation. Contingencies are not reflected in RSF if the project is at the stage where the results of basic design and working design are available. For the economic analysis, the reference year is the year preceding the RSF, and the *Operational guideline for PFS* is applied for social discount rate and analysis period. Annual input rates are based on the PFS Guidelines with possible adjustments in consideration of budget allocation. The costs of design and construction already completed are treated as sunk costs, but land purchase costs are not considered as sunk costs. For policy analysis, the criteria provided in the PFS Guidelines are applied with possible adjustments in consideration of project-specific characteristics. The analytic hierarchy process (AHP) provided by the *Operational guideline for PFS* is applied in the comprehensive evaluation in order to determine the feasibility of the project based on the progress of project implementation, economic analysis, policy analysis, and balanced regional development analysis in order to decide on whether or not to continue the project implementation. The RSF provides appropriate amount to adjust the total project costs, and suggests improvements in project implementation, such as preferred project implementation methods, and technical measures to improve the quality of the facilities. If the project is considered unfeasible, strategies to tune-up the project, such as the scale of the project and investment timing, are presented.

[Figure II-3] RSF workflow



Note: Balanced regional development analysis omitted for projects in the capital region.

Chapter III

Track Records of Government–Financed Project Evaluation

Section 1. Track Records Between 1999 and 2021

1. PFS

A total of 767 PFS(based on completed projects) were conducted between 1999 and 2021. By sector, road and rail projects accounted for more than half (about 52%) of the PFS conducted so far, with 261 and 138 projects, respectively.

<Table III-1> PFS track records

(Unit: projects)

Year	Road	Railway	Port	Culture, tourism, architecture	Water resource (dam)	Others	Total
1999	11	2	1	4	1	1	20
2000	11	7	5	2	1	4	30
2001	20	14	1	5	-	1	41
2002	9	8	2	2	5	4	30
2003	10	7	3	5	5	2	32
2004	24	13	1	2	3	12	55
2005	11	6	2	1	3	7	30
2006	27	10	5	5	1	4	52
2007	30	5	1	2	1	7	46
2008	12	2	4	3	2	15	38
2009	22	5	2	2	12	20	63
2010	7	14	2	1	2	22	48

Year	Road	Railway	Port	Culture, tourism, architecture	Water resource (dam)	Others	Total
2011	6	5	2	11	5	14	43
2012	7	7	5	6	5	5	35
2013	8	-	1	2	1	4	16
2014	6	4	2	12	2	8	34
2015	3	3	2	7	-	3	18
2016	5	6	2	3	4	3	23
2017	10	7	-	7	4	3	31
2018	8	5	1	4	2	2	22
2019	5	2	4	5	1	8	25
2020	7	3	1	3	1	4	19
2021	2	3	1	4	2	4	16
Total	261	138	50	98	63	157	767

Notes: 1) The number of projects for which PFS had been completed as of the end of December 2021.

2) Other projects include airports, informatization, R&D, and other fiscal projects.

3) Architectural projects were counted as a separate category in 2011 and onward, before which those projects were categorized as other projects.

4) Assessment of Project Plan(simplified PFS) excluded.

The gross value of the projects that underwent PFS between 1999 and 2021 was KRW 376.3 trillion. The annual value of the projects subject to PFS ranged between KRW 6 and 34 trillion, the majority being road and railways projects accounting for 66.1%.

<Table III-2> Gross value of projects subject to PFS

(Unit: KRW trillion)

Year	Road	Railway	Port	Culture, tourism, architecture	Water resource (dam)	Others	Total
1999	14.9	2.0	0.1	0.3	0.6	0.7	18.7
2000	4.9	4.6	0.8	1.5	0.0	0.5	12.4
2001	6.1	12.1	0.1	1.4	-	0.1	19.7
2002	5.9	6.2	0.3	0.5	1.1	0.7	14.7
2003	5.3	5.4	1.9	1.0	1.3	0.8	15.7
2004	7.1	6.4	1.0	1.0	0.2	2.5	18.3

Year	Road	Railway	Port	Culture, tourism, architecture	Water resource (dam)	Others	Total
2005	3.5	4.6	0.4	1.4	0.4	1.7	12.1
2006	7.7	7.3	1.3	0.6	0.1	1.1	18.1
2007	6.8	4.2	2.0	0.2	0.1	7.6	20.9
2008	2.6	1.1	1.0	0.3	0.4	5.0	10.4
2009	13.1	7.7	0.4	0.3	3.4	9.5	34.4
2010	5.7	17.9	0.5	0.1	0.5	9.3	34
2011	1.3	6.1	0.6	1.9	2.0	3.7	15.6
2012	1.8	10.3	2.1	1.1	0.8	1.7	17.8
2013	1.9	-	0.1	0.1	0.4	1.3	3.8
2014	2.1	13.7	0.6	2.0	0.5	3.1	21.9
2015	2.3	1.3	0.5	1.3	-	1.1	6.5
2016	1.1	4.0	0.3	0.3	0.6	0.6	6.9
2017	3.8	7.2	-	0.8	1.2	8.3	21.3
2018	1.2	8.2	0.1	0.7	0.3	0.8	11.3
2019	2.1	6.8	0.9	1.0	0.2	3.1	14.1
2020	4.0	3.7	0.5	0.7	0.4	2.9	12.1
2021	1.5	1.2	10.2	1.1	0.3	1.2	15.6
Total	106.7	142.0	25.7	19.6	14.8	67.3	376.3

Note: Sum of the total costs of projects (plans) that completed PFS as of the end of December 2021.

Of all projects subject to PFS, the ones pursued by the Ministry of Land, Transport and Infrastructure and the Ministry of Maritime Affairs and Fisheries accounted for 65.2%, or 500 projects. More recently, the scope of projects subject to PFS has been expanded, leading to an increasing number of ministries and agencies using the PFS, including the National Tax Service and the Ministry of Employment and Labor.

<Table III-3> PFS track records by ministry

(Unit: projects)

Year	Ministry of Land, Transport and Infrastructure		Ministry of Maritime Affairs and Fisheries	Ministry of Trade, Industry and Energy		Ministry of Education		Ministry of Culture, Sports and Tourism	Ministry of Agriculture, Food and Rural Affairs	Others
	Ministry of Construction and Transport	Rail Authority ¹		Ministry of Industry and Energy	Ministry of Finance and Economy ²	Ministry of Education, Science and Technology ³	Ministry of Education			
1999	12	1	2	1	-	-	-	3	1	-
2000	12	7	5	1	-	1	-	2	-	2
2001	27	8	2	-	-	-	-	2	-	2
2002	19	4	3	2	-	-	-	2	-	-
2003	17	4	7	-	-	-	1	1	-	2
2004	26	1	4	-	9	1	-	2	2	10
2005	20	-	3	-	-	-	2	-	2	3
2006	33	-	10	-	2	2	-	-	1	4
2007	25	-	2	2	1	-	1	1	1	13
2008	21			7		1		1	1	7
2009	42			8		3		2	3	5
2010	26			9		5		2	2	4
2011	19			5		2		2	1	14
2012	22			2		4		2	2	3
2013	13			1		1		-	-	1
2014	10		5	2		3		4	1	9
2015	6		2	1		2	-	2	1	4
2016	12		2	1		-	-	2	4	2
2017	19		3	2		-	-	1	1	5
2018	13		1	-		-	-	1	1	6
2019	8		6	1		2	1	-	-	7
2020	8		1	2		-	-	1	1	6
2021	6		1	1		2	1	1	2	2
Total	500 (65.2%)			60 (7.8%)		35 (4.6%)		34 (4.4%)	27 (3.5%)	111 (14.5%)

Notes: 1) The Rail Authority was privatized as KORAIL in January 2005 and relevant projects were transferred to the Ministry of Land, Transport and Infrastructure.

2) Following the government organization reform in 2008, the projects managed by the former Ministry of Finance and Economy were transferred to the Ministry of Knowledge Economy, which was later succeeded by the Ministry of Trade, Industry and Energy in March 2013.

3) The Ministry of Education, Science and Technology was substituted by the Ministry of Science and Future Planning in March 2013, which was later succeeded by the Ministry of Science and ICT in July 2017.

Of the projects subject to PFS, 48.5% were found economically feasible ($B/C \geq 1$). Port projects were most likely to be economically feasible (64%), and the proportions of projects in other areas that met the economic feasibility requirement ranged between 38% and 55%.

<Table III-4> Proportions of projects found economically feasible ($B/C \geq 1$) in PFS, by area and year

(Unit: %, projects)

Year	Road	Railway	Port	Culture, tourism, architecture	Water resource	Others	Total
1999	36.4	50.0	100.0	25.0	100.0	100.0	45.0
2000	45.5	71.4	80.0	0.0	100.0	50.0	56.7
2001	30.0	50.0	0.0	20.0	-	0.0	34.1
2002	33.3	87.5	50.0	0.0	0.0	75.0	46.7
2003	50.0	71.4	100.0	0.0	60.0	50.0	53.1
2004	50.0	53.8	100.0	0.0	33.3	58.3	50.9
2005	45.5	33.3	100.0	0.0	66.7	71.4	53.3
2006	48.1	20.0	40.0	60.0	0.0	75.0	44.2
2007	53.3	0.0	0.0	50.0	100.0	28.6	43.5
2008	41.7	50.0	75.0	66.7	50.0	26.7	42.1
2009	27.3	20.0	50.0	50.0	66.7	45.0	41.3
2010	42.9	21.4	100.0	100.0	100.0	54.5	47.9
2011	83.3	0.0	50.0	54.5	20.0	42.9	44.2
2012	85.7	0.0	60.0	16.7	60.0	80.0	48.6
2013	37.5	0.0	100.0	0.0	100.0	75.0	50.0
2014	66.7	50.0	50.0	83.3	50.0	50.0	64.7
2015	33.3	66.7	50.0	57.1	-	37.5	47.8
2016	100.0	33.3	0.0	66.7	50.0	66.7	56.5
2017	30.0	42.9	0.0	42.9	75.0	66.7	45.2
2018	62.5	40.0	100.0	50.0	50.0	100.0	59.1
2019	40.0	50.0	75.0	60.0	0.0	75.0	60.0
2020	71.4	0.0	100.0	100.0	0.0	100.0	68.4
2021	0	0	0	50.0	50.0	25.0	25.0
Total	261	138	50	98	63	157	767
B/C ≥ 1 (Projects deemed feasible)	122	53	32	46	33	86	372
B/C ≥ 1 (% feasibility)	46.7%	38.4%	64.0%	46.9%	52.4%	54.8%	48.5%

Note: The smart grid project categorized as others was divided into six subprojects, each of which underwent economic feasibility analysis.

Of the projects subject to PFS, 66% met the overall feasibility requirement ($AHP \geq 0.5$). Port projects were most likely to be feasible (76%), and railway projects were the least likely, 57.2%.

<Table III-5> Proportions of projects that met the overall feasibility requirement in PFS, by area and year

(Unit: %, projects)

Year	Road	Railway	Port	Culture, tourism, architecture	Water resource	Others	% deemed feasible
1999	45.5	50.0	100.0	100.0	100.0	100.0	65.0
2000	27.3	71.4	80.0	0.0	100.0	75.0	53.3
2001	30.0	35.7	100.0	40.0	-	0.0	34.1
2002	33.3	75.0	50.0	0.0	0.0	75.0	43.3
2003	70.0	71.4	100.0	0.0	60.0	50.0	59.4
2004	87.5	53.8	100.0	100.0	66.7	66.7	74.5
2005	36.4	83.3	100.0	100.0	66.7	71.4	63.3
2006	63.0	40.0	40.0	40.0	100.0	50.0	53.8
2007	63.3	20.0	100.0	50.0	100.0	42.9	56.5
2008	75.0	100.0	100.0	100.0	50.0	46.7	68.4
2009	50.0	80.0	50.0	0.0	91.7	80.0	68.3
2010	71.4	64.3	100.0	100.0	100.0	77.3	75.0
2011	83.3	60.0	50.0	81.8	80.0	71.4	74.4
2012	100.0	28.6	80.0	50.0	80.0	100.0	71.4
2013	62.5	-	100.0	50.0	100.0	75.0	68.8
2014	83.3	75.0	50.0	91.7	50.0	75.0	79.4
2015	33.3	66.7	50.0	100.0	-	62.5	69.6
2016	100.0	83.3	50.0	66.7	50.0	66.7	73.9
2017	30.0	42.9	-	57.1	75.0	100.0	51.6
2018	75.0	60.0	100.0	75.0	100.0	100.0	77.3
2019	80.0	100.0	100.0	60.0	100.0	100.0	88.0
2020	100.0	66.7	100.0	100.0	100.0	100.0	94.7
2021	100	33.3	0	100.0	100.0	75.0	75.0
Total projects	261	138	50	98	63	157	767
Projects deemed feasible	160	79	38	66	46	117	506
% feasibility	61.3%	57.2%	76.0%	67.3%	73.0%	74.5%	66.0%

Notes: 1) Based on the (former) Ministry of Planning and Budget's press releases for projects from 1999 to 2002, and $AHP \geq 0.5$ in 2003 and thereafter.

2) The smart grid project categorized as others was divided into six subprojects, each of which underwent overall feasibility analysis.

From the introduction of the PFS in 1999 to the end of December 2021, 943 projects underwent PFS including the PFS for the third, fourth, and fifth five-year state road and state-supported provincial road plans and civil engineering, architecture, informatization, and other government-funded projects. By determining projects' feasibility, PFS have helped save approximately KRW 169.9 trillion of budget.

<Table III-6> Annual total project costs saved by PFS

(Unit: projects, KRW 100 million)

Year ¹⁾	Total projects	Total project costs ²⁾	Total costs saved ⁶⁾
1999	20	271,559	197,956
2000	30	152,439	57,753
2001	41	198,401	105,823
2002	30	162,059	73,120
2003	32	176,278	39,885
2004	55	185,740	52,697
2005	30	123,561	39,569
2006	52	193,531	101,401
2007	46	189,476	82,947
2008	38	90,471	39,685
2009	63	303,290	91,362
2010	48	279,831	112,091
2011 ³⁾	99	228,262	107,606
2012	35	206,434	75,150
2013	16	34,445	9,421
2014	34	119,939	28,305
2015	18	64,689	31,323
2016 ⁴⁾	49	122,781	60,952
2017	31	239,904	103,175
2018	22	115,155	26,053
2019	25	145,667	10,692
2020	19	129,605	10,754
2021 ⁷⁾	110	318,876	241,633
Total ⁵⁾	943	4,052,393	1,699,353

Notes: 1) Based on the Ministry of Planning and Budget's press releases (project progress and mid-/long-term review) for projects in 1999-2002 when AHP was not employed.

2) Project costs reestimated by PFS, including state treasury and local government budgets.

3) Including the 56 PFS for the third five-year state road and state-supported provincial road plans.

4) Including the 26 PFS for the fourth five-year state road and state-supported provincial road plans.

5) Results of analysis as part of PFS may differ from the actual budget execution.

6) Sum of the total costs of projects of which AHP < 0.5.

7) Including the 94 PFS for the fifth five-year state road and state-supported provincial road plans.

2. Assessment of Project Plan

Employing evaluations equivalent to the PFS, Assessment of Project Plan started with the review of the PFS for the 2010 F1 international racing competition in 2007. Between 2007 and 2021, 127 projects underwent simplified PFS or Assessment of Project Plan.

<Table III-7> shows the area-specific track records of assessment of project plan.

<Table III-7> Track records of assessment of project plan

(Unit: projects)

Year	Road	Railway	Port	Culture, tourism, architecture	Water resource (dam)	Others	Total
2007	2	-	-	-	-	2	4
2008	5	-	-	-	-	2	7
2009	3	-	1	-	-	5	9
2010	2	-	-	-	2	2	6
2011	-	-	1	-	-	1	2
2012	2	1	-	1	1	1	6
2013	1	-	1	1	-	1	4
2014	2	-	-	7	1	-	10
2015	-	-	1	6	2	-	9
2016	-	-	-	-	-	-	-
2017	-	-	3	3	2	-	8
2018	-	-	-	4	1	-	5
2019	14	7	-	9	-	1	31
2020	1	1	-	7	3	2	14
2021	-	-	-	8	3	1	12
Total	32	9	7	46	15	18	127

Note: All projects that underwent studies equivalent to PFS (assessment of project plan, simplified PFS, etc.).

From 2007 to 2021, 127 projects that were exempted from PFS underwent assessment of project plan that included analysis equivalent to PFS. PIMAC contributed to saving KRW 3.1 trillion of budget by analyzing and proposing appropriate scales of these projects and effective alternatives.

<Table III-8> Annual total cost savings by assessment of project plan

(Unit: KRW 100 million)

Year	No. of projects	Total project costs in project plans	Total project costs after assessment of project plan ^{1), 2)}	Total project costs saved
2007	4	9,790	9,705	85
2008	7	3,167	2,723	444
2009	9	111,521	123,200	-11,679
2010	6	52,969	44,925	8,044
2011	2	7,467	5,275	2,192
2012	6	45,080	35,650	9,430
2013	4	57,822	56,763	1,059
2014	10	17,176	13,485	3,691
2015	9	44,826	39,191	5,635
2016	-	-	-	-
2017	8	13,996	13,151	845
2018	5	5,911	5,786	125
2019	31	211,469	220,573	-9,103
2020	14	66,486	64,961	1,525
Total	115	647,680	635,388	12,293

Notes: 1) The assessment of project plan was formerly known as simplified PFS.

2) Results of analysis as part of project plan reviews may differ from the actual budget execution.

3. RSF

From 2002 to 2021, 238 projects underwent RSF (excluding reassessments of project plans and reassessments of demand forecast). A majority of the RSF were for road projects, 63% or 149 projects, followed by culture, tourism, and architecture (37 projects), water resource (16), port (14), railway (13), and others (9).

<Table III-9> RSF track records

(Unit: projects)

Year	Road	Railway	Port	Culture, tourism, architecture	Water resource (dam)	Others	Total
2003	3	-	-	3	-	-	6
2004	2	1	-	2	-	1	6
2005	6	-	-	3	-	-	9
2006	10	-	-	2	5	2	19
2007	9	2	2	1	-	-	14
2008	10	1	2	6	2	-	21
2009	25	-	2	1	2	1	31
2010	17	3	-	5	4	2	31
2011	12	-	-	2	-	1	15
2012	6	1	1	2	1	-	11
2013	3	1	2	3	-	-	9
2014	16	-	2	-	-	-	18
2015	6	1	-	3	-	-	10
2016	7	1	1	1	-	1	11
2017	8	-	-	-	1	-	9
2018	2	-	-	1	1	-	4
2019	3	1	1	-	-	1	6
2020	-	-	1	1	-	-	2
2021	4	1	-	1	-	-	6
Total	149	13	14	37	16	9	238

Notes: 1) Projects with RSF completed as of the end of December 2021.

2) Others include informatization and R&D projects, among others.

3) Reassessments of project plans and reassessments of demand forecast excluded.

The primary cause of projects undergoing RSF was increases in the total project costs, which was the case for 76 projects out of the 254 projects that underwent RSF since 2002 (29.9%), followed by 51 projects (20.1%) that were included in the budget without undergoing PFS (see <Table III-10>).

<Table III-10> Causes of projects undergoing RSF (based on official documents received)

(Unit: projects)

Year	Project costs raised to level subject to PFS	PFS omitted	Increases in total project costs	Decreases in estimated demands	Report on budget wasting	On parliament /audit board request	Others	Total
2002	-	-	1	-	-	-	-	1
2003	3	1	1	-	-	-	1	6
2004	2	2	5	-	-	-	-	9
2005	3	4	9	-	-	-	-	16
2006	3	4	8	-	1	-	4	20
2007	3	4	2	1	1	-	6	17
2008	4	1	6	1	-	-	6	18
2009	4	2	3	3	-	14	10	36
2010	2	8	6	1	-	6	4	27
2011	2	5	2	-	-	-	-	9
2012	2	2	3	1	-	-	1	9
2013	1	8	2	1	-	2	7	21
2014	2	5	3	7	-	-	3	20
2015	2	-	4	-	-	-	-	6
2016	-	2	3	1	-	-	4	10
2017	1	1	2	1	-	-	-	5
2018	1	2	2	-	-	-	-	5
2019	1	-	4	-	-	-	-	5
2020	3	-	5	-	-	-	-	8
2021	1	-	5	-	-	-	-	6
Total	40	51	76	17	2	22	46	254

Note: Years based on the commencement of the projects (official documents received) as of the end of December 2021.

Between the introduction of RSF in 2003 and the end of December 2021, 326 projects in civil engineering, architecture, informatization, and other areas underwent RSF, contributing to budget savings of KRW 40 trillion.

<Table III-11> Annual total project costs saved by RSF

(Unit: projects, KRW 100 million)

Year	Total projects ¹⁾	Total project costs proposed	Total project costs after RSF	Total project costs saved ²⁾
2003	6	47,987	42,328	5,659
2004	6	13,977	13,928	49
2005	9	72,976	47,375	26,847
2006	19	49,126	44,357	4,769
2007	14	40,650	43,684	-1,915
2008	21	166,919	155,070	29,306
2009	31	98,162	81,191	30,541
2010	31	148,006	132,340	34,250
2011 ³⁾	48	121,438	108,690	96,584
2012	11	48,657	48,598	34,987
2013	9	10,420	10,069	5,948
2014	18	80,368	76,537	20,762
2015	10	33,305	30,477	7,859
2016 ⁴⁾	66	100,593	95,995	74,665
2017	9	26,994	21,470	22,690
2018	4	6,504	6,592	-88
2019	6	7,307	8,989	3,952
2020	2	1,133	1,148	292
2021	6	17,562	17,475	2,664
Total ⁵⁾	326	1,092,084	986,313	399,821

Notes: 1) Projects with RSF completed as of the end of December 2021.

2) Total project costs saved: balance between the project proposal and the optimum alternative if the project's AHP \geq 0.5, and total project costs if the project's AHP $<$ 0.5, or balance between the project proposal and the optimum alternative if no AHP was conducted.

3) Including the 33 RSF for the third five-year state road and state-supported provincial road plans.

4) Including the 55 RSF for the fourth five-year state road and state-supported provincial road plans.

5) Results of analysis as part of RSF may differ from the actual budget execution.

4. Reassessments of Project Plans, etc.

Reassessments of project plans and demand forecast started in 2007. From 2007 to 2021, 112 and 21 projects underwent reassessments of project plans and reassessments of demand forecasts, respectively. The plans of 30 road projects, 13 railway projects, 7 port projects, 47 culture, tourism, and architecture projects, 10 water resource projects, and 5 other projects were reassessed, and 17 road projects and 4 port projects faced reassessments of demand forecasts. Since 2006, 51 projects have undergone Pre-feasibility review of design modification and assessments of design modification.

<Table III-12> Track records of reassessments of project plans

(Unit: number of projects)

Year	Road	Railway	Port	Culture, tourism, architecture	Water resource (dam)	Others	Total
2010	1	-	1	1	-	-	3
2011	1	3	-	1	-	-	5
2012	1	-	-	1	1	1	4
2013	1	-	-	4	-	1	6
2014	2	-	1	6	1	1	11
2015	1	1	2	5	2	-	11
2016	1	-	1	13	-	-	15
2017	1	3	-	5	1	1	11
2018	4	-	-	1	2	-	7
2019	5	3	1	3		1	13
2020	6	-	-	6	-	-	12
2021	6	3	1	1	3	-	14
Total	30	13	7	47	10	5	112

Note: Projects with reassessments completed as of the end of December 2021.

<Table III-13> track records of Reassessments of demand forecast

(Unit: number of projects)

Year	Road	Railway	Port	Culture, tourism, architecture	Water resource (dam)	Others	Total
2007	-	-	1	-	-	-	1
2008	1	-	-	-	-	-	1
2009	2	-	1	-	-	-	3
2010	1	-	-	-	-	-	1
2011	-	-	-	-	-	-	0
2012	1	-	-	-	-	-	1
2013	3	-	-	-	-	-	3
2014	7	-	-	-	-	-	7
2015	-	-	-	-	-	-	0
2016	1	-	-	-	-	-	1
2017	-	-	2	-	-	-	2
2018	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-
2021	1	-	-	-	-	-	1
Total	17	-	4	-	-	-	21

Note: Projects with reassessments completed as of the end of December 2021.

<Table III-14> Track records of Pre-feasibility review on design modification and assessments of design modification

(Unit: projects)

Year	Road	Railway	Port	Culture, tourism, architecture	Water resource (dam)	Others	Total
2014 and before	4	1	-	1	-	-	6
2015	2	-	1	-	1	-	4
2016	2	3	-	1	-	2	8
2017	2	1	-	-	-	-	3
2018	1	5	-	-	-	-	6
2019	2	2	1	-	-	-	5
2020	3	5	1	-	-	-	9
2021	2	1	3	2	2	-	10
Total	18	18	6	4	3	2	51

Note: Projects with reassessments completed as of the end of December 2021.

Reassessments of project plans involve evaluations of the appropriateness of the project scale, total project costs, and effective alternatives, among others, in a way equivalent to RSF. From 2010 to 2021, 112 projects underwent reassessments, leading

to budget savings of KRW 5.4 trillion.

<Table III-15> Annual total project costs saved by reassessments of project plans

(Unit: projects, KRW 100 million)

Year	Total projects	Total project costs proposed	Total project costs after reassessment	Total project costs saved
2010	5	83,021	77,217	5,804
2011	3	14,959	11,241	3,718
2012	4	47,117	30,532	16,585
2013	6	8,429	7,294	1,135
2014	11	12,490	9,871	2,619
2015	11	10,891	10,363	528
2016	15	17,661	16,992	669
2017	11	65,531	50,909	14,622
2018	7	35,100	33,646	1,454
2019	13	174,869	172,342	2,527
2020	12	38,234	36,945	1,289
2021	14	97,321	94,440	2,881
Total	112	605,623	551,792	53,831

Note: 1) Projects with reassessments of project plans (simplified PFS) completed as of the end of December 2021.

2) If multiple alternatives were found in the reassessment, the total costs of the least expensive alternative.

3) Results of analysis as part of the reassessments may differ from the actual budget execution.

5. Pilot Project for Pre-feasibility Evaluation on National Facilities

In 2021, the first pilot project for pre-feasibility evaluation on national facilities was introduced, and a total of two projects were evaluated.

<Table III-16> Pilot project for Pre-feasibility evaluation on national facilities

(Unit: number of projects)

Year	Culture, tourism, architecture	Others	Total
2021	2	-	2
total	2	0	2

Note: Projects with pre-feasibility evaluation on national facilities completed as of the end of December 2021.

Section 2. Detailed Track Records in 2021

1. PFS

In 2021, 16 projects underwent PFS. The total project costs were KRW 15 trillion and 576.8 billion in the project plans, or KRW 17 trillion and 885.7 billion in PFS results. <Table III-17> shows the summary of the results.

<Table III-17> Summary of the results of PFS in 2021

(Unit: KRW 100 million)

No.	Project	Area	Total project costs			Results	
			Project plan (A)	PFS (B)	Change (B - A)	B/C	AHP
1	Daegu Metro EXCO Line Construction Project	Railway	6,812	6,711	-101	0.87	0.503
2	Seoul-Yangpyeong Expressway Construction Project	Road	14,018	17,695	3,677	0.82	0.508
3	Fruit Snack Support for Elementary School Project	Other	4,206	2,616	-1,590	-	conditional
4	Gwacheon Line Express Project	Railway	2,824	2,900	76	0.87	0.492
5	Pangyo District Multi-purpose Rural Water Development Project	Water resource	1,950	2,076	126	0.96	0.637
6	Response Vessel Shipbuilding Project	Other	767	735	-32	1.28	0.729
7	Incheon Metro Line 2 Geomdan Extension Project	Railway	2,689	2,444	-245	0.89	0.486
8	Gwangju Hanam-Jangseong Samgye inter-city Road Project	Road	1,110	1,162	52	0.95	0.590
9	The Second New Busan Port Construction Project	Port	102,006	124,284	22,278	0.92	0.497
10	Medium-scale LPG Pipeline Network Construction Project	Other	4,557	4,643	86	0.35	0.415
11	Siheung Baegot Seoul National University Hospital Construction Project	Architecture	5,774	5,312	-462	0.96	0.560
12	National Literature Preservation Center Construction Project	Architecture	985	610	-375	0.93	0.639
13	KIST Research Building (L2) Environment Improvement Project (IV)	Architecture	844	884	40	1.05	0.658
14	Innovative Nuclear Power Research and Development Foundation Project	Architecture	3,224	3,263	39	1.11	0.589
15	National Pension Insurance Premium Support for Low-income Local Insured	Other	2,467	2,500	33	-	conditional
16	National River Maintenance Project: Seonakdong River System	Water resource	1,534	1,528	-6	5.18	0.724
Total			155,767	179,363	23,596	-	-

Note: Optimum alternatives found by AHP.

Area-wise, there were two road projects such as the Seoul-Yangpyeong Expressway Construction Project, three railway projects such as the Daegu Metro EXCO Line Construction Project, one port project such as The Second New Busan Port Construction Project, four culture, tourism, and architecture projects such as Siheung Baegot Seoul National University Hospital Construction Project, two water resource project (Pangyo District Multi-purpose Rural Water Development Project), four other government-financed project (Fruit Snack Support for Elementary School Project).

In terms of total project costs, a port project accounted for the largest part of the projects subject to PFS, KRW 12 trillion and 428.4 billion. The average total costs per project were KRW 1 trillion and 117.9 billion, with a port project costing the most, KRW 12 trillion and 428.4 billion on average.

<Table III-18> Area-specific projects subject to PFS in 2021

(Unit: projects, KRW 100 million)

Category			Road	Railway	Port	Culture, tourism, architecture	Water resource	Other	Total
No. of projects			2	3	1	4	2	4	16
Total project costs	Plan (A)	Sub total	15,128	12,325	102,007	10,827	3,484	11,997	155,768
		Average	7,564	4,108	102,007	2,707	1,742	2,999	9,736
	PFS (B)	Sub total	18,857	12,055	124,284	10,070	3,604	9,988	178,858
		Average	9,429	4,018	124,284	2,518	1,802	2,497	11,179
	Difference (B - A)	Sub total	3,729	-270	22,277	-757	120	-2,009	23,088
		Average	1,865	-90	22,277	-190	60	-502	1,443

The Ministry of Land, Infrastructure and Transport pursued six projects accounting for 37.5% of the projects that underwent PFS in 2021. Cost-wise, projects pursued by the Ministry of Land, Infrastructure and Transport cost the most, KRW 3 trillion and 244 billion.

<Table III-19> Projects that underwent PFS in 2021, by ministry/agency

(Unit: projects, KRW 100 million)

Category		Ministry of Land, Infrastructure and Transport	Ministry of Oceans and Fisheries	Ministry of Agriculture, Food and Rural Affairs	Korea Coast Guard	Ministry of Trade, Industry and Energy	Ministry of Education	Ministry of Culture, Sports and Tourism	Ministry of Science and ICT	Ministry of Health and Welfare	Total	
No. of projects		6	1	2	1	1	1	1	2	1	16	
%		37.5%	6.3%	12.5%	6.3%	6.3%	6.3%	6.3%	12.5%	6.3%	100.0%	
Total project costs	Plan (A)	Sub total	28,987	102,007	6,156	767	4,557	5,774	985	4,068	2,467	155,768
		Average	7,025	102,007	3,078	767	4,557	5,774	985	2,034	2,467	128,694
	PFS (B)	Sub total	32,440	124,284	4,692	735	4,643	5,312	610	4,147	1,994	178,857
		Average	7,710	124,284	2,346	735	4,643	5,312	610	2,074	1,994	149,708
	Difference (B - A)	Sub total	3,453	22,277	-1,464	-32	86	-462	-375	79	-473	23,089
		Average	686	22,277	-732	-32	86	-462	-375	40	-473	21,015

In terms of economic feasibility, 25% of the projects were considered economically feasible ($B/C \geq 1$). While 50% of the culture · tourism · architecture, and water resource projects were considered economically feasible, none of the road, railway, and port projects met the economic feasibility requirement.

<Table III-20> Economic feasibility ($B/C \geq 1$) of projects that underwent PFS in 2021, by area

(Unit: projects)

Category		Road	Railway	Port	Culture, tourism, architecture	Water resource	Other	Total
No. of projects		2	3	1	4	2	4	16
$B/C \geq 1$	Projects	0	0	0	2	1	1	4
	%	0%	0%	0%	50.0%	50.0%	25.0%	25.0%

In terms of the overall feasibility of the projects, 75% of the projects met the overall feasibility requirement ($AHP \geq 0.5$). All of the road, culture · tourism · architecture, water resource projects were found feasible. and 33.3% of the railway projects, 75% of other government-financed projects were found feasible.

<Table III-21> Overall feasibility of projects that underwent PFS in 2021 (AHP \geq 0.5)

(Unit: projects)

Category	Road	Railway	Port	Culture, tourism, architecture	Water resource	Other	Total
No. of projects	2	3	1	4	2	4	16
AHP \geq 0.5	Projects	2	1	0	4	2	12
	%	100%	33.3%	0%	100.0%	100.0%	75.0%

Note: Other government-financed projects (welfare and income transfer projects) rated "B" or higher counted as projects with AHP \geq 0.5.

2. Assessment of Project Plan

In 2021, 12 projects including the Smart Local Water Supply Support Project underwent assessment of project plan. The total costs of these projects in their original plans were KRW 17 trillion and 477.3 billion, and the total costs after the assessment of project plan were KRW 15 trillion and 625.3 billion, a decrease of KRW 1 trillion and 852 billion.

<Table III-22> Summary of project plan reviews conducted in 2021

(Unit: KRW 100 million)

No.	Project	Total project costs		
		Project plan (A)	Assessment of Project Plan (B)	Savings (A - B)
1	Smart Local Water Supply Support Project	13,553	13,500	-53
2	Dam Safety Reinforcement (Phase II, Multipurpose Dam) Project	5,954	4,720	-1,234
3	Green Smart School Project	43,615	39,464	-4,151
4	Undergrounding Overhead Power Line Project	20,000	13,086	-6,914
5	Smart Sewage Management System Establishment and Operation Project	3,642	1,414	-2,228
6	Incheon District Court Northern Branch Construction Project	1,147	1,123	-24
7	Incheon Regional Tax Office Building Construction Project	897	957	60
8	Suwon Sewage Treatment Plant Sewage Waste Reduction Project	78,463	74,824	-3,639
9	Ulsan Seongam Incineration Plant (Units 1 and 2) Reconstruction Project	1,905	1,700	-205
10	Sewol Ferry Disposal Plan Implementation Project	1,768	2,117	349
11	Daejeon Medical Center Construction Project	1,641	1,759	118
12	Western Busan Medical Center Construction Project	2,187	1,588	-599
	Total	174,773	156,253	-18,520

Note: 1) Projects with reviews completed as of the end of December 2021.

2) If multiple alternatives were found in the review, the total costs of the least expensive alternative. Results of analysis as part of reviews may differ from the actual budget execution.

3. RSF

In 2021, six projects including Seocheongju~Jeungpyeong Expressway Construction Project underwent RSF, of which results are presented in <Table III-23>.

<Table III-23> Summary of RSF results in 2021

(Unit: KRW 100 million)

No.	Project	Total project costs		Results		
		Proposed (A)	RSF (B)	Savings (A - B) or (A)	B/C	AHP
1	Seocheongju~Jeungpyeong Expressway Construction Project	2,632	2,551	81	(Scenario1) 0.75 (Scenario2) 0.77	(Scenario1) 0.512 (Scenario2) 0.519
2	Jochiwon Bypass Road Construction Project	2,805	2,577	2,805	0.66	0.393
3	Taereung-Guri IC Inter-City Road Expansion Project	2,037	1,645	392	1.42	0.735
4	Yeoju~Wonju Railway Construction Project	8,335	9,017	-682	0.85	0.571
5	Hoedeok IC Connection Road Construction Project	1,030	986	44	1.61	0.687
6	Dangin-ri Cultural Creative Power Plant Creation Project	720	698	22	2.23	0.774
Total		17,559	17,474	2,662	-	-

Notes: 1) Optimum alternatives found with AHP.

2) Total project costs as specified in their RSF request; hence, the base year for pricing was different from the RSF pricing base year.

3) Total project costs included all costs already put in.

4) Total project costs saved: balance between the project proposal and the optimum alternative if the project's AHP \geq 0.5, and total project costs if the project's AHP $<$ 0.5; results of analysis as part of RSF may differ from the actual budget execution.

5) Projects with RSF completed as of the end of December 2021.

The causes of these projects facing RSF were increases in the project costs to a level subject to PFS (one project), and increases by more than the ratio determined by the total project cost (five project).

<Table III-24> Causes of RSF conducted in 2021

(Unit: projects)

Category	Project costs raised to level subject to PFS	PFS omitted	Increases in project costs	Decreases in demand	Others	Total
RSF	1	-	5	-	-	6

Note: Projects with RSF completed as of the end of December 2021.

Looking at the track records of the RSF by sector, 4 projects were carried out in the road sector, 1 in the railway sector, and 1 in the culture, tourism, and architecture sector.

<Table III-25> RSF conducted in 2021, by area

(Unit: projects)

Category	Road	Railway	Port	Culture, tourism, architecture	Others	Total
RSF	4	1	-	1	-	6

Note: Projects with RSF completed as of the end of December 2021.

The total costs of the projects that underwent RSF in 2021 were KRW 1 trillion and 756.2 billion in their project plans and KRW 1 trillion and 747.5 billion after RSF, a decrease of KRW 266.2 billion.

<Table III-26> Total costs of projects that underwent RSF in 2021

(Unit: KRW 100 million)

Category	Projects	Total project costs		
		Project plan	RSF	Savings
RSF	6	17,559	17,475	2,662

Note: Total project costs saved: balance between the project proposal and the optimum alternative if the project's AHP ≥ 0.5 , and total project costs if the project's AHP < 0.5 ; results of analysis as part of RSF may differ from the actual budget execution.

Of these six projects, three was pursued by the Ministry of Land, Infrastructure and Transport, two was pursued by the National Agency for Administrative City Construction, and the other was pursued by the Ministry of Culture, Sports and Tourism.

<Table III-27> Projects that underwent RSF in 2021, by ministry/agency

(Unit: projects)

Category	Ministry of Land, Infrastructure and Transport	National Agency for Administrative City Construction	Ministry of Culture, Sports and Tourism	Total
RSF	3	2	1	6

Note: Projects with RSF completed as of the end of December 2021.

In terms of economic feasibility ($B/C \geq 1$) and overall feasibility ($AHP \geq 0.5$), 50% of the projects were considered economically feasible ($B/C \geq 1$), while 83% of the projects met the overall feasibility requirement.

<Table III-28> Economic and overall feasibility of projects that underwent RSF in 2021

(Unit: projects)

Category		Economic feasibility ($B/C \geq 1$)	Overall feasibility ($AHP \geq 0.5$)
No. of projects		6	
Deemed feasible	Projects	3	5
	%	50%	83%

4. Reassessments of Project Plans, etc.

In 2021, 14 projects underwent reassessments of project plans, including Ulsan Industrial Waterworks Old Pipe Improvement Project (3rd). The total costs of these projects were KRW 9 trillion and 732.1 billion in their project plans, and KRW 9 trillion and 602.7 billion after the reassessments, a decrease of KRW 129.4 billion.

<Table III-29> Summary of reassessments of project plans in 2021

(Unit: KRW 100 million)

No.	Project	Total project costs		
		Project plan (A)	Reassessment (B)	Savings (A - B)
1	Ulsan Industrial Waterworks Old Pipe Improvement Project (3rd)	979	979	-
2	Gyeongju Yangnam-Gampo State Road Construction	713	687	26
3	Janghang Line Double-track Railway Project	10,173	10,129	44
4	Hwasun Dongmyeon~Songgwang Bongsan Road Facility Improvement Project	1,338	701	637
5	Madong District Multi-purpose Rural Water Development Project	478	492	-14
6	Hanam Industrial Complex Buffer Storage Facility Installation Project	708	700	8
7	Dodam-Yeongcheon Double-track Railway Construction Project	42,049	41,984	65
8	Ibjang~Jincheon Road Construction Project	1,311	828	483
9	Saemangeum District Garyeok Dock Expansion Project	1,118	1,091	27
10	Pyeongtaek-Osong 2-Double-Track Construction Project	33,012	33,285	-273
11	Buan-Heungdeok Road Expansion Project	1,940	1,918	22
12	Busan Regional Joint Government Complex Construction Project	1,286	1,205	81
13	Dogye-Majeon Road Construction Project (Local Road No. 98)	537	507	30
14	Pyeongtaek Dangjin Port Access Road Construction Project	1,679	1,521	158
Total		97,321	96,027	1,294

Notes: 1) Total project costs as specified in their reassessment request; hence, the base year for pricing was different from the reassessment pricing base year.

2) Total project costs included all costs already put in.

3) If multiple alternatives were found in the reassessment, the total costs of the least expensive alternative. Results of analysis as part of reassessments may differ from the actual budget execution.

4) Projects with RSF completed as of the end of December 2021.

In 2021, only one project underwent a reassessment of demand forecast including Masan Port Access Road Construction Project. Nine projects including Gwangyang (Phase 1) Industrial Water Pipe Improvement Project underwent assessment of design modification and one project (Urban Railway Sasang~Hadan Construction Project) underwent pre-feasibility review of design modification.

<Table III-30> Project design reviews and assessments of design modification in 2021

Category	No.	Project
Reassessment of Demand Forecast	1	Masan Port Access Road Construction Project
Pre-feasibility Review of Design Modification	1	Urban Railway Sasang-Hadan Construction Project
Assessment of Design Modification	1	Gwangyang (Phase 1) Industrial Water Pipe Improvement Project
	2	Imsil-Jangsu State Road Construction Project
	3	Western Maintenance Depot for Coast Guard Construction Project
	4	Han River Cinepolis Access Road Construction Project
	5	Integrated Water Supply Project in the Western Part of Chungnam Province
	6	New Port Docking Facility Project in Samangeum District (Phase 1)
	7	Ulsan New Port Eastern Seawall Reinforcement Project
	8	Daejeon 2 nd landfill site Construction Project (Phase 1)
	9	Ulsan New Port (Phase 2) Development Project

Note: Projects with reviews/assessments completed as of the end of December 2021.

5. PFS on the 5th 5-year Comprehensive Plan on State Road or State-supported Provincial Road

Among the 5th 5-year Comprehensive Plan on State Road or State-supported Provincial Road, 139 projects were subject to preliminary feasibility study, and 112 of them were requested to KDI. The total length is 1057.47 km and the project cost is KRW 16 trillion and 570.7 billion. Among them, the total project cost was found to be less than KRW 50 billion during the PFS, or less than KRW 30 billion of state funding, and the withdrawal of project by the competent department was excluded. As a result, AHP analysis was performed on 94 cases, and 24 of them were analyzed to secure overall feasibility.

<Table III-31> Target Projects for PFS on the 5th 5-year Comprehensive Plan on State Road or State-supported Provincial Road Conducted by KDI by Type

(Unit: km, KRW 100 million)

Category		No. of Projects	Total Length	Total Project Costs
Total	New Expansion	59	518.52	110,532
	Improvement	53	538.95	55,175
	Sub-Total	68	697	93,294
State Road	New Expansion	31	287.92	51,361
	Improvement	37	409.08	41,933
	Sub-Total	15	149.02	45,599
Bypass Road	New Expansion	15	149.02	45,599
	Improvement	-	-	-
	Sub-Total	29	211.45	26,814
State-supported Provincial Road	New Expansion	13	81.58	13,572
	Improvement	16	129.87	13,242
Total		112	1,057.47	165,707

<Table III-32> Target Projects for AHP Analysis of PFS on the 5th 5-year Comprehensive Plan on State Road or State-supported Provincial Road

Category		Gangwon	Gyeonggi	Gyeongbuk	Jeonbuk	Chungnam	Chungbuk	Total
No. of Target Project for AHP Analysis		17	24	14	12	17	10	94
Not subject to AHP analysis	Total Project Cost less than KRW 50 bil.	1	5	3	2	3	1	15
	State Funding less than KRW 30 bil.	-	3	-	-	-	-	3
	Withdrawal of Project by Competent Dept.	-	-	-	-	-	-	-
	Sub-Total	1	8	3	2	3	1	18
Total		18	32	17	14	20	11	112

The total project costs of the project subject to AHP analysis of PFS by KDI on 5th 5-year Comprehensive Plan on State Road or State-supported Provincial Road reached KRW 13 trillion and 201 billion based on the final project plan that reflected the change to the initial project plan. Looking at the rate of securing economic feasibility ($B/C \geq 1$) and securing rate of overall feasibility ($AHP \geq 0.5$) of the PFS on 5th 5-year Comprehensive Plan, the rate of securing economic feasibility was 2.12%,

and the rate of securing overall feasibility was 25.5%.

<Table III-33> Total project costs of the project subject to AHP analysis of PFS by KDI on 5th 5-year Comprehensive Plan on State Road or State-supported Provincial Road

(Unit: KRW 100 million)

Category	No. of Projects	Total Project Costs	
		Project Plan	PFS
Gangwon	17	22,002	24,479
Gyeonggi	24	40,728	42,192
Gyeonbuk	14	14,815	15,896
Jeonbuk	12	18,372	17,964
Chungnam	17	26,814	30,078
Chungbuk	10	9,279	9,410
Total	94	132,010	140,019

Note: 1) Project Plan refers to the total project costs of final project plan that reflected the change to the initial project plan.

2) Projects subject to PFS implemented by KDI.

<Table III-34> Rate of economic and overall feasibility of PFS on 5th 5-year Comprehensive Plan on State Road or State-supported Provincial Road

(Unit: %)

Category		Economic Feasibility(B/C \geq 1)	Overall Feasibility(AHP \geq 0.5)
No. of Projects		94	
Deemed feasible	No. of Projects	2	24
	%	2.12%	25.5%

Note: Projects subject to PFS implemented by KDI.

6. Pilot Project for Pre-feasibility Evaluation on National Facilities

In 2021, for the first time, the pilot project for Pre-feasibility evaluation on national facilities was introduced, and a total of two projects were evaluated. A summary of the survey results by project is shown in the table below.

<Table III-35> Pilot project for Pre-feasibility evaluation on national facilities in 2021

No.	Project
1	Gungneung Landscape Resource Center Construction Project
2	Buyeo National Museum Baekje National Archives Construction Project

Chapter IV

Overview of Public–Private Partnerships Project Support

Section 1. Overview of Public–Private Partnerships system

1. Background and Progress of Public-Private Partnerships

A. Background

PPP projects refer to arrangements where the private sector constructs and operates SOC including roads, harbors, airports, railroads, and environmental facilities that traditionally belonged to the scope of the government sector. SOC forms a basis of national economic activities and is a decisive factor for national competitiveness. Investment in SOC itself not only contributes to employment, income growth, regional development, and technological advancement but also indirectly supports production. Traditionally, SOC has been provided, operated, and managed by the public sector. Involving private capital in these facilities represents a major change in the paradigm of public investment.

As its economy was growing, Korea faced issues related to the shortage of infrastructure including roads, railroads, ports, airport facilities, electricity, water resources, and sewage disposal facilities, leading to negative effects such as increases in logistics costs and the deterioration of national competitiveness. The government established plans to resolve these issues, but the biggest challenge was how to raise

funds for investment. Continued economic growth would not simply convert to unlimited tax revenues to invest in these projects.

In the 1990s, people's income rapidly grew, which caused surges in demand for welfare, and the trends of localization and opening accelerated. There also were surges in demand for investment in welfare, education, and environment that were once neglected by growth-centered development policies. As a way to tackle the insufficiency of funds, the government explored possibilities of attracting private capital primarily focusing on projects to which the user-pays principle was applicable. This led to the enactment of the Act on the Promotion of Private Capital into Social Overhead Capital Investment in 1994, which was later substituted by the Act on Private Participation in Infrastructure in December 1998.

B. Progress and legal grounds of PPP

1) Progress

In August 1994, the Act on the Promotion of Private Capital into Social Overhead Capital Investment was enacted with the aim to pursue social overhead capital construction projects with private funds on top of government funds, and government-solicited build-transfer-operate (BTO) projects emerged to build and run infrastructure such as roads, railroads, and ports.

The Act on the Promotion of Private Capital into Social Overhead Capital Investment was renamed the Act on Private Participation in Infrastructure in December 1998 with the aim to vitalize private investment to overcome the nation's economic crisis during 1997 and 1998 and introduce unsolicited projects as a new way to pursue private investment.

In January 2005, the Act on Private Participation in Infrastructure was substituted by the Act on Public-Private Partnerships in Infrastructure (PPP Act), under which build-transfer-lease (BTL) projects for schools, military residences, and other social infrastructure were introduced, and publicly offered infrastructure funds were established to attract more investors.

The current PPP system was structured by amendments to the laws and the

Enforcement Decree of the PPP Act and the Basic Plan for Public-Private Partnerships in Infrastructure (Basic Plan), under which the government was required to report the total ceiling of BTL projects in a given year, facility-specific ceilings, and reserve ceilings when it submits that year's budget plan to the National Assembly for preauthorization and the controversial minimum revenue guarantee scheme was phased out.

The progress of the PPP system in Korea is largely divided into four phases. In phase 1, from the 1960s to August 1994 when the Act on the Promotion of Private Capital into Social Overhead Capital Investment was established, PPP projects were pursued based on different individual laws. Phase 2 corresponds to the period from the enactment of the Act on the Promotion of Private Capital into Social Overhead Capital Investment to March 1999 when the act was wholly amended and renamed as the Act on Private Participation in Infrastructure. Phase 3 represents the period from April 1999 when the Act on Private Participation in Infrastructure was enforced to December 2004, and phase 4 started in January 2005 when the PPP Act was enforced and lasts until the present. Below is the summary of the phase-specific changes in the PPP system.

<Table IV-1> Changes in the PPP system and characteristics

Phase	Period	Changes and characteristics
1	1968-1994	<ul style="list-style-type: none"> Sporadic implementation of PPP projects based on individual acts (Road Act, Harbor Act, etc.).
2	1994-1998	<ul style="list-style-type: none"> Act on the Promotion of Private Capital into Social Overhead Capital Investment. Facilitation of private investment with systemic procedures in place. Facilities categorized into type 1 and type 2 facilities; BTO projects allowed for type 1 facilities, and BOO for type 2 facilities.
3	1999-2004	<ul style="list-style-type: none"> Act on Private Participation in Infrastructure. Positive government support and role sharing for private investment. Facility categorization into type 1 and type 2 abolished to allow for diversified project implementation.
4	2005-present	<ul style="list-style-type: none"> Enforcement of PPP Act. BTL projects introduced. Unsolicited projects required to undergo VFM. Publicly offered infrastructure funds. Unsolicited BTL projects allowed (amendment on March 2, 2016).

Phase	Period	Changes and characteristics
		<ul style="list-style-type: none"> Hybrid (BTO + BTL) projects allowed (provisions established on February 10, 2020). All-inclusive concept applied to infrastructure (amendment in March 2020).

Sources: 1) Adapted from Ministry of Planning and Budget, A study on the development of private investment in SOC (2002).

2) Adapted from KDI, A study on private infrastructure investment legislation reform (2007).

2) Legal Grounds

The legal grounds for PPP projects are the PPP Act, its Enforcement Decree, and the Basic Plan. The PPP Act has twofold nature as a general law that provides matters relating to PPP projects such as eligible facilities, implementation methods and processes, support systems, and management, supervision, and sanction systems, and a special law that takes precedence over other laws when it comes to PPP projects.

The Basic Plan was established by the Minister of Economy and Finance in consultation with the heads of relevant central government agencies and the Private Investment Deliberation Committee pursuant to Article 7 of the PPP Act and Article 5 of its Enforcement Decree. Along with the Act and the Enforcement Decree, it serves as guidelines for PPP projects, including the following:

- Area-specific policy orientations for private investment in infrastructure
- Scope of private investment, methods, and conditions for PPP projects or eligible PPP projects
- Management, operation, and support for PPP projects
- Other policy orientations relating to PPP projects

Also, PIMAC published detailed guidelines for project implementation.

2. Eligible PPP projects and Implementation Methods

A. Eligible PPP projects and types

Infrastructure that may be constructed with a PPP project includes facilities that serve as foundations for production activities, facilities that are intended for improved

utility and user convenience, and facilities that increase benefits for citizens. Previously, Article 2(1) of the PPP Act stipulated PPP projects may be built under 53 facility types, 12 facility areas, and 56 laws. The amended PPP Act of 2020 employed the all-inclusive concept, rather than specifically listing types of infrastructure, to expand the scope of PPP further. Under the amended law, any of the following infrastructure are open to PPP:

- Facilities that are foundations for economic activities, for example, roads, railroads, ports, sewage, excreta, and waste treatment facilities, and recycling facilities
- Facilities needed for the provision of social services, for example, kindergartens, schools, libraries, science halls, cultural multiplexes, and public healthcare facilities
- Public facilities needed for the central or local governments such as government offices, facilities for veterans, disaster control facilities, military facilities; or other public facilities such as community sport facilities, recreational facilities, or other community facilities

The following facilities are excluded from PPP projects under the amended law:

- Facilities designated by the Minister of Defense as facilities to handle military secrets provided in Article 2(1) of the Military Secret Protection Act
- Facilities designated by the Minister of Defense as facilities for military operations provided in Article 2(1)A of the Act on National Defense and Military Installations Projects
- Diplomatic information networks
- Other facilities provided by a Presidential Decree

B. Implementation process

PPP projects are divided into government-solicited projects where the governments invite private bidders to projects it considers to be more efficient when implemented

by the private sector, and unsolicited projects where the private sector identifies and develops public investment projects they find profitable, and propose the proposals to the government.

<Table IV-2> General Principles of Designation of PPP Projects (provided in the Basic Plan)

Article 4 (General Principles of Designation of PPP Projects)

The competent authority shall consider the following general principles in designating PPP projects:

1. Principle of Payment by Beneficiary: Projects that can provide higher-quality services in comparison with existing facilities that can be used with the lower burden of expenses so that users are willing to pay higher usage fees in return for such high benefits
2. Principle of Profitability: Projects that can secure a rate of return sufficient for the recovery of investment expenses made by the private sector investor within the scope of usage fees acceptable to the government and payable by the users, and the construction subsidies the government is able to provide
3. Principle of Project Benefits: Projects that are unlikely to be completed early or provide services due to budget restraints if implemented as government-financed projects but are anticipated to be completed on time and generate early benefits if implemented under a public-private partnership
4. Principle of Efficiency: Projects that are anticipated to generate increased benefits and reduced cost compared to a government-financed project thanks to the creativity and efficiency of the private sector and are likely to produce higher quality of services due to competition with government-financed projects

Source: Ministry of Economy and Finance, The Basic Plan for Public-Private Partnerships in Infrastructure, 2020.

PPP projects can be primarily implemented in the BTO or BTL form but also often in BOT or BOO form. In BTO and BTL projects, the ownership of the facilities is transferred to the competent authority upon completion, and in return the concessionaire is granted the right to manage and operate the facility under the PPP Act. Article 3 of the Basic Plan provides the methods of implementation of PPP projects, and PPP projects can also be pursued in a way proposed by the private sector and deemed reasonable by the competent authority, or proposed by the competent authority in the request for proposals.

<Table IV-3> Methods of Implementation of PPP Projects (provided in the Basic Plan)

Article 3 (Methods of Implementation of PPP Projects)	
①	PPP projects may be implemented in the following ways pursuant to Article 4 of the Act:
1.	Build-Transfer-Operate (BTO) Method: A method where the ownership of the infrastructure facility is vested in the central or local government upon the completion (of new construction, expansion or improvement) of the infrastructure and the concessionaire is granted the right of management and operation of the facility for a specified period of time. <Amended on May 10, 2013; April 20, 2015>
2.	Build-Transfer-Lease (BTL) Method: A method where the ownership of the relevant infrastructure facility is vested in the central or local government upon completion (of new construction, expansion or improvement) and the concessionaire is granted the right of management and operation of the facility for a specified period of time, where the central or local government leases the facility for the time period specified in the concession agreement for use and generation of profit <Amended on May 10, 2013; April 20, 2015>
3.	Build-Operate-Transfer (BOT) Method: A method where the concessionaire is granted the ownership of the relevant infrastructure facility upon completion (of new construction, expansion or improvement) for a specified period of time, upon expiration of which the ownership is vested in the central or local government <Amended on April 20, 2015>.
4.	Build-Own-Operate (BOO) Method: A method where the ownership of the relevant infrastructure facility is vested in the concessionaire upon completion (of new construction, expansion or improvement) <Amended on April 20, 2015>
5.	Build-Lease-Transfer (BLT) Method: A method where the concessionaire leases the relevant infrastructure facility to a third party upon completion (of new construction, expansion, improvement) for a specified period of time, upon expiration of which the facility is transferred to the central or local government. <Amended on April 20, 2015>.
....	
10.	Hybrid (BTO+BTL) Method: A method where a single infrastructure facility is constructed and operated under a scheme that combines the methods prescribed in Article 4, Subparagraphs 1 and 2 of the Act. <Newly established on February 15, 2012. Amended on May 12, 2014; February 10, 2020>.
11.	Conjoined Method: A method of physically dividing the relevant infrastructure facility, upon the resulting sections of which two or more of the methods prescribed in Article 4, Subparagraphs 1 through 6 are used. <Newly established on February 10, 2020>
12.	Other methods presented by the private sector and recognized as appropriate by the competent authority or presented by the competent authority in this Basic Plan (including cases in which the Ministry of Education seeks to construct private school facilities through a method similar to that prescribed in Subparagraph 2). <Amended on February 10, 2020>

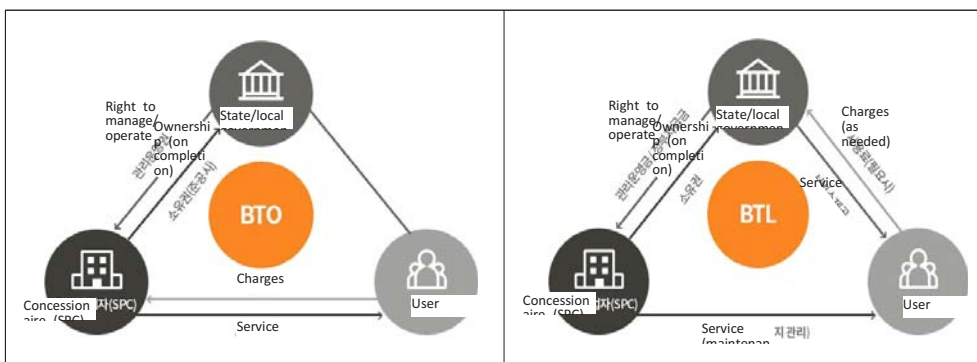
Source: Ministry of Economy and Finance, The Basic Plan for Public-Private Partnerships in Infrastructure, 2020.

In a BTO project, the concessionaire has the right to manage and operate the facility on its own and charge users for facility use to collect its investment. These types of PPP projects are primarily used for easily profitable facilities such as roads and railways (i.e., from tolls and fares). The concessionaire bears the market risks related to the operation of the facility (risk for demand fluctuations). In 2015, the government adopted new ways to attract more private investment by sharing project investment risks between the government and the private sector, which are build-transfer-operate-risk sharing (BTO-rs) and build-transfer-operate-adjusted (BTO-a) as provided in Articles 32 and 33-2 of the Basic Plan.

In a BTL project, the concessionaire has the right to manage and operate the facility and lends the facility to the competent authority. In return, it receives rent to collect investment. These types of PPP projects are primarily used where it is unviable to collect investment by charging user fees, for example, schools and cultural facilities. As the concessionaire collects investment from rent paid by the government, it does not bear the market risks related to the operation of the facility (risk of demand fluctuations).

In a hybrid (BTO+BTL) project, an infrastructure facility is constructed and operated in a way that mixes the methods provided in Article 4(1) (BTO) and Article 4(2) (BTL) of the PPP Act. In a conjoined project, an infrastructure facility is physically divided, and two or more methods provided in Articles 4(1) through 4(6) of the act are used.

[Figure IV-1] BTO and BTL project structure



Source: KDI PIMAC website (<http://pimac.kdi.re.kr>).

<Table IV-4> shows the features of BTO and BTL projects in terms of the nature of eligible facilities, investment collection methods, project risks, etc.

<Table IV-4> Features of PPP project types

Type	BTO	BTL
Nature of facilities	Investment is collected from charges paid by end users (profit-yielding)	Investment cannot be collected from charges paid by end users (service purchase)
Examples	Roads, railways, ports	Schools, military bases, sewers, cultural facilities, welfare facilities
Investment collection	Charges paid by end users (Beneficiary pays)	Rent paid by the government (Government finance)
Business risks	Borne by the private sector (Profitability varies by demand)	Private sector free from demand risks
Profitability	High	Low
Project types	<ul style="list-style-type: none"> • BTO • BTO-rs • BTO-a 	BTL

C. Investment risk sharing in BTO projects

In BTO projects, concessionaires are solely responsible for demand-related risks, hence risk for bankruptcy, in return for relatively higher profitability. And in principle, charges rise annually in consideration of the consumer price index, which may frustrate the users. To address these issues, the government added new types of BTO projects for risk sharing to the Basic Plan announced on April 20, 2015, which are BTO-rs and BTO-a.

In the BTO-rs arrangement, the government compensates for the concessionaire's investment to the extent that the concessionaire takes responsibility for risks out of the amount of total private investment save for government subsidies for construction. As the project becomes less profitable to the extent that the government takes investment risks, the concessionaire charges less for the use of the facility. In the BTO-a arrangement, the government compensates for the principal and interest of the underlying borrowings among the total private investment (to an extent provided in the

contract) and the minimum opportunity costs of the private investment and operating expenses. By doing so, the project becomes less profitable to the extent that the government takes investment risks, hence less charges to the users.

<Table IV-5> Comparison of BTO-rs and BTO-a

Category		BTO-rs	BTO-a
Risk sharing	Risk taking	Partially taken by the government (e.g., 50%)	Primarily taken by the government (e.g., 70%)
	Guarantee	Government's sharing of private investment and operating expenses	<ul style="list-style-type: none"> • Principal and interest of 70% of private investment • Basic profits for 30% of private investment (at government fund rate) • Operating expenses
	Redemption	As per the government's burden (rate may vary)	Amounts in excess of private investment (e.g., 70%)
Operating expenses	Guarantee	50% (example)	100%
	Profitability	Mixed current yield (Weighted average of government's burden + concessionaire's burden)	Five-year treasury bond rate + α (guaranteed yield)
Charges	Level	Agreed charges (equivalent to public utility charges)	Agreed charges (equivalent to public facilities)
	Rises	Annual inflation rate (Possibly in consideration of public utility charge rises)	Annual inflation rate (Possibly in consideration of public utility charge rises)

D. Hybrid (BTO+BTL) PPP project structure

Recently, the government refreshed its orientations for PPP projects with focuses on the diversification of PPP projects, the promotion of new PPP projects, and the improvement of PPP projects' reliability in its amended Basic Plan published on February 10, 2020 (Ministry of Economy and Finance's Notification No. 2020-26). The diversification of PPP projects primarily revolves around diversifying the modes of project implementation and facilities and sectors subject to PPP projects. In particular, the government introduced new PPP project arrangements, for example, BTO-BTL combined projects. Hybrid project arrangements where the concessionaire runs the facility and the government collects part of its investment in a BTL arrangement would be ideal for projects that incur large amounts of investment and operating expenses but require charges be kept under control, for example, road and railway projects.

A hybrid PPP project consists of two parts: the profit-making part allows the concessionaire to collect investment from charges paid by users, and the leasing part allows the concessionaire to collect investment from rent, etc., paid by the state or local governments. The profit-making part is structured in the same way as an ordinary BTO project based on the amount of private investment in the profit-making part. In this hybrid PPP arrangement, in principle, the concessionaire is entitled to all of the charges paid by users, but if the actual revenues in a given year exceed that year's estimated revenues, the amount in excess may be recollected as per the mixing ratio. The leasing part is structured in the same way as an ordinary BTL project to calculate profitability and rent, and the amounts payable by the government are subject to parliamentary review and resolution.

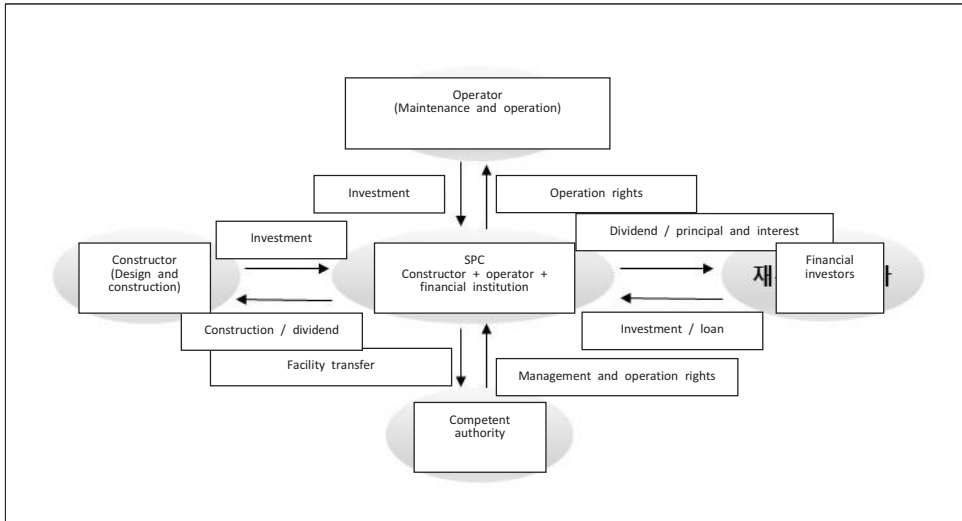
In hybrid PPP projects, the mixing ratio should be no more than 50% of the total private investment, and if an unsolicited project, the project proposer is required to negotiate the mixing ratio with the competent authority before submitting a project plan. The free-use period and management and operation concession period should not exceed 50 years. Profitability should be set for the profit-making part and leasing part, respectively, with the overall project profitability presented for reference only.

The government expects that the introduction of hybrid PPP projects will contribute to encouraging the pursuit of projects that would offer strong public benefits but yield lower profitability using government contributions under BTL arrangements, and to providing greater benefits for the public by, for example, lowering service charges for public infrastructure facilities. This also would contribute to the predictability of fiscal expenditures over the operation period of the facility and improved fiscal integrity by allowing the government to collect excess profits from the profit-making part.

3. Players in PPP Projects and Their Roles

A PPP project is constituted by a concession agreement between the government and the private party. In this arrangement, a special purpose company (SPC) constructs the facility with private capital, the competent authority grants the right to manage and operate the SPC, and the SPC operates the facility for a certain period.

[Figure IV-2] Players in PPP projects and their roles

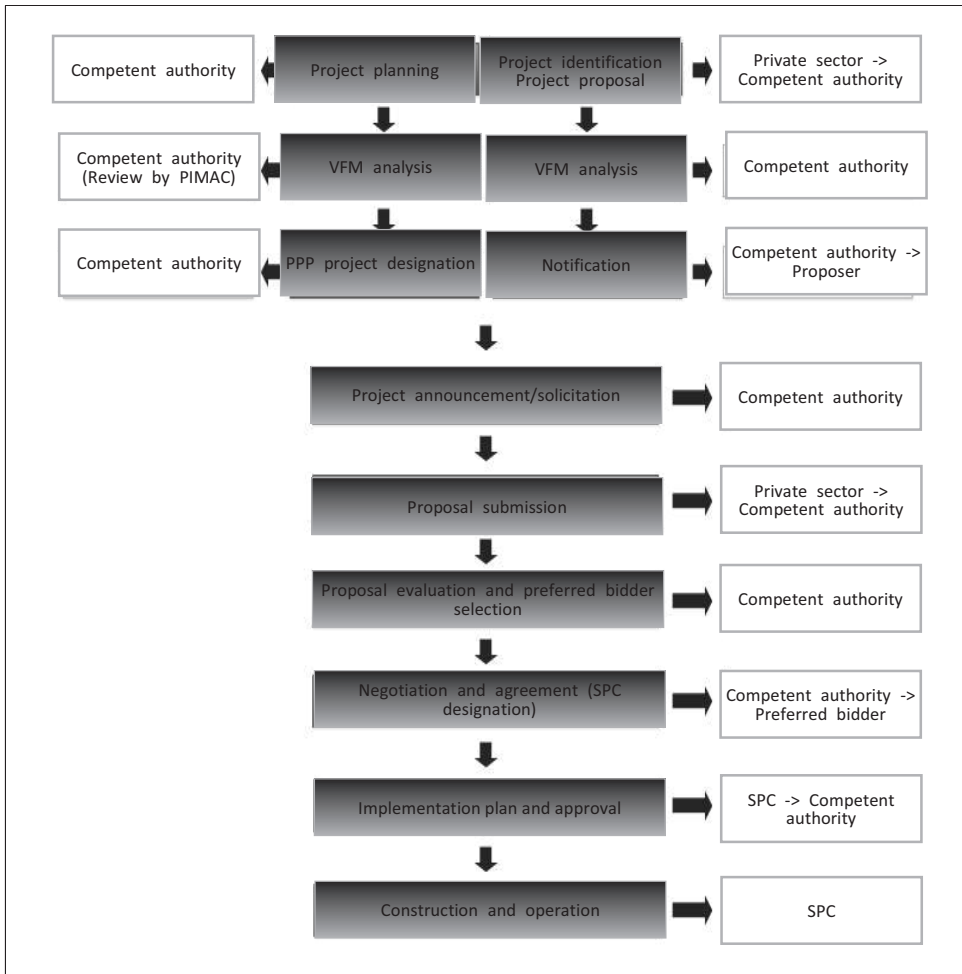


The SPC is a non-government player that executes the PPP project. It usually consists of a design firm, a constructor, a financial investor (or investors), and an operation company, which, respectively, take charge of design, construction, finance, and operation. The competent authority is the head of the administrative institution that is responsible for the infrastructure project, which may be the head of a central government agency or a local government. The competent authority selects PPP projects in consideration of project plans, feasibility studies, consistency with mid-/long-term plans, and project priorities and is responsible for the overall management of the PPP project including implementation plan approval and project management.

4. Detailed Project Implementation Process

BTO projects are divided into unsolicited projects where the private sector proposes a project, and government-solicited projects where the competent authority designates and invites proposals under the request for proposals. BTL projects were solely government-solicited projects in the past, but the amendment to the PPP Act on March 2, 2016 allowed unsolicited BTL projects.

[Figure IV-3] BTO project process



A. Government-solicited projects

The competent authority is required to establish plans for projects that are deemed appropriate to pursue as PPP projects and solicit bids for them. These projects should be consistent with the general principles of PPP project designation (Article 4 of the Basic Plan), the provisions on the types of facilities eligible for PPP projects under Article 2(1) of the PPP Act, the mid- and long-term plans for social overhead capital,

and government investment project priorities.

To facilitate interconnections between government-funded and private investment projects and promote government-solicited PPP projects, VFM analysis is conducted as part of PFS to see if a project should be pursued as a PPP project. The PFS involves comparison between the public sector comparator (PSC) and the private finance initiative (PFI) to see if a PPP project would have advantages over a government-financed project.

For a government-solicited project where private investment is deemed necessary, the competent authority should develop a Request for Proposals within one year from the designation of the project. It should announce the plan pursuant to instructions provided in a Presidential Decree to allow private players to submit project proposals. The competent authority reviews and evaluates the project proposals pursuant to instructions provided in a Presidential Decree and selects the preferred bidder to negotiate terms and conditions. Then, it signs an agreement with the bidder, followed by the designation of the SPC to implement the project.

B. Unsolicited projects

An unsolicited project is pursued when the competent authority reviews a project proposal based on the general principles of PPP project designation, the types of facilities eligible for PPP projects under Article 2(1) of the PPP Act, the mid- and long-term plans for social overhead capital and government investment project priorities, conducts PFS including cost-benefit analysis, and finds that the project proposal is feasible and the PFI would ease government burden and offer greater quality of service compared with a comparable government-financed project.

An unsolicited project starts with a project proposal submitted by a private business to the competent authority. If the competent authority finds the proposal meets all formality requirements and is consistent with legislation and its policies, it asks the head of PIMAC to review the project proposal before it decides on whether to proceed with the PPP project. The head of PIMAC delivers comments on the project proposal to the competent authority and the Minister of Economy and Finance, and the competent authority, in consideration of the comments from the head of PIMAC, etc.,

informs the proposer of its views on the project proposal in writing. If appropriate, the summary of the project proposal should be publicly posted in the official gazette, at least three daily newspapers, and the competent authority's website to solicit third-party alternate proposals. If third-party alternate proposals are received, the initial proposer's proposal and the third-party alternate proposals are evaluated to select the preferred bidder, followed by negotiations, an agreement, and project implementation. Most BTO projects are unsolicited rather than government solicited.

C. BTL projects

In the selection of BTL projects, considerations are given to legal, economic, and financial fitness and urgency of the project. Legal fitness implies that BTL projects may be considered only for public facilities the state or local government must build to provide citizens with fundamental services, facilities in which the state and/or local governments have already allocated finance, and projects included in mid- and long-term investment plans established based on relevant laws and regulations.

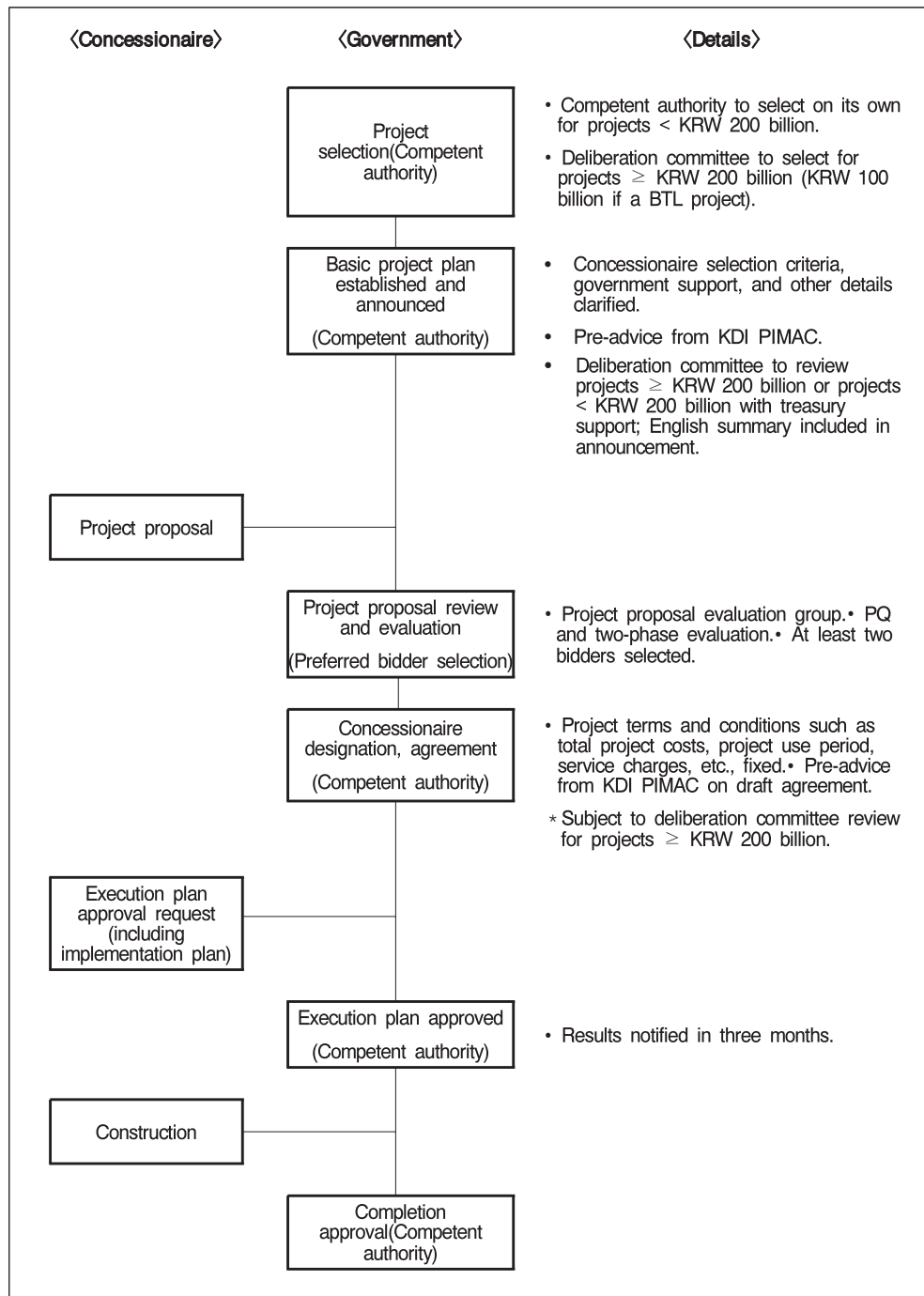
Economic and financial fitness means that BTL projects may be considered for ① projects where relying on the creativity and efficiency of the private sector would offer an advantage over government-funded projects in terms of timely completion and early achievement of benefits, improved benefits from the project including facilities quality and safety and the quality of services offered, and savings on lifecycle costs such as design, construction, and operating costs, ② projects where operation and maintenance account for a significant portion of the lifecycle costs and consolidating design, construction, management, and maintenance would yield greater efficiency, ③ projects where it is unviable to charge users or collect investment from charges paid by users (BTO projects if investment can be collected with charges and construction subsidies), and ④ projects where facilities are physically segregated to allow for independent business management and accounting.

Urgency of the project and other considerations include ① projects that would yield great benefits and require urgent facilities expansion, hence, prioritized investment required but investment being sluggish due to government fund limitations, ② projects where the ownership of the facilities constructed with private capital can be transferred

to the state or local governments at the time of completion, and ③ projects where the level of service expected from private parties can be objectively and clearly defined. In addition, the competent authority should select projects by giving full consideration to the following to ensure the projects can be initiated within the given year:

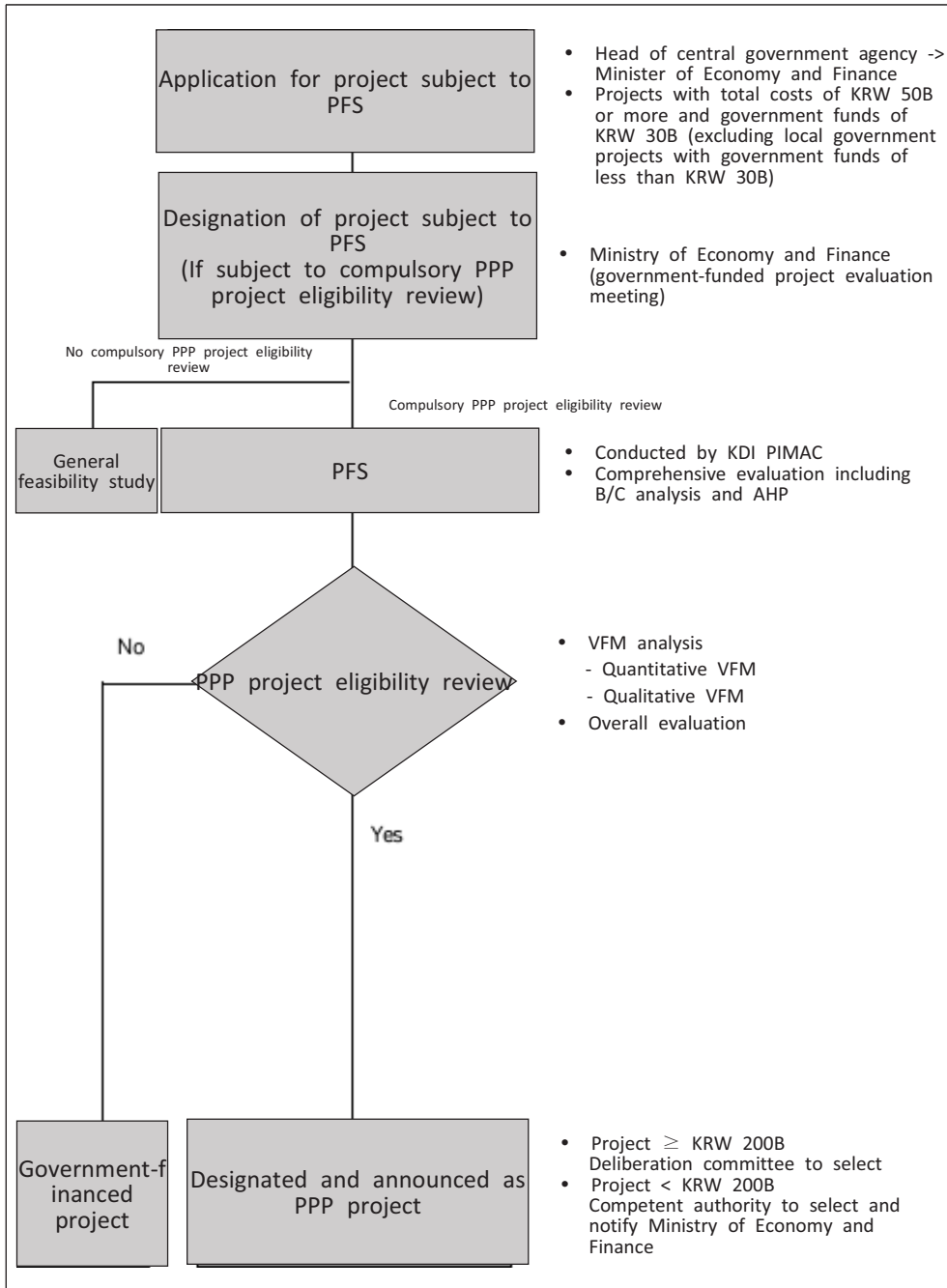
- ① Streamlined project execution including obtaining additional workforce for facilities expansion
- ② For buildings and structures, fixed arrangements for project sites and likelihood to have relevant approval and permit processes done in a timely manner
- ③ For civil engineering projects, likelihood of early construction commencement with completed basic design and streamlined approval and permit process
- ④ Absence of obstacles in project implementation, or if present, likelihood of swift resolution, for example, relocation plans, alternative facilities plans, no probable civil complaints in terms of environment, etc.

[Figure IV-4] BTO project (government-solicited project) implementation process



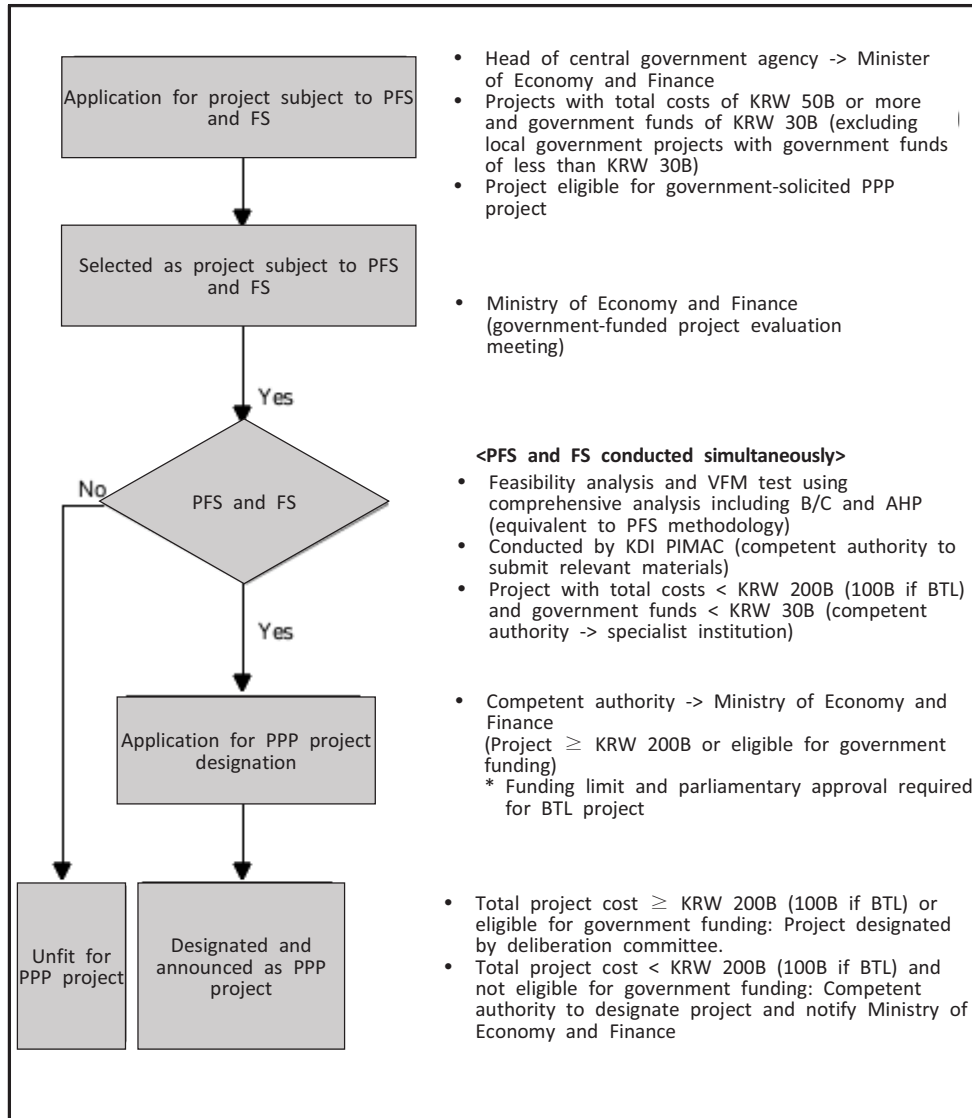
Source: Ministry of Economy and Finance, 2020 PPP Project Basic Plan, 2020.

[Figure IV-5] Government-solicited project selection process (if PFS requested for government-funded projects)



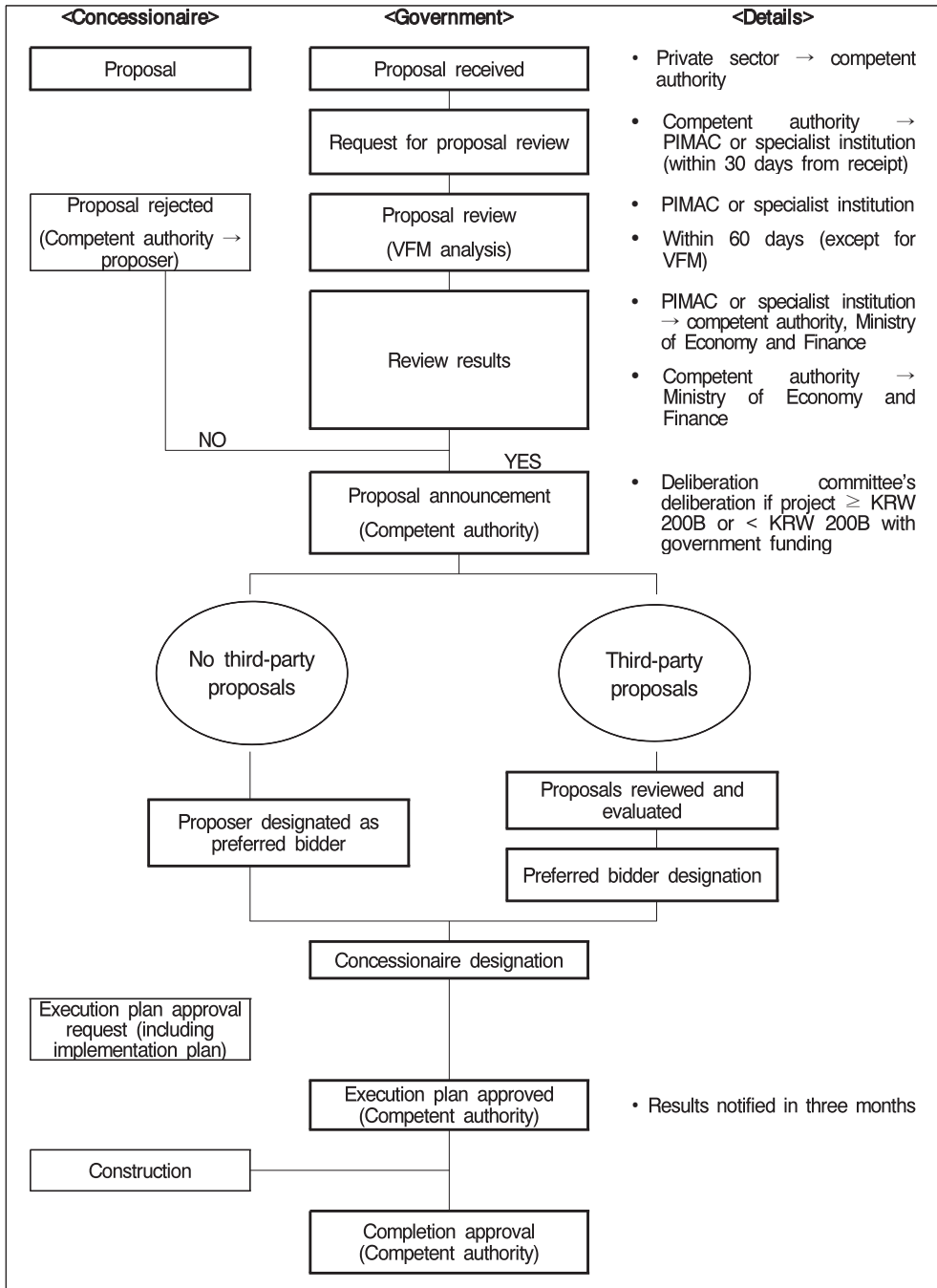
Source: Ministry of Economy and Finance, 2020 PPP Project Basic Plan, 2020.

[Figure IV-6] Government-solicited project selection process (if PFS and feasibility studies requested for government-solicited PPP projects)



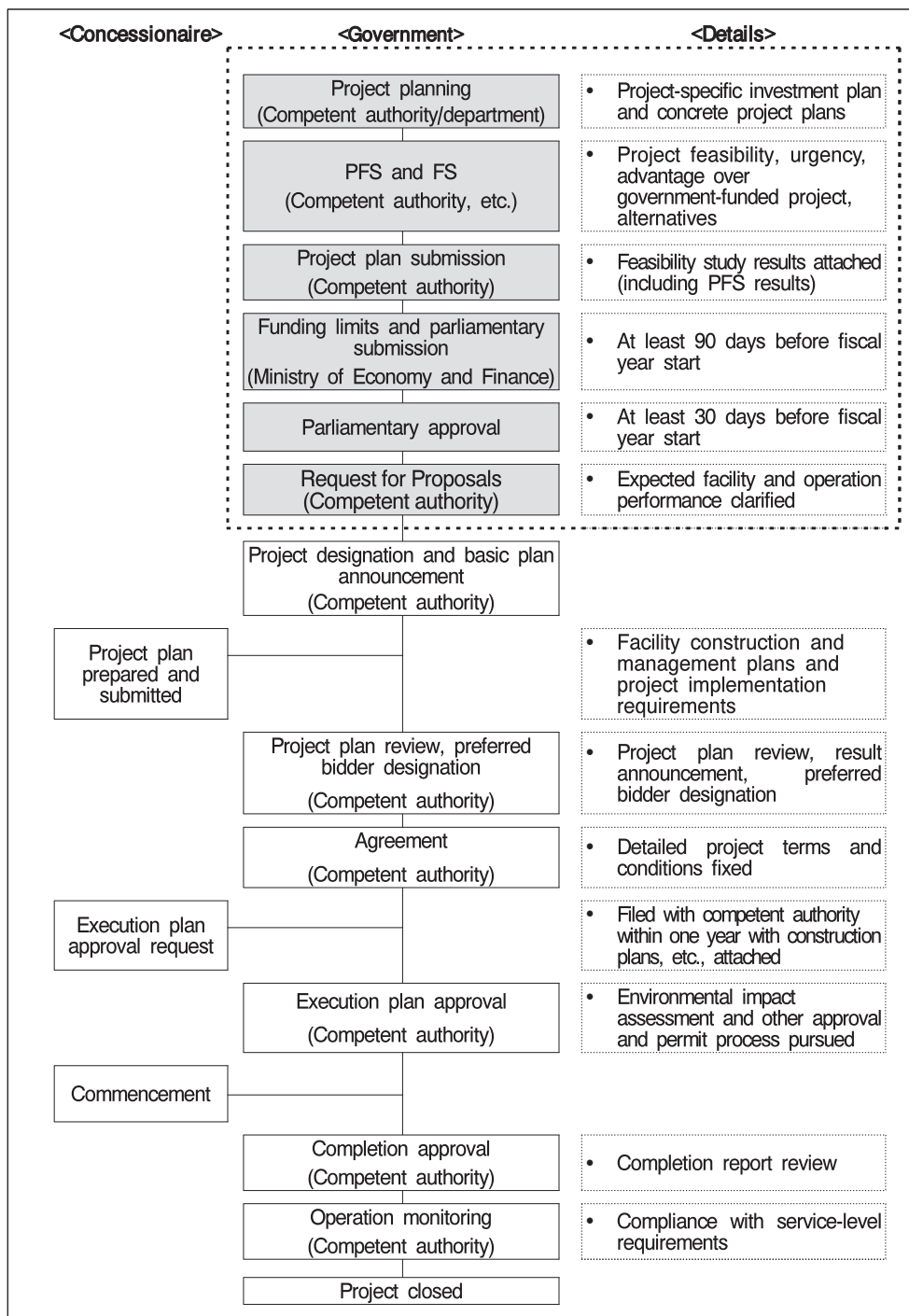
Source: Ministry of Economy and Finance, 2020 PPP Project Basic Plan, 2020.

[Figure IV-7] BTO project (unsolicited project) implementation process



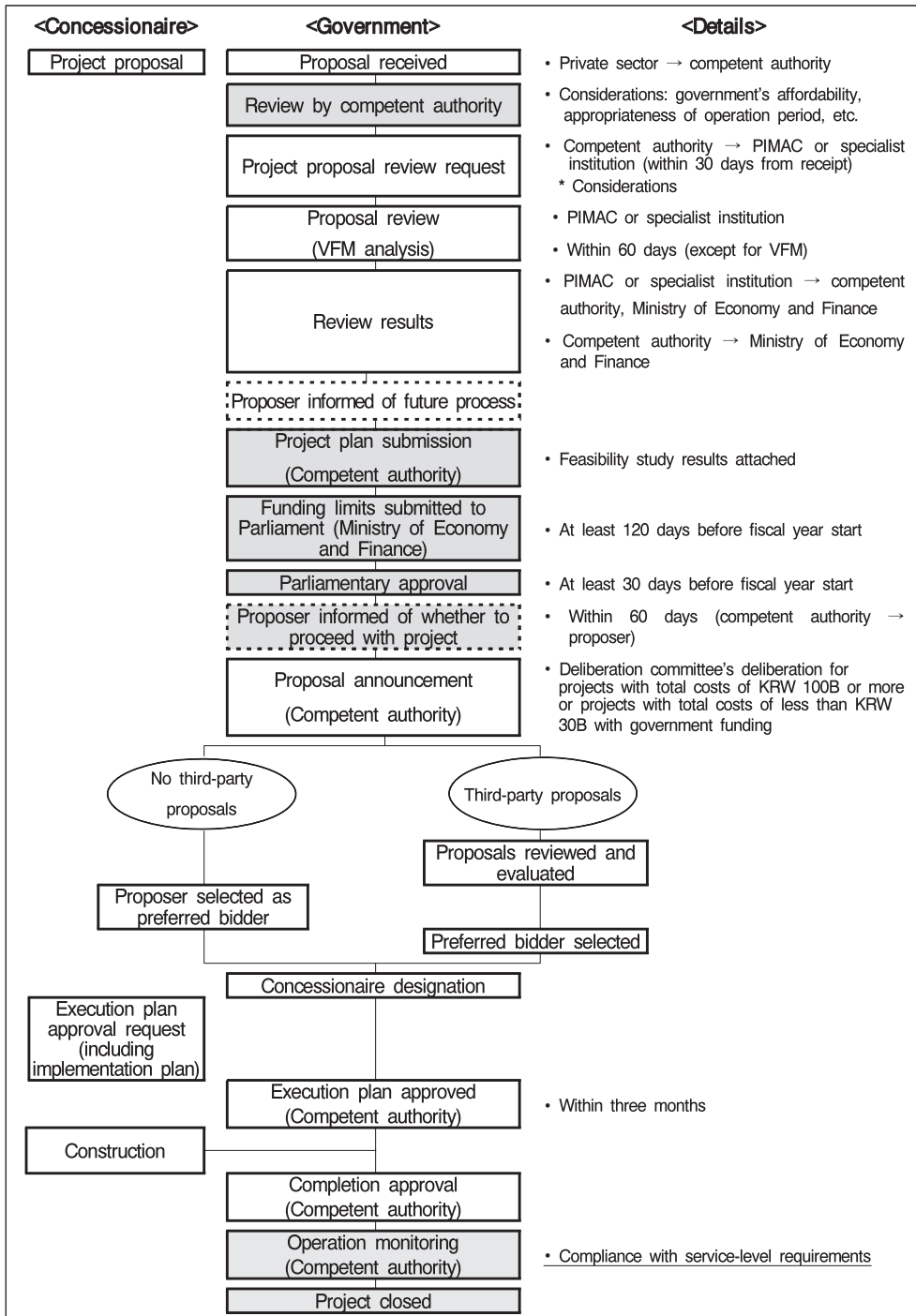
Source: Ministry of Economy and Finance, 2020 PPP Project Basic Plan, 2020.

[Figure IV-8] Government-solicited BTL project implementation process



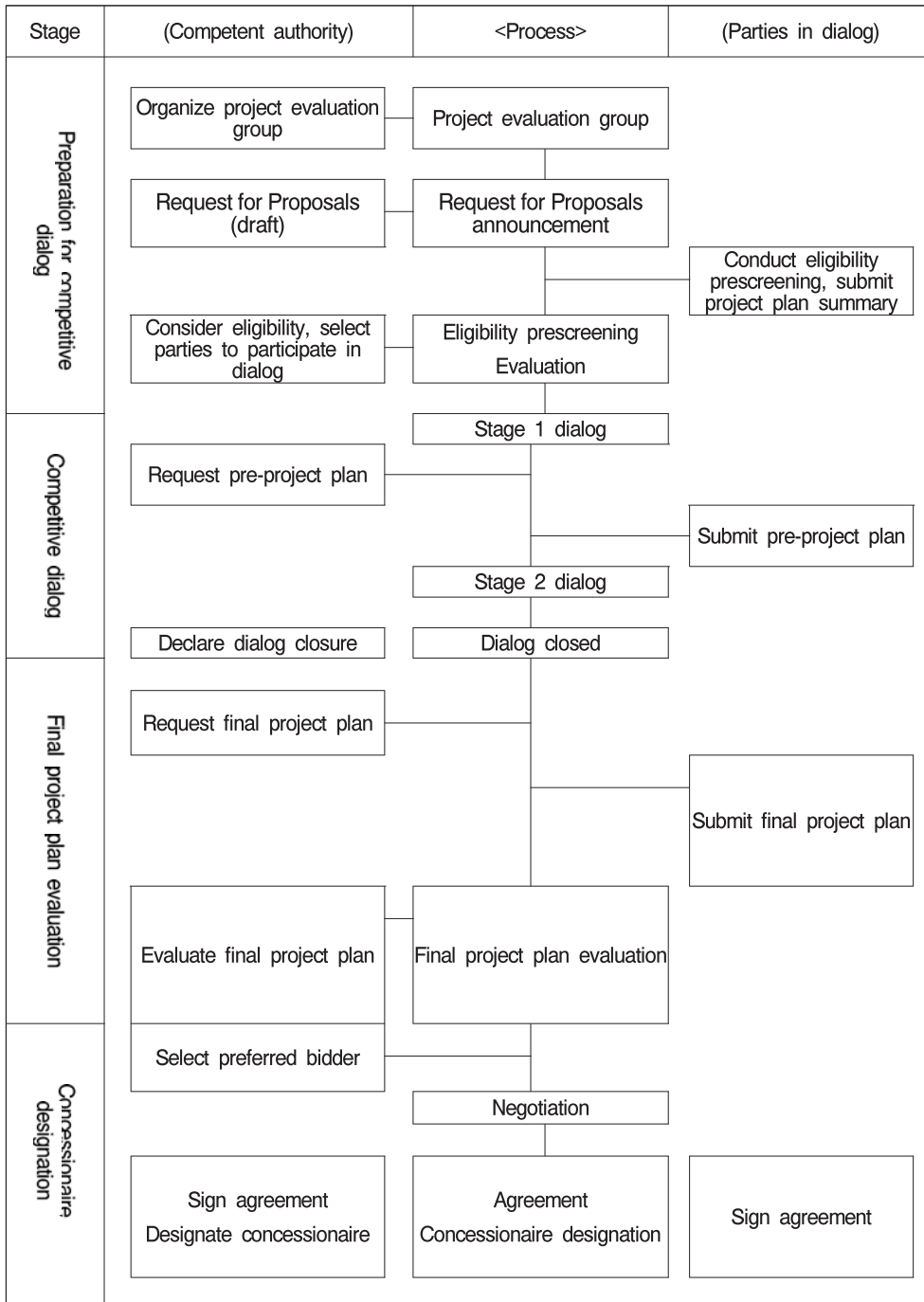
Source: Ministry of Economy and Finance, 2020 PPP Project Basic Plan, 2020.

[Figure IV-9] Unsolicited BTL project implementation process



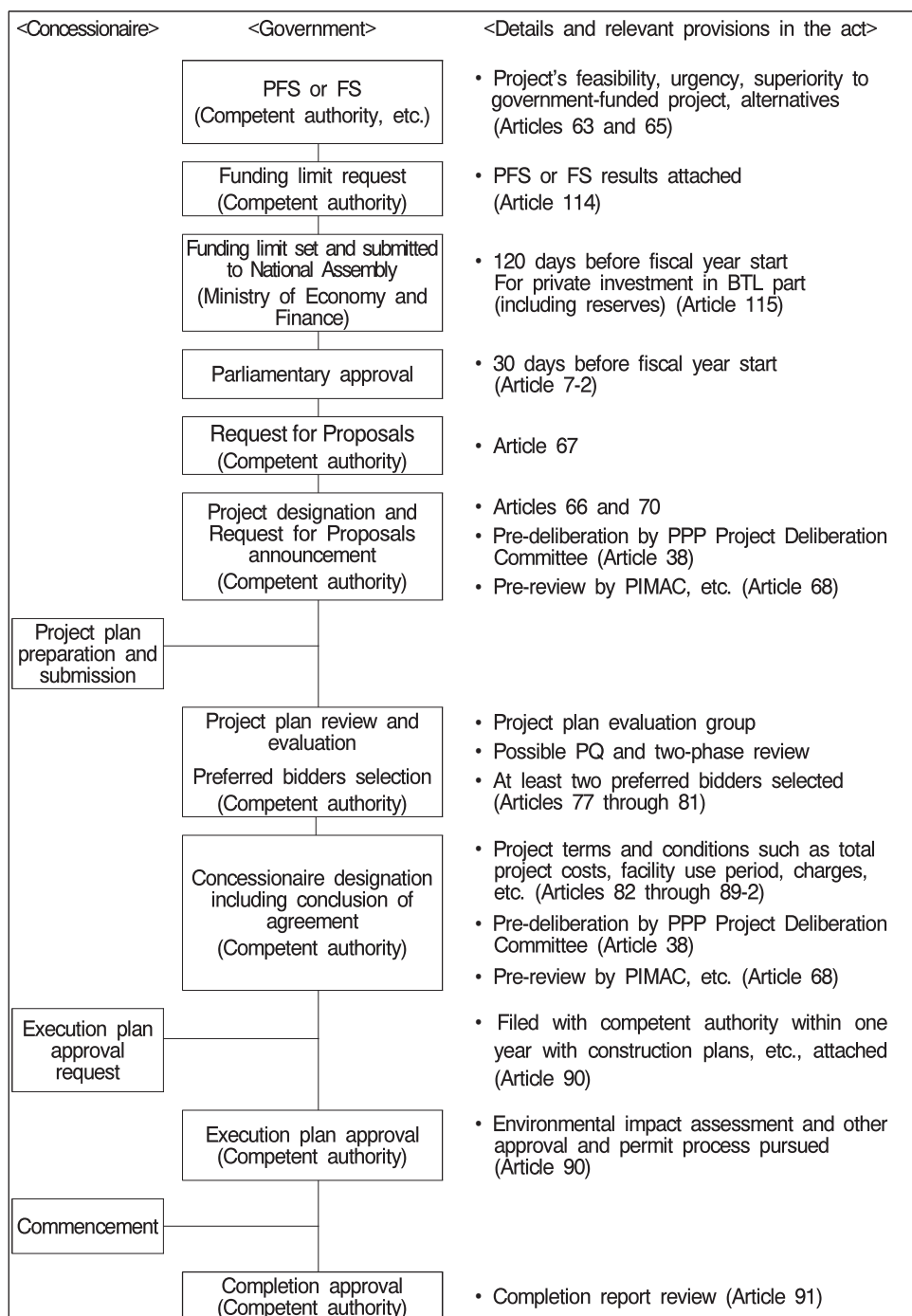
Source: Ministry of Economy and Finance, 2020 PPP Project Basic Plan, 2020.

[Figure IV-10] Competitive dialog (BTO, government-solicited project) process



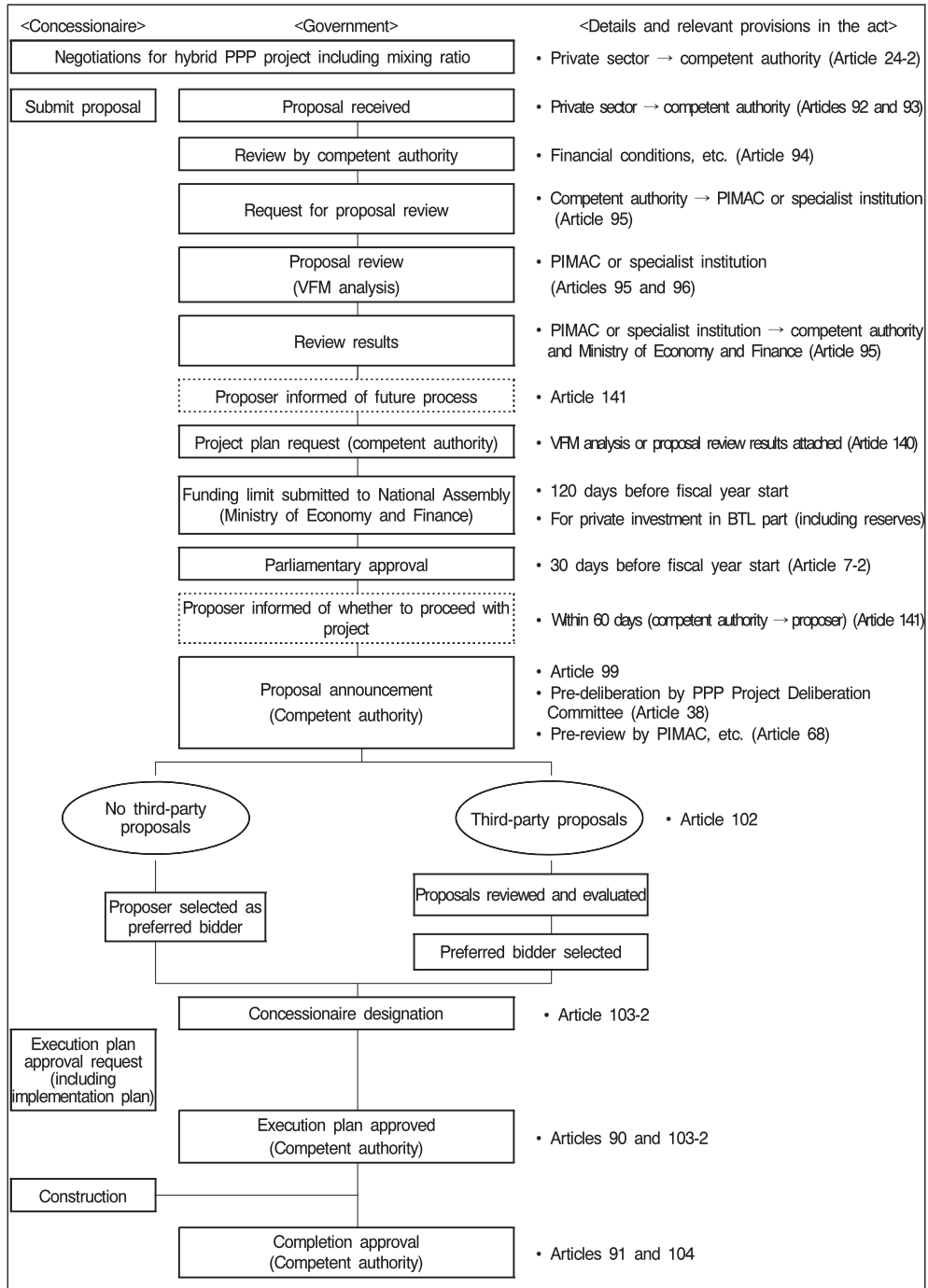
Source: Ministry of Economy and Finance, 2020 PPP Project Basic Plan, 2020.

[Figure IV-11] Hybrid PPP project process (government-solicited project)



Source: Ministry of Economy and Finance, 2020 PPP Project Basic Plan, 2020.

[Figure IV-12] Hybrid PPP project process (unsolicited project)



Source: Ministry of Economy and Finance, 2020 PPP Project Basic Plan, 2020.

Section 2. PPP Project Details

1. PPP Project Eligibility Review

The revamping of the provisions on the definitions of social infrastructure facilities in the PPP Act allowed for many types of solicited or unsolicited projects [Article 2(1) of the PPP Act].

Before preparing a proposal, a private player files an application for PPP project eligibility review with the competent authority. The competent authority asks PIMAC for preliminary eligibility review, and PIMAC submits its opinions to the competent authority and the Ministry of Economy and Finance, followed by deliberation by the PPP Project Deliberation Committee.

To facilitate deliberation by the PPP Project Deliberation Committee, PIMAC presents its views, including consistency with relevant laws and fitness for public interest, based on the eligibility review request received from the competent authority.

2. VFM Analysis (Proposal Review) and Feasibility Study

A. VFM analysis (proposal review)

When a private player submits a PPP project proposal, the competent authority is required to ask the head of PIMAC or a specialist institution for the review of the proposal. PIMAC conducts a VFM analysis for a project with total costs of KRW 200 billion or more, or a proposal review otherwise.

VFM analysis, or proposal review, consists of three stages. First, feasibility analysis is intended to determine if the project is feasible. Second, if the project is considered feasible, PPP project eligibility analysis involves VFM analysis of the public sector comparator PSC and the private finance initiative PFI to see if a PPP project would be a better fit than a government-funded project. Third, PPP alternatives building involves financial analysis based on the findings from the second stage, calculation of

reasonable project costs, charges, and government financial support, and identifying PPP alternatives.

B. Feasibility study

The Basic Plan provides that the competent authority should conduct feasibility studies based on the guidelines for the feasibility study of BTL PPP projects developed by PIMAC. This includes economic and policy feasibility analysis with particular focuses on the expected benefits and urgency of the project and VFM analysis to see if the PPP project would ease government burden and improve service quality compared with a government-funded project. The competent authority is required to ask PIMAC to consider the results of the feasibility study, and PIMAC submits its opinions to the competent authority and the Ministry of Economy and Finance.¹⁰⁾

3. Request for Proposals and Request for Alternate Proposals Review

A. Request for Proposals review (government-solicited projects)

Request for Proposals review corresponds to third-party alternate proposal review in unsolicited BTO projects. As all BTL projects are government solicited, Request for Proposals is essential. The Request for Proposals is developed after the feasibility study to ensure consistency with the results of the feasibility study. The competent authority is required to ask PIMAC to review the draft Request for Proposals, and PIMAC reviews the draft plan to determine its consistency with PPP-related laws, the Basic Plan, and relevant regulations.¹¹⁾

B. Request for Alternate Proposals review and preparation (unsolicited projects)

10) For projects with total costs of KRW 100 billion or more, multiuse facility projects, state-funded local government projects, and BTL projects pursued by local governments that are not subject to PFS and feasibility studies, the head of the competent authority, in consultation with the Minister of Economy and Finance, may request review by a specialist institution in lieu of review by PIMAC, KDI.

11) For projects that do not undergo deliberation by the deliberation committee under Article 38, the head of the competent authority, in consultation with the Minister of Economy and Finance, may request review by a specialist institution.

Pursuant to Article 7(10) of the Enforcement Decree of the PPP Act, if the competent authority has decided to proceed with a PPP project, it should invite third-party proposals for the project by publishing the overview of the proposal in the official gazette, at least three daily newspapers, and its website. Upon request of the competent authority, PIMAC reviews the third-party proposals received.

4. Project Plan (Proposal) Evaluation

Following the Request for Proposals and Request for Alternate Proposals process, the original proposer's proposal and third-party proposals are evaluated to select the preferred bidder, with which an concession agreement will be concluded. The competent authority is required to review and evaluate the proposals as per relevant provisions in a Presidential Decree and designate the preferred bidder.

PIMAC evaluates PPP project proposals for the competent authorities. To ensure transparency, fairness, and objectivity, it employs sophisticated and detailed techniques to evaluate proposals.

5. Agreement Negotiations and Draft Agreement Review

A. Negotiations to conclude an agreement

When the preferred bidder is selected pursuant to the provisions in the PPP Act, the competent authority negotiates the terms and conditions with the preferred bidder and concludes an agreement. Negotiations include conditions for project implementation and total project costs. PIMAC assists the competent authority in this process and negotiates on behalf of the competent authority to ensure fairness and objectivity in negotiations.

PIMAC organizes a negotiation group consisting of internal and external experts. The terms and conditions resulting from the negotiations are reviewed by the Negotiation Review Committee. PIMAC also puts forth efforts to ensure expertise and objectivity in negotiations and facilitate negotiations.

B. Draft agreement review

The Basic Plan provides that the competent authority is required to pre-consult PIMAC if it intends to conclude an agreement for a project with total costs of KRW 200 billion or more or a project subject to deliberation by the PPP Project Deliberation Committee. This is to ensure, by having important PPP projects undergo review by PIMAC, that the projects are in the interest of the public.

The Basic Plan also provides that for all BTL projects PIMAC should review the agreements. The competent authority is required to have the concession agreement be reviewed by PIMAC before concluding it.¹²⁾ PIMAC reviews the agreement to determine its consistency with PPP-related laws, the Basic Plan, and relevant regulations.

6. Refinancing Pre-review

As an increasing number of PPP projects entered the operation stages and resulting increases in refinancing were expected, the government amended the Basic Plan in 2004 to clarify the criteria and process of refinancing. The 2004 Basic Plan defined what refinancing was and presented common principles, as well as a basic framework to calculate profits in refinancing. After that, given changes in macroeconomic environments and the emergence of issues surrounding the minimum revenue guarantee (MRG), the 2007 Basic Plan extended the scope of refinancing to changes in investors and provided that state-managed projects that underwent deliberation by the PPP Project Deliberation Committee should be pre-reviewed by PIMAC for refinancing.

PIMAC has detailed guidelines for refinancing, and upon request of competent authorities it offers refinancing pre-review services including shared benefits measurements. Also, upon request of competent authorities pursuing PPP projects, it also negotiates with concessionaires, advises competent authorities, and reviews refinancing cases including changes in investors.

12) For projects that do not undergo deliberation by the deliberation committee under Article 38, the head of the competent authority, in consultation with the Minister of Economy and Finance, may request review by a specialist institution.

7. Project Implementation Condition Adjustment Review

In 2014, Article 33-2 of the Basic Plan was amended to extend the scope of project restructuring, which had been applicable to MRG projects, to projects that were poorly managed or in which excessive government funds were put in.¹³⁾ This is intended to ease the financial burden of the competent authority by adjusting project implementation conditions. Projects to which this provision may be applied include projects where MRG provisions would incur excessive burden on government finance and projects that might incur massive government payables if terminated.

PIMAC supports competent authorities intending to adjust project implementation conditions.¹⁴⁾ If such projects underwent deliberation by the PPP Project Deliberation Committee, PIMAC also conducts pre-review upon the request of competent authorities.

8. PPP Project Support

A. Supporting the PPP Project Deliberation Committee

The PPP Project Deliberation Committee is responsible for deliberation on projects subject to deliberation by the PPP Project Deliberation Committee pursuant to the PPP Act and the Basic Plan. The subjects of the deliberation include projects with total costs of KRW 200 billion (KRW 100 billion if a BTL project), Request for Proposals that receive government funding (KRW 30 billion or more), Request for Alternate Proposals, concession agreements, and amendments to concession agreements that are disadvantageous to the government. For these projects, PIMAC reviews the competent authority's Request for Proposals, Request for Alternate Proposals, and concession agreements and provides the PPP Project Deliberation Committee with expert opinions to assist with the committee's deliberation.

13) Article 33-2 of the 2014 Basic Plan was renumbered as Article 33-3 and remains to date.

14) Article 33-3(3) of the Basic Plan provides that the head of PIMAC or a specialist institution may be consulted for project implementation condition adjustments.

B. Dispute settlement review

In March 2014, the Ministry of Economy and Finance established the operating rules of the PPP Project Dispute Settlement Committee that is responsible for arbitration and settlement of disputes arising from PPP projects. In principle, the committee reviews dispute cases and informs the parties of recommendations for settlement within 90 days from the receipt of the request. PIMAC's roles in this regard include providing advice on legal and technical issues relating to disputes brought to the PPP Project Dispute Settlement Committee to facilitate the committee's settlement and arbitration, thereby streamlining the settlement of disputes relating to PPP projects and ultimately promoting PPP projects and contributing to efficiency.

C. Other review and Q&A services

In addition to the abovementioned services, PIMAC, upon request of local governments and parties involved in PPP projects, reviews various issues relating to PPP projects. It also answers questions relating to PPP projects received from competent authorities, private players, and the public through its website.

D. Help desk support

PIMAC runs a help desk accessible via telephone or in person for central government agencies and local governments to ask questions about decision-making on PPP projects and issues arising from agreement management, among others. With the help desk, PIMAC listens to the voices of competent authorities and private parties involved in PPP projects and provides them with proper advice. This also allows PIMAC to identify areas that need institutional improvements based on feedback from the field.

9. Management Implementation Plan Review

After 20 years since the introduction of PPP projects, some of the initial projects saw their PPP management and operation arrangements becoming due (end of

operation), and this called for further planning to continue operating the facilities after the expiry of the management and operation period under the PPP arrangements, for example, whether additional investment would be required, and who would take responsibility for facility operation and management. Accordingly, the 2015 Basic Plan (Ministry of Strategy and Finance Notification No. 2015-82) established new provisions on the management of projects on expiry of management and operation periods and the establishment of management implementation plans in Article 54-2. PIMAC, upon request of competent authorities, pre-reviews management implementation plans for projects that underwent deliberation by the PPP Project Deliberation Committee.

Chapter V

Track Record of Public–Private Partnerships Projects

Section 1. PPP Project Track Records

From 1992 to the end of December 2021, 786 PPP projects were implemented with total investment of KRW 122 trillion.¹⁵⁾ In 2021, 20 PPP projects were implemented with total investment of KRW 1342.8 billion. Of the 20, five were BTO-type projects, and the other fifteen were BTL-type projects. Of the KRW 1342.8 billion put in the PPP projects in 2021, KRW 522.9 billion was invested in BTO projects (38.9%) and KRW 819.9 billion in BTL projects (61.1%).

1. PPP Projects by Type

Although Article 4 of the PPP Act provides many different PPP project arrangements including BTO, BOT, BOO, and BTL, most of the projects pursued so far were BTO and BTL projects. Of the 786 PPP projects implemented between 1992 and 2021, 269 projects were BTO-type (34.2%) and 517 were BTL-type (65.8%) projects. Of the KRW 122 trillion put in the PPP projects so far, KRW 89.5 trillion was invested in BTO-type projects (73.0%), and KRW 32.9 trillion (27.0%) in BTL-type projects.

Of the 269 BTO-type projects, the majority, 246 projects, were BTO projects with

15) Total investment = ① Construction subsidies (current) + borrowed capital (current) + own capital (current).

② Total project costs + price change costs (total costs incurred until the completion of the facility plus consumer price rises) + construction interest (paid to lenders under construction capital loan arrangements).

total investment of KRW 82.7 trillion. The average investment in BTO projects was KRW 336.5 billion, 5.3 times higher than that in BTL projects, KRW 63.8 billion.

<Table V-1> PPP projects by type

(Unit: projects, KRW 100 million)

Category	No. of projects	Total investment		Average investment		
		Proportion	Proportion			
BTO	BTO	246	91.4%	827,890	92.4%	3,365
	BOO	7	2.6%	10,944	1.2%	1,563
	BOT	4	1.5%	6,579	0.7%	1,645
	BTO-a	11	4.1%	9,396	1.0%	854
	BTO-rs	1	0.4%	41,047	4.6%	41,047
	Subtotal	269	100.0%	895,856	100.0%	3,330
BTL	BTL	517	100.0%	329,891	100.0%	638
Total		786		1,225,747	100.0%	1,559

By order type, of the 269 BTO-type projects 111 were government-solicited projects (41.3%), and 158 were unsolicited projects (58.7%).

<Table V-2> PPP projects by arrangement and order type

(Unit: projects, KRW 100 million)

Category	No. of projects	Total investment		Average investment		
		Proportion	Proportion			
BTO	Government solicited	111	41.3%	364,613	40.7%	3,285
	Unsolicited	158	58.7%	531,243	59.3%	3,362
	Subtotal	269	100.0%	895,856	100.0%	3,330
BTL	Government solicited	517		329,891		638
Total		786		1,225,747		1,559

2. PPP Projects by Facility Type

Of the 786 PPP projects implemented so far, education projects made up the largest portion, 254 projects, followed by environmental projects (215), defense (93), road

(66), and culture and tourism (41). Investment-wise, KRW 47.4 trillion of the KRW 122 trillion was invested in the road projects, followed by railways (KRW 28.5 trillion) and environmental (KRW 16.1 trillion) projects. The average investment was the highest in the railway projects, KRW 1,583.9 billion, followed by road projects, KRW 719.2 billion.

<Table V-3> PPP projects by facility type

(Unit: projects, KRW 100 million)

Category	No. of projects	Proportion	Total investment		Average investment
				Proportion	
Education	254	32.3%	108,669	8.9%	428
Environment	215	27.4%	161,758	13.2%	752
Defense	93	11.8%	68,228	5.6%	734
Road	66	8.4%	474,650	38.7%	7,192
Road (parking lot)	31	3.9%	3,582	0.3%	116
Road (service area)	3	0.4%	654	0.1%	218
Culture and tourism	41	5.2%	19,514	1.6%	476
Port	17	2.2%	72,159	5.9%	4,245
Welfare	20	2.5%	8,015	0.7%	401
Railway	18	2.3%	285,101	23.3%	15,839
Airport	14	1.8%	8,256	0.7%	590
Logistics	6	0.8%	12,114	1.0%	2,019
ICT	7	0.9%	2,810	0.2%	401
Housing	1	0.1%	237	0.0%	237
Total	786	100.0%	1,225,747	100.0%	1,559

Note: Road, parking lot, and service area projects were counted separately.

Of the 247 BTO projects, 97 were environmental projects, followed by road (66 projects), road (parking lot) (31), port (17), airport (14), and railway (12) projects. Of the 517 BTL projects, 252 were education projects, followed by environmental (107 projects), defense (93), and culture and tourism (33) projects. All eleven BTO-a projects were environmental projects, and the only BTO-rs project was a railway project. In terms of facility-type-specific total investment, road projects accounted for 57.3% of all BTO projects (KRW 47.4 trillion), and education projects accounted for 32.5% of all BTL projects (KRW 10.7 trillion).

<Table V-4> PPP projects by arrangement and facility type

(Unit: projects, KRW 100 million)

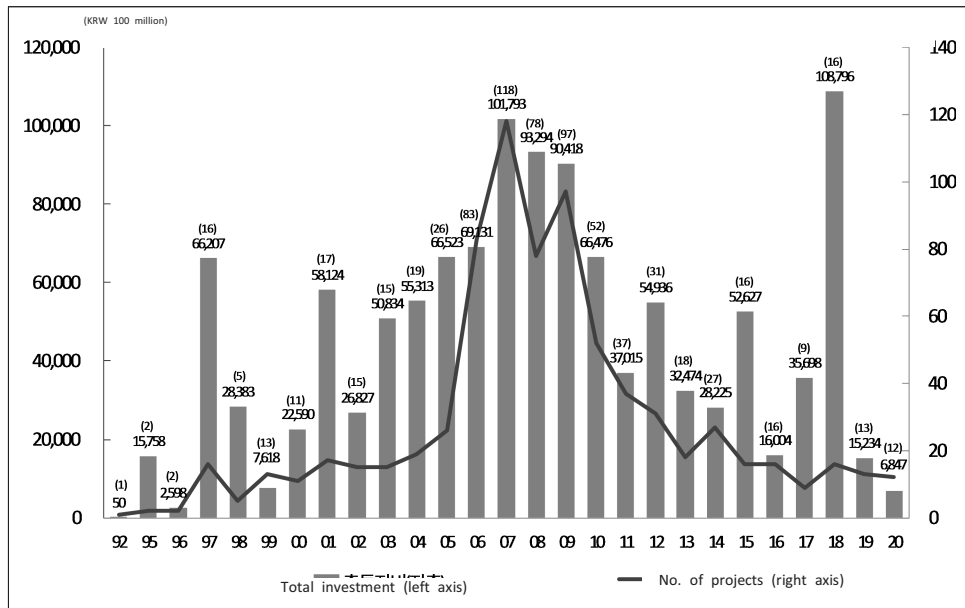
Category	No. of projects	Total investment		Average investment		
		Proportion	Proportion			
BTO	Environment	97	39.4%	74,950	9.1%	773
	Road	66	26.8%	474,650	57.3%	7,192
	Road (parking lot)	31	12.6%	3,582	0.4%	116
	Road (service area)	3	1.2%	654	0.1%	218
	Port	17	6.9%	72,159	8.7%	4,245
	Airport	14	5.7%	8,256	1.0%	590
	Railway	12	4.9%	189,358	22.9%	15,780
	Education	2	0.8%	1,299	0.2%	650
	Culture and tourism	3	1.2%	2,538	0.3%	846
	ICT	1	0.4%	444	0.1%	444
	Subtotal	246	100.0%	827,890	100.0%	3,365
BTO-a	Environment	11	100.0%	9,396	100.0%	854
BTO-rs	Railway	1	100.0%	41,047	100.0%	41,047
BOT	Culture and tourism	3	75.0%	3,438	52.3%	1,146
	Logistics	1	25.0%	3,141	47.7%	3,141
	Subtotal	4	100.0%	6,579	100.0%	1,645
BOO	Logistics	5	71.43%	8,973	82.0%	1,795
	Culture and tourism	2	28.57%	1,971	18.0%	986
	Subtotal	7	100.0%	10,944	166.35%	1,563
BTL	Education	252	48.7%	107,370	32.5%	426
	Environment	107	20.7%	77,412	23.5%	723
	Defense	93	18.0%	68,228	20.7%	734
	Culture and tourism	33	6.4%	11,567	3.5%	351
	Welfare	20	3.9%	8,015	2.4%	401
	Railway	5	1.0%	54,696	16.6%	10,939
	ICT	6	1.2%	2,366	0.7%	394
	Housing	1	0.2%	237	0.1%	237
	Subtotal	517	100.0%	329,891	100.0%	638
Total		786		1,225,747		1,559

Note: % proportion by arrangement.

3. PPP Project by Year

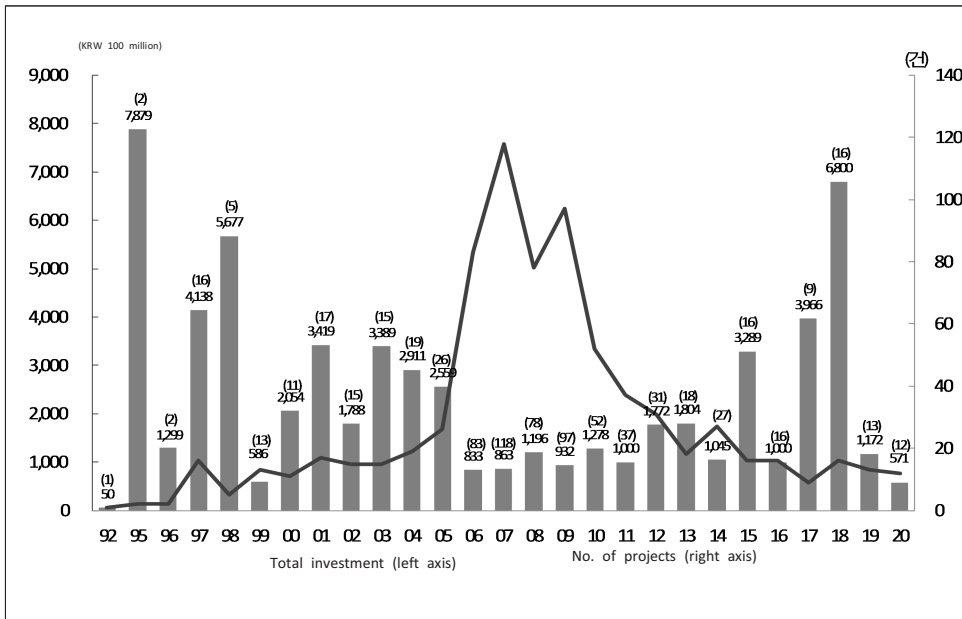
Since the legal grounds for PPP projects were established in 1994, the number of projects and total investment have continued to rise. In particular, the introduction of unsolicited project arrangements and the MRG scheme in 1999 triggered surges in investment in PPP projects. The introduction of BTL arrangements in 2005 led to sharp rises in the number of projects, but the average investment decreased. Both the number of projects and total investment reached their peak in 2007 before they started declining. In 2015, the number of projects did not increase, but the total investment perked up as agreements on four major projects for railway and road construction were concluded. In 2017, only nine agreements were concluded, but total investment surged primarily associated with the concession agreement for the construction of the Pyeongtaek-Buyeo-Iksan (Western Inland) Expressway. In the following year, 16 concession agreements were concluded, and total investment also sharply increased with the conclusion of concession agreements for the Sinansan Line double-track railways and the Great Train Express Line A.

[Figure V-1] Number of projects and total investment by year



Note: Figures in parentheses are numbers of projects.

[Figure V-2] Number of projects and average investment by year



Note: Figures in parentheses are numbers of projects.

<Table V-5> shows the types of projects pursued by year. Total investment in BTO-type PPP projects (BTO, BOT, BOO, etc.) was KRW 89.5 trillion, and KRW 32.9 trillion was put in BTL projects. Without private investment, the government would have had to invest a significant portion of such amounts, and if the government had not been able to implement projects due to financial limits, that would have meant decreases in benefits for the public.

<Table V-5> PPP projects by type and year

(Unit: projects, KRW 100 million)

Year	No. of projects	Total investment	Average investment	BTO		BTL	
				No. of projects	Total investment	No. of projects	Total investment
1992	1	50	50	1	50	0	0
1995	2	15,758	7,879	2	15,758	0	0
1996	2	2,598	1,299	2	2,598	0	0
1997	16	66,207	4,138	16	66,207	0	0
1998	5	28,383	5,677	5	28,383	0	0
1999	13	7,618	586	13	7,618	0	0
2000	11	22,590	2,054	11	22,590	0	0
2001	17	58,124	3,419	17	58,124	0	0
2002	15	26,827	1,788	15	26,827	0	0
2003	15	50,834	3,389	15	50,834	0	0
2004	19	55,313	2,911	19	55,313	0	0
2005	26	66,523	2,559	18	62,761	8	3,762
2006	83	69,131	833	12	39,434	71	29,697
2007	118	101,793	863	17	42,484	101	59,309
2008	78	93,294	1,196	15	64,199	63	29,095
2009	97	90,418	932	10	35,414	87	55,004
2010	52	66,476	1,278	4	20,333	48	46,143
2011	37	37,015	1,000	13	23,352	24	13,663
2012	31	54,936	1,772	8	38,816	23	16,120
2013	18	32,474	1,804	9	14,967	9	17,507
2014	27	28,225	1,045	9	15,852	18	12,373
2015	16	52,627	3,289	7	32,623	9	20,004
2016	16	16,004	1,000	5	10,690	11	5,314
2017	9	35,698	3,966	4	33,431	5	2,267
2018	16	108,796	6,800	7	103,772	9	5,024
2019	13	15,234	1,172	5	11,844	8	3,390
2020	13	9,373	721	5	6,353	8	3,020
2021	20	13,428	671	5	5,229	15	8,199
Total	786	1,225,747	64,092	269	895,856	517	329,891

Note: The BTO columns show data for BTO, BOT, BOO, BTO-a, and BTO-rs projects.

Projects pursued by local governments sharply increased since the introduction of BTL arrangements in 2005. The number of projects pursued by local governments, 346 projects, was larger than the number of projects managed by the state (238) and local government projects managed by the state (202) but was less in the amount of total investment.

<Table V-6> PPP projects by year and agency

(Unit: projects, KRW 100 million)

Year	No. of projects	Total investment	State managed		State-managed local government		Local government managed	
			No. of projects	Total investment	No. of projects	Total investment	No. of projects	Total investment
1992	1	50	0	0	0	0	1	50
1995	2	15,758	1	15,055	0	0	1	703
1996	2	2,598	0	0	0	0	2	2,598
1997	16	66,207	12	59,465	1	3,025	3	3,717
1998	5	28,383	1	26,310	1	1,881	3	192
1999	13	7,618	4	4,334	0	0	9	3,284
2000	11	22,590	2	20,264	0	0	9	2,326
2001	17	58,124	4	48,254	1	986	12	8,884
2002	15	26,827	0	0	3	22,363	12	4,464
2003	15	50,834	4	19,930	2	26,343	9	4,561
2004	19	55,313	4	26,958	4	23,390	11	4,965
2005	26	66,523	9	42,188	6	19,209	11	5,126
2006	83	69,131	18	33,477	20	21,567	45	14,087
2007	118	101,793	14	43,799	37	31,686	67	26,308
2008	78	93,294	10	53,861	27	20,445	41	18,988
2009	97	90,418	35	39,797	31	35,902	31	14,719
2010	52	66,476	22	47,613	14	10,755	16	8,108
2011	37	37,015	11	20,082	7	6,537	19	10,396
2012	31	54,936	10	39,923	10	8,608	11	6,405
2013	18	32,474	6	23,392	3	3,127	9	5,955
2014	27	28,225	12	9,184	7	13,994	8	5,047
2015	16	52,627	6	27,382	7	22,960	3	2,285
2016	16	16,004	8	9,221	6	5,888	2	895
2017	9	35,698	8	34,448	0	0	1	1,250
2018	16	108,796	11	83,551	3	16,472	2	8,773
2019	13	15,234	7	3,241	4	4,278	2	7,715
2020	13	9,373	7	2,448	4	2,075	2	4,850
2021	20	13,428	12	7,719	4	3,177	4	2,532
Total	786	1,225,747	238	741,896	202	304,668	346	179,183

In terms of ordering formalities, government-solicited BTO-type projects showed sudden decreases in 2007 and thereafter, which was in contrast to unsolicited projects. This implies that unsolicited projects are preferred over government-solicited projects.

<Table V-7> PPP projects by year and order type

(Unit: projects, KRW 100 million)

Year	No. of projects	Total investment	Government solicited				Unsolicited (BTO)	
			BTO		BTL		No. of projects	Total investment
			No. of projects	Total investment	No. of projects	Total investment		
1992	1	50	1	50	0	0	0	0
1995	2	15,758	2	15,758	0	0	0	0
1996	2	2,598	2	2,598	0	0	0	0
1997	16	66,207	15	65,108	0	0	1	1,099
1998	5	28,383	5	28,383	0	0	0	0
1999	13	7,618	12	7,268	0	0	1	350
2000	11	22,590	10	22,549	0	0	1	41
2001	17	58,124	10	51,143	0	0	7	6,981
2002	15	26,827	11	14,159	0	0	4	12,668
2003	15	50,834	4	1,351	0	0	11	49,483
2004	19	55,313	10	25,881	0	0	9	29,432
2005	26	66,523	5	17,716	8	3,762	13	45,045
2006	83	69,131	9	35,566	71	29,697	3	3,868
2007	118	101,793	5	910	101	59,309	12	41,574
2008	78	93,294	1	159	63	29,095	14	64,040
2009	97	90,418	0	0	87	55,004	10	35,414
2010	52	66,476	1	721	48	46,143	3	19,612
2011	37	37,015	0	0	24	13,663	13	23,352
2012	31	54,936	0	0	23	16,120	8	38,816
2013	18	32,474	1	1,100	9	17,507	8	13,867
2014	27	28,225	1	93	18	12,373	8	15,759
2015	16	52,627	1	564	9	20,004	6	32,059
2016	16	16,004	1	141	11	5,314	4	10,549
2017	9	35,698	2	984	5	2,267	2	32,447
2018	16	108,796	2	72,411	9	5,024	5	31,361
2019	13	15,234	0	0	8	3,390	5	11,844
2020	13	9,373	0	0	8	3,020	5	6,353
2021	20	13,428	0	0	13	6,756	5	5,229
Total	786	1,225,747	111	364,613	515	328,448	158	531,243

4. PPP Projects by Agency

There were 2.7 times more state-managed local government PPP projects and local-government-managed PPP projects, 548, than state-managed PPP projects, 202. However, total investment in the state-managed PPP projects (KRW 74.2 trillion) was 1.5 times more than that in state-managed local government PPP projects and local-government-managed PPP projects (KRW 48.4 trillion). On average, KRW 311.7 billion was invested in a state-managed project, and KRW 150.8 billion and KRW 51.8 billion in a state-managed local government project and a local-government-managed project, respectively.

<Table V-8> PPP projects by agency

(Unit: projects, KRW 100 million)

Agency	No. of projects	Proportion	Total investment		Average investment
				Proportion	
State managed	238	30.3%	741,896	60.5%	3,117
State-managed local government	202	25.7%	304,668	24.9%	1,508
Local government managed	346	44.0%	179,183	14.6%	518
Total	786	100.0%	1,225,747	100.0%	1,559

Regardless of who managed the project, the majority of the projects were BTL projects, but BTO projects accounted for the largest portion of the total investment. Of all BTL projects, 164 were state-managed projects (68.9% of state-managed projects), 146 were state-managed local government projects (72.3% of state-managed local government projects), and 207 were local-government-managed projects (59.8% of local-government-managed projects). In terms of total investment, KRW 52.6 trillion was invested in state-managed BTO projects (70.9% of total investment in all state-managed projects), KRW 21.1 trillion was invested in state-managed local government BTO projects (69.5% of total investment in all state-managed local government projects), and KRW 8.9 trillion was invested in local-government-managed BTO projects (50.2% of total investment in all local-government-managed projects).

For BTL projects, KRW 16 trillion was invested in state-managed projects (21.6% of total investment in all state-managed projects), KRW 8.8 trillion in state-managed local government projects (29% of total investment in all state-managed local government projects), and KRW 8.1 trillion in local-government-managed projects (45.3% of total investment in all local government-managed projects).

<Table V-9> PPP projects by agency and project type

(Unit: projects, KRW 100 million)

Agency	Project type	No. of projects	Total investment		Average investment	
			Proportion	Proportion		
State managed	BTO	65	27.3%	526,114	70.9%	8,094
	BTO-a	3	1.3%	3,396	0.5%	1,132
	BTO-rs	1	0.4%	41,047	5.5%	41,047
	BOO	4	1.7%	7,830	1.1%	1,958
	BOT	1	0.4%	3,141	0.4%	3,141
	BTL	164	68.9%	160,368	21.6%	978
	Subtotal	238	100.0%	741,896	100.0%	3,117
State-managed local government	BTO	50	24.8%	211,812	69.5%	4,236
	BTO-a	6	3.0%	4,506	1.5%	751
	BTL	146	72.3%	88,350	29.0%	605
	Subtotal	202	100.0%	304,668	100.0%	1,508
Local government managed	BTO	131	37.9%	89,964	50.2%	687
	BOO	3	0.9%	3,114	1.7%	1,038
	BOT	3	0.9%	3,438	1.9%	1,146
	BTL	207	59.8%	81,173	45.3%	392
	Subtotal	346	100.0%	179,183	100.0%	518
Total		786		1,225,747		1,559

In terms of facility types, of the 238 state-managed projects, 93 were defense projects, followed by education (55), road (24), and port (17) projects. The majority of state-managed local government (202) and local government-managed (346) projects were environment (133) and education (196) projects, respectively. In terms of total investment, road projects (KRW 32.1 trillion) accounted for the largest portion of total investment in the state-managed projects (KRW 74.1 trillion), environmental projects

(KRW 11.7 trillion) in the state-managed local government projects (KRW 30.4 trillion), and education projects (KRW 7.6 trillion) in local-government-managed projects (KRW 17.9 trillion).

<Table V-10> PPP projects by agency and facility type

(Unit: projects, KRW 100 million)

Category	No. of projects	Total investment		Average investment		
		Proportion	Proportion			
State managed	Defense	93	39.1%	68,228	9.2%	734
	Education	55	23.1%	30,548	4.1%	555
	Road	24	10.1%	321,367	43.3%	13,390
	Port	17	7.1%	72,159	9.7%	4,245
	Airport	14	5.9%	8,256	1.1%	590
	Railway	11	4.6%	216,010	29.1%	19,637
	Logistics	5	2.1%	10,971	1.5%	2,194
	Environment	7	2.9%	6,744	0.9%	963
	Welfare	8	3.4%	3,834	0.5%	479
	Culture and tourism	2	0.8%	1,656	0.2%	828
	ICT	2	0.8%	2,123	0.3%	1,062
Subtotal	238	100.0%	741,896	100.0%	44,677	
State-managed local government	Environment	133	65.8%	117,602	38.6%	884
	Culture and tourism	26	12.9%	7,154	2.3%	275
	Road	20	9.9%	105,124	34.5%	5,256
	Road (service area)	1	0.5%	141	0.0%	141
	Welfare	12	5.9%	4,181	1.4%	348
	Railway	7	3.5%	69,091	22.7%	9,870
	Education	3	1.5%	1,375	0.5%	458
	Subtotal	202	100.0%	304,668	100.0%	17,233
Local government managed	Education	196	56.6%	76,746	42.8%	392
	Environment	75	21.7%	37,412	20.9%	499
	Road	22	6.4%	48,159	26.9%	2,189
	Road (parking lot)	30	8.7%	3,441	1.9%	115
	Road (service area)	3	0.9%	654	0.4%	218
	Culture and tourism	13	3.8%	10,704	6.0%	823
	ICT	5	1.4%	687	0.4%	137
	Logistics	1	0.3%	1,143	0.6%	1,143
	Housing	1	0.3%	237	0.1%	237
	Subtotal	346	100.0%	179,183	100.0%	5,753
Total	786		1,225,747		1,559	

5. PPP Projects by Ordering Formality

Government-solicited PPP projects outnumbered unsolicited projects both in number and total investment, while the average investment was higher in unsolicited projects.

To date, 626 government-solicited projects were implemented with total investment of KRW 69.3 trillion and the average investment per project of KRW 112 billion. The average investment of 160 unsolicited projects was KRW 332.9 billion with total investment of KRW 53.2 trillion.

<Table V-11> PPP projects by ordering formality

(Unit: projects, KRW 100 million)

Category	No. of projects	Total investment		Average investment
		Proportion	Proportion	
Government solicited	626	100.0%	693,061	1,107
BTO	111	17.7%	364,613	3,285
BTL	515	82.3%	328,448	638
Unsolicited	160	100%	532,686	3,329
BTO	158	98.8%	531,243	3,362
BTL	2	1.3%	1,443	722
Total	786	100.0%	1,225,747	1,559

The largest number of government-solicited PPP projects were education projects, 253, followed by environmental (132) and defense (93) projects. The unsolicited projects were dominated by environmental (83) and road (48) projects that far outnumbered the third most common project type—railway (six projects). Railway projects required the largest amount of investment (KRW 21.1 trillion) among the government-solicited projects, followed by road (KRW 11.9 trillion) and education (KRW 10.8 trillion) projects. The investment in the unsolicited projects primarily went to road (KRW 35.5 trillion), environmental (KRW 7.6 trillion), and railway (KRW 7.4 trillion) projects.

<Table V-12> PPP projects by ordering formality and facility type

(Unit: projects, KRW 100 million)

Category	Government solicited						Unsolicited			
			BTO		BTL		BTO		BTL	
	No. of projects	Total investment	No. of projects	Total investment	No. of projects	Total investment	No. of projects	Total investment	No. of projects	Total investment
Education	253	108,399	2	1,299	251	107,100	0	0	1	270
Environment	132	85,469	26	9,230	106	76,239	82	75,116	1	1,173
Defense	93	68,228	0	0	93	68,228	0	0	0	0
Culture and tourism	34	11,834	1	267	33	11,567	7	7,680	0	0
Road	18	11,850	18	118,950	0	0	48	355,700	0	0
Road(parking lot)	28	2,805	28	2,805	0	0	3	777	0	0
Road(service station)	0	0	0	0	0	0	3	654	0	0
Welfare	20	8,015	0	0	20	8,015	0	0	0	0
Airport	13	7,755	13	7,755	0	0	1	501	0	0
Port	12	60,959	12	60,959	0	0	5	11,200	0	0
Railway	12	211,020	7	156,324	5	54,696	6	74,081	0	0
Logistics	4	7,024	4	7,024	0	0	2	5,090	0	0
ICT	6	2,366	0	0	6	2,366	1	444	0	0
Housing	1	237	0	0	1	237	0	0	0	0
Total	626	693,061	111	364,613	515	328,448	158	531,243	2	1,443

6. PPP Projects by Implementation Stage

The majority of the PPP projects are in operation (687 projects, 87.4%). They also account for the majority of the total investment, KRW 95.4 trillion. The average investment per project is the highest in projects under construction, KRW 699.2 billion.

<Table V-13> PPP projects by implementation stage

(Unit: projects, KRW 100 million)

Stage	No. of projects	Proportion	Total investment	Proportion	Average investment
In operation	687	87.4%	954,019	77.8%	1,389
Under construction	31	3.9%	216,760	17.7%	6,992
In preparation	28	3.6%	33,989	2.8%	1,214
Total	786	100.0%	1,225,747	100.0%	1,559

Of the 687 projects in operation, 232 are education projects, followed by environmental (186), defense (85), and road (54) projects. Of the 31 projects under construction, seven are environmental projects, followed by education (six) and railway (six) projects. Among the projects in operation, road projects attracted the largest amount of investment, KRW 38.2 trillion, followed by railway (KRW 16.0 trillion) and environmental (KRW 13.9 trillion) projects.

<Table V-14> PPP projects by implementation stage and facility type

(Unit: projects, KRW 100 million)

Category	Complete		In operation		Under construction		In preparation		Total	
	No. of projects	Investment	No. of projects	Investment	No. of projects	Investment	No. of projects	Investment	No. of projects	Investment
Education	11	3,279	232	101,513	6	2,013	5	1,864	254	108,669
Environment	13	7,805	186	139,102	7	5,074	9	9,777	215	161,758
Defense	0	0	85	63,633	4	2,053	4	2,542	93	68,228
Road	2	4,346	54	382,022	5	73,451	5	14,831	66	474,650
Road (parking lot)	5	188	25	2,673	0	0	1	721	31	3,582
Road (service area)	0	0	3	654	0	0	0	0	3	654
Culture and tourism	0	0	40	17,499	0	0	1	2,015	41	19,514
Port	0	0	16	65,714	1	6,445	0	0	17	72,159
Welfare	0	0	18	6,919	0	0	2	1,096	20	8,015
Railway	0	0	12	160,453	6	1224,648	0	0	18	285,101
Airport	6	2,847	8	5,409	0	0	0	0	14	8,256
Logistics	1	1,949	3	6,132	1	2,890	1	1,143	6	12,114
ICT	2	565	4	2,059	1	186	0	0	7	2,810
Housing	0	0	1	237	0	0	0	0	1	237
Total	40	20,979	687	954,019	31	216,760	28	33,989	786	1,225,747

Of all BTO-type PPP projects, 208 projects (77.3%) are in operation with total investment of KRW 66.7 trillion (74.5%). There are 16 projects under construction (5.9%) with total investment of KRW 18.2 trillion (20.3%), and their average investment per project is the largest, KRW 1,137.6 billion. Sixteen projects are in preparation for construction (5.9%) with total investment of KRW 2.7 trillion (3.0%).

<Table V-15> BTO-type PPP projects by implementation stage

(Unit: projects, KRW 100 million)

Stage	No. of projects		Total investment	Average investment	
		Proportion			
Complete	29	10.8%	18,683	2.1%	644
In operation	208	77.3%	667,836	74.5%	3,211
Under construction	16	5.9%	182,023	20.3%	11,376
In preparation	16	5.9%	27,314	3.0%	1,707
Total	269	100.0%	895,856	100.0%	3,330

Of all BTL PPP projects, 479 projects (92.6%) are in operation with total investment of KRW 28.6 trillion (86.8%). There are 15 projects under construction (2.9%) with total investment of KRW 3.5 trillion (10.5%), and their average investment per project is the largest, KRW 231.6 billion. Twelve projects are in preparation for construction (2.3%) with total investment of KRW 667.5 billion (2.0%).

<Table V-16> BTL PPP projects by implementation stage

(Unit: projects, KRW 100 million)

Stage	No. of projects		Total investment	Average investment	
		Proportion			
Complete	11	2.1%	2,296	0.7%	209
In operation	479	92.6%	286,183	86.8%	597
Under construction	15	2.9%	34,737	10.5%	2,316
In preparation	12	2.3%	6,675	2.0%	556
Total	517	100.0%	329,891	100.0%	638

Section 2. Track Records of PPP Project Support

1. Track Records from 1999 to 2021

The PPP project support services at PIMAC include reviews of appropriateness of eligible facilities, New Deal infrastructure deliberation, proposal reviews, feasibility analyses, feasibility analysis reviews, reassessment studies, (draft) Request for Proposals and (draft) Request for Alternate Proposals reviews, project plan evaluations,

concession agreement negotiations, (draft) agreement reviews, negotiations and preliminary reviews of refinancing at the operating stage, adjustment of project implementation conditions and advice. <Table V-17> shows the institution's PPP project support service track records from 1999 to 2021.

<Table V-17> PPP project support in 2021

(Unit: projects)

Type of service	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21
Eligibility review	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5
New Deal infrastructure deliberation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
VFM analysis (BTO)	-	-	-	-	-	-	4	1	12	10	25	5	3	5	1	2	-	1	4	12	7	8	8
VFM analysis (BTL)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Proposal review (BTO)	5	23	19	22	39	15	11	12	11	15	14	13	10	5	7	6	4	8	5	11	9	8	2
Proposal review (BTL)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
Feasibility study reviews (BTO)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	2	-	2	-	1	-	-
Feasibility study reviews (BTL)	4	8	10	-	4	4	-	-	-	-	68	17	14	20	15	12	11	6	8	12	16	18	23
R D F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	-	1	2	-	-	-
VFM reassessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	1	-	-	1
Request for Proposals and Request for Alternate Proposals review	7	7	9	7	12	11	48	57	62	42	42	35	18	14	12	11	10	8	4	8	10	13	6
Project plan review	1	2	8	7	-	7	16	8	17	5	1	7	4	2	-	-	1	1	1	-	-	1	-
Concession agreement negotiations	3	32	23	25	29	20	6	8	6	8	4	4	3	3	-	4	-	2	1	-	-	-	1
Advice, etc.							39	76	71	98	58	65	90	173	147	196	174	237	225	169	162	237	280
Concession agreement review	3	5	3	2	2	7	2	41	78	80	72	45	25	20	13	16	16	11	9	7	7	6	12
BTO	3	5	3	2	2	7	2	1	5	4	5	4	7	6	5	4	8	5	4	3	3	3	6
BTL	-	-	-	-	-	-	-	40	73	76	67	41	18	14	8	12	8	6	5	4	4	3	6
Refinancing negotiation and pre-review	-	-	-	-	-	-	-	-	4	12	14	9	16	4	11	6	9	16	13	11	4	3	9
Project condition adjustment	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	4	6	-	3	2	2	-
Short-term finance (MRG review, etc.)	-	-	-	-	-	-	-	-	-	-	-	-	-	16	17	48	31	29	32	39	30	32	16
Dispute settlement review	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1	2	2	-	-	-	-	5	1
Management implementation plan review	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1
Total	23	77	72	63	86	64	126	203	261	270	298	200	183	267	225	311	267	325	307	278	248	334	368

Note: Assessment, review, analysis, evaluation, and negotiation cases completed as of the end of each year.

2. 2021 Track Records

A. Facility eligibility review

Following the revamping of the provisions on the definition of social overhead capital in the PPP Act, PIMAC started conducting facility eligibility reviews in 2020. There are five projects reviewed in 2021, including Paju City's "Public Lighting LED Replacement PPP Project."

<Table V-18> Facility eligibility review in 2021

No.	Project	Competent authority
1	Paju Public Lighting LED Replacement PPP project	Paju City
2	SW Promotion Complex PPP project	Ministry of Science and ICT
3	Okgu Park Tourism and Leisure Facility PPP project	Siheung City
4	Imsil Accommodation and Amusement Park Facilities PPP project	Imsil County
5	Wongok International Food Culture Complex PPP project	Ansan City

B. New Deal infrastructure deliberation

In accordance with Article 24 of the Restriction of Special Taxation Act and Article 24 of the Enforcement Decree of the same Act, special provisions on taxation for infrastructure collective investment organizations (hereinafter referred to as the "New Deal Infrastructure Fund") shall be applied. PIMAC presents an advisory opinion on whether the New Deal infrastructure fund's investment is subject to the New Deal infrastructure. There are two projects reviewed in 2021, including "Saemangeum Green New Deal Solar Power."

<Table V-19> New Deal infrastructure deliberation in 2021

No.	Project	Competent authority
1	Paju Public Lighting LED Replacement PPP project	Paju City
2	SW Promotion Complex PPP project	Ministry of Science and ICT

C. VFM analysis (proposal review) and feasibility study review

1) VFM analysis and proposal review (BTO)

In 2021, PIMAC conducted VFM analyses for eight projects and proposal reviews for two projects, which ranged from road and railway to environmental projects. Of the 10 projects, nine were BTO-a projects and one was hybrid (BTO+BTL) projects. Facility-type-wise, four were road projects (including parking lots), five were environmental projects, and one was railway projects.

<Table V-20> VFM analysis and proposal reviews in 2021 (BTO)

Service	No.	Project	Competent authority	Facility type
VFM analysis	1	Seongnam Environmental Restoration Center (BTO-a)	Seongnam City	Environment
	2	Chuncheon Sewage Treatment Facility (BTO-a)	Chuncheon City	Environment
	3	Modernization of Uijeongbu Public Sewage Treatment Facility (BTO-a)	Uijeongbu City	Environment
	4	Seongnam-Hanam-Namyangju Expressway (BTO-a)	Ministry of Land, Infrastructure and Transport	Road
	5	Siheung-Songpa Expressway (BTO-a)	Ministry of Land, Infrastructure and Transport	Road
	6	Wonjong-Hongdae Metropolitan Railway (BTO+BTL)	Ministry of Land, Infrastructure and Transport	Railway
	7	Seoul-Yangju Expressway (BTO-a)	Ministry of Land, Infrastructure and Transport	Road
	8	the 4th Gyeongin Expressway (BTO-a)	Incheon Metropolitan City	Road
Proposal review	1	Expansion and Improvement of Yeongdong Sewage Facilities (BTO-a)	Yeongdong County	Environment
	2	Improvement of existing facilities and expansion of four stages of Seonghwan Public Sewage Treatment Facility (BTO-a)	Cheonan City	Environment

2) Proposal review (BTL)

BTL projects used to be implemented in the government-solicited method. However, with the amendment to the PPP Act in March 2016, private sectors were allowed to submit proposals for unsolicited projects. In 2021, one VFM analysis for a BTL project was conducted and no proposal reviews were conducted.

<Table V-21> VFM analysis and proposal reviews (BTL) in 2021

Service	No.	Project	Competent authority	Facility type
VFM analysis	1	Construction of Water Detention Facilities in Yeosu National Industrial Complex	Yeosu City	Environment

3) Feasibility study review (BTO)

In 2021, no feasibility study review requests for government-solicited BTO projects were received; hence, no BTO feasibility study reviews were conducted.

4) Feasibility study review (BTL)

In 2021, PIMAC conducted feasibility study reviews for 23 BTL projects, which ranged from military facilities, police stations, and dormitories to childcare centers. Of them, 15 were commissioned by the Ministry of Education, four by the Defense Installations Agency (Ministry of Defense), two by the Busan Metropolitan City, one by the Ministry of Culture, Sports and Tourism, and one by the National Police Agency.

<Table V-22> BTL feasibility study reviews in 2021

No.	Project	Competent authority	Facility type
1	Review of the ceiling change of complex cultural facilities PPP project (BTL) in Seogye-dong	Ministry of Culture, Sports and Tourism	Architecture
2	Military academy education facilities PPP project (BTL)	Defense Installations Agency	Architecture
3	Educational facilities of the Army PPP project (BTL)	Defense Installations Agency	Architecture
4	Cheorwon executive's accommodation PPP project (BTL)	Defense Installations Agency	Architecture
5	Pocheon executive's accommodation PPP project (BTL)	Defense Installations Agency	Architecture
6	5th Childcare Centers PPP project (BTL)	The National Police Agency	Architecture
7	2022 Kangwon National University dormitory PPP project (BTL)	Ministry of Education	Architecture
8	2022 Kyungpook National University dormitory PPP project (BTL)	Ministry of Education	Architecture
9	2022 Jeonnam National University dormitory PPP project (BTL)	Ministry of Education	Architecture
10	2022 Changwon University dormitory PPP project (BTL)	Ministry of Education	Architecture
11	2022 Korea National University of Education dormitory PPP project (BTL)	Ministry of Education	Architecture
12	2022 Kyungpook National University facility improvement PPP project (BTL)	Ministry of Education	Architecture
13	2022 Pukyong National University facility improvement PPP project (BTL)	Ministry of Education	Architecture
14	2022 Jeonbuk National University facility improvement PPP project (BTL)	Ministry of Education	Architecture
15	2022 Chungnam National University facility improvement PPP project (BTL)	Ministry of Education	Architecture
16	2022 Chungbuk National University PPP project (BTL)	Ministry of Education	Architecture
17	2022 Korea Maritime and Ocean University Facility Improvement PPP project (BTL)	Ministry of Education	Architecture
18	Seobusan Medical Center PPP project (BTL)	Busan Metropolitan City	Architecture
19	Sejong Joint Campus (Chungnam University) PPP project (BTL)	Ministry of Education	Architecture
20	Sejong Joint Campus (Gongju University) PPP project (BTL)	Ministry of Education	Architecture
21	Seobusan Medical Center (2nd) PPP project (BTL)	Busan Metropolitan City	Architecture
22	2021 Review of the ceiling change of the national university PPP project (BTL)	Ministry of Education	Architecture
23	2022 Greensmart Future School PPP project (BTL)	Ministry of Education	Architecture

5) RDF and VFM reassessments

Article 57 of the Basic Plan provides that the competent authority should commission RDF for projects where there are significant changes in the demand forecast due to cancellation or changes in relevant development plans, the mode of project implementation is changed from a government-funded project to a PPP project, there is a five-year or wider gap between two different stages of project implementation, or the demand estimate in the VFM analysis differs from the demand predicted by the private sector by 30% or more. In 2021, a VFM reassessment for a project under BOO type was conducted.

<Table V-23> RDF and VFM reassessment in 2021

No.	Project	Competent authority	Facility type
1	Honam Logistics Base PPP project (BOO) VFM reassessment	Ministry of Land, Infrastructure and Transport	Architecture

D. (Draft) Request for Proposals and (Draft) Request for Alternate Proposals review

1) (Draft) Request for Proposals review

In 2021, PIMAC conducted request for proposals review for two BTL projects. The key considerations include consistency with the PPP Act, the BTO request for proposal guidelines, the BTL request for proposal guidelines, and the Basic Plan.

<Table V-24> Request for Proposals review in 2021

No.	Project	Competent authority	Project type
1	National Defense Broadband Integration Network PPP projects (BTL)	Ministry of National Defense	Information and communication
2	Seogyedong Complex Cultural Facility PPP projects (BTL)	Ministry of Culture, Sports and Tourism	Architecture

2) Request for Alternate Proposals review

In 2021, PIMAC reviewed third-party Request for Proposals for six projects including four BTO-type PPP projects. The BTO-type projects included one BTO projects and three BTO-a projects.

<Table V-25> Request for Alternate Proposals reviews in 2021

No.	Project	Competent authority	Project type
1	Sewage treatment facilities in Hadong-gun (BTO-a)	Hadong County	Environment
2	Underground Space Development in Eoul Madang-ro (BTO)	Mapo-gu District	Architecture
3	Clean water center in Seodae-gu (BTO-a)	Daegu Metropolitan City	Environment
4	Modernization of Public Sewage Treatment Facility in Uijeongbu (BTO-a)	Uijeongbu City	Environment

E. Project plan (proposal) evaluation

In 2021, no project plans were evaluated.

F. Negotiation for concession agreements

There was one negotiation for concession agreements conducted in 2021, and it was conducted at the request of the Ministry of Land, Infrastructure, and Transport.

<Table V-26> Negotiation for concession agreements in 2021

No.	Project	Competent authority	Project type
1	Pyeongtaek-Buyeo-Iksan Expressway PPP projects (BTO)	Ministry of Land, Infrastructure and Transport	Road

G. Draft concession agreements and revised agreements review

1) Draft concession agreements review (BTO)

In 2021, PIMAC reviewed draft concession agreements for three BTO projects, two BTO-a projects and one BOO project.

<Table V-27> Draft concession agreements review (BTO) in 2021

No.	Project	Competent authority	Project type
1	Yeosu Sewage Treatment Water Reuse PPP projects (BTO)	Yeosu City	Environment
2	Seoul Arena Complex Cultural Facility PPP projects (BTO)	Seoul Metropolitan Government	Architecture
3	Busan New Port Phase 2-4 Container Pier PPP projects (BTO)	Ministry of Oceans and Fisheries	Architecture
4	Seongnam Residential waste treatment facilities	Seongnam City	Environment
5	Daejeon Sewage Treatment Facility Modernization PPP projects (BTO-a)	Daejeon Metropolitan City	Environment
6	ICD of logistics base in Yeongnam region	Ministry of Land, Infrastructure and Transport	Architecture

2) Draft concession agreements review (BTL)

In 2021, PIMAC reviewed draft concession agreements for six BTL projects—four military facility projects pursued by the Defense Installations Agency, a childcare center project pursued by the National Policy Agency, and a public sewage treatment facilities project by Yeosu City.

<Table V-28> Draft concession agreements review (BTL) in 2021

No.	Project	Competent authority	Project type
1	Public sewage treatment facilities in Yeosu (BTL)	Yeosu City	Environment
2	4th 16 daycare centers (BTL)	The National Police Agency	Architecture
3	2020 Army Chuncheon-Hwacheon military facility (BTL)	Defense Installations Agency	Architecture
4	2020 Army Gumi and Jinyoung military facility (BTL)	Defense Installations Agency	Architecture
5	2020 Army Munsan and Paju military facility (BTL)	Defense Installations Agency	Architecture
6	2020 the 3rd Military Academy Education Facilities (BTL)	Defense Installations Agency	Architecture

H. Dispute settlement review

In 2021, PIMAC conducted one dispute settlement review commissioned by the Ministry of Economy and Finance.

<Table V-29> Dispute settlement review in 2021

No.	Project	Competent authority	Project type
1	Comprehensive environmental energy town in northern Gyeongsangbuk-do (BTO)	Gyeongsangbuk-do Province	Environment

I. Management implementation plan review

In 2021, one management implementation plan review was conducted.

<Table V-30> Management implementation plan review in 2021

No.	Project	Competent authority	Project type
1	Life waste incineration facility in Boryeong	Boryeong City	Environment

J. Refinancing and project implementation condition adjustment

In 2021, PIMAC conducted refinancing reviews for nine projects, project implementation condition adjustment reviews for 0 project, and short-term financial reviews for 16 projects.

<Table V-31> Refinancing and project implementation condition adjustment in 2021

(Unit: projects)

Category	No. of projects
Refinancing review	9
Refinancing negotiation	-
Project Implementation condition adjustment	-
Short-term review (MRG review, etc.)	16

The eight projects for which PIMAC conducted refinancing reviews in 2021 were BTO projects and one project was BOT.

<Table V-32> Refinancing review in 2021

No.	Project	Project type	Competent authority
1	Dongdaemun-gu Environmental Resource Center (BTO)	Dongdaemun District	Environment
2	Ulsan Bridge and Access Road (BTO)	Ulsan Metropolitan City	Road
3	Daejeon Environmental Energy Town (BTO)	Daejeon Metropolitan City	Environment
4	Gunpo Complex Logistics Terminal (BTO)	Ministry of Land, Infrastructure and Transport	Architecture
5	The first phase of Seoul Metropolitan Rapid Transit Line 9 (BTO)	Seoul Metropolitan Government	Railway
6	Roads between Changwon and Busan (BTO)	Gyeongsangnam-do Province	Road
7	Sanseong Tunnel (BTO)	Busan Metropolitan City	Road
8	The Second Gyeongin Connection (Anyang-Seongnam) Expressway (BTO)	Ministry of Land, Infrastructure and Transport	Road
9	Cheonmasan Tunnel (BTO)	Busan Metropolitan City	Road

Of the 16 projects for which PIMAC conducted short-term financial reviews, 13 were BTO projects, and the other three were BTL projects. For the BTO projects, PIMAC provided various services including review of the revised concession agreement, MRG reviews, re-assessment of refinancing profits, investor and shareholding ratio change reviews, and review of financial models. For the BTL projects, PIMAC reviewed changes in financial models that reflected changes in rent or profit rates.

<Table V-33> Short-term financial review in 2021

No.	Project	Project type	Competent authority
1	Review of the Appropriateness of the Financial Model Calculation Method for Mandeok-Centum Urban Expressway PPP projects	BTO	Busan Metropolitan City
2	Review of changes to investors for Pyeongtaek Dangjin Port Pier PPP projects	BTO	Ministry of Oceans and Fisheries
3	Review of changes to the Financial Model for Ulsan Museum BTL Project	BTL	Ulsan Metropolitan City
4	Review of changes to the Financial Model for Cheonan Sports Park BTL Project	BTL	Cheonan City
5	Review on calculating the operating income guarantee for Mokpo New Overseas Port (Step 1-1) PPP projects	BTO	Ministry of Oceans and Fisheries
6	Review on calculating the operating income guarantee for Mokpo New Overseas Port (Step 1-2) PPP projects	BTO	Ministry of Oceans and Fisheries
7	Evaluation of calculation of operating income guarantee for 2020 Dongbu-du in Dangjin Port, Pyeongtaek	BTO	Ministry of Oceans and Fisheries
8	Evaluation of calculation of operating income guarantee for 2020 Multi-purpose pier at Incheon Bukhang Port (Stage 2-1)	BTO	Ministry of Oceans and Fisheries
9	Review of changes to investors for Iksan City's improvement of living environment and reinforcement of livestock manure public treatment facilities	BTO	Iksan City
10	Evaluation of calculation of operating income guarantee for 2020 Ulsan New Port Development (Phase 1-1)	BTO	Ministry of Oceans and Fisheries
11	Inquiry on the financial model of Iksan City's improvement of living environment and reinforcement of livestock manure public treatment facilities	BTO	Iksan City
12	Review of appropriateness according to the re-adjustment of the rate of return of Gangjin Cultural Welfare Town	BTO	Gangjin County
13	Review of Financial Model for the Change of the Concession Agreement for Fueled Power Facilities in Busan	BTO	Busan Metropolitan City
14	Review of the changes of the Concession Agreement for double-track trains of the Shinbundang Line (Yongsan-Gangnam)	BTO	Ministry of Land, Infrastructure and Transport
15	Review of the Financial Model on the Adjustment of the Return on the Cheonan Dujeong Library	BTL	Cheonan City
16	Request for additional review following the confirmation of the large delegation related to the financing of the 2nd Gyeongin Connection (Anyang-Seongnam) Expressway	BTO	Ministry of Land, Infrastructure and Transport

K. Other reviews and Q&As

In 2021, PIMAC offered other reviews and Q&A services for 280 cases—100 answers to inquiries about PPP systems and relevant legislation and questions from the Ministry of Economy and Finance, 157 responses to questions received through its website, and 23 answers to questions received through the help desk.

<Table V-34> Other reviews and Q&A services in 2021

(Unit: projects)

Category	No. of projects
Inquiries about PPP systems and relevant legislation	100
Website Q&As	157
Help desk	23
Total	280

Chapter VI

Overview of Public Institution Investment Projects Evaluation and Track Records

Section 1. Overview of Preliminary Feasibility Studies

1. Background and Grounds for Implementation

A. Background and progress

1) Background

A public institution refers to an institution established and operated by the government contribution or investment or government financial support in order to efficiently meet public demand. As of the end of January 2021, there were 350 institutions designated by the Minister of Economy and Finance as public institutions under Article 4(1) of the Act on the Management of Public Institutions.

Public institutions play direct execution and indirect support functions to realize the government's policy goals. As providers of essential goods and services for citizens, they have the forms of a corporation, entity, or institution, rather than a government or local government.

The Act on the Management of Public Institutions aims to contribute to improving service for citizens by ensuring that public institutions are managed efficiently and operated transparently. The government has put forth efforts to improve public institution management systems with the aim to maintain effective control over public institutions that produce goods and services in the interest of the public, but

controversies about lax management and inefficiency are continuing.

As the financial soundness of public institutions became a major social issue,¹⁶⁾ the National Assembly, the Board of Audit and Inspection, and the Anti-Corruption and Civil Rights Commission emphasized the need to have major investment projects by public institutions undergo PFS conducted by a third party and tighten the supervision. The Anti-Corruption and Civil Rights Commission pointed out that allowing public institutions to take part in projects at their own discretion regardless of their foundational purposes posed risk for moral hazard and highlighted the importance of systems to pre-verify their budget plans and actual execution. The Board of Audit and Inspection also criticized that pursuing projects irrelevant to their foundational purposes and recklessly pushing forward projects without considering feasibility was detrimental to their financial soundness. The board also pointed out that excessive competition with private players damaged their profitability and that they were negligent in delving into potential risks of investment projects.

In response to continued concerns over the financial soundness of public institutions, the Ministry of Strategy and Finance (currently the Ministry of Economy and Finance), at the May 2010 Financial Strategy Meeting, announced measures to strengthen feasibility reviews for projects pursued by public institutions. In January 2011, the PFS was introduced for projects pursued by public enterprises and quasi-government institutions, which should be conducted by a specialist institution designated by the Ministry of Strategy and Finance pursuant to Article 50 of the Act on the Management of Public Institutions and the Budget Guidelines for Public Enterprises and Quasi-Government Institutions. PIMAC, KDI was designated by the Minister of Strategy and Finance as a specialist institution to conduct PFS. In the past, public institutions were allowed to conduct their own feasibility studies for new investment projects and capital contribution projects worth KRW 50 billion or more and compile budget for these projects if deemed feasible. However, the government found the results of their self-conducted feasibility studies no longer objective or trustworthy and

16) The National Assembly Budget Office (2010) pointed out marked increases in financial debts in public institutions' overall liabilities and claimed that control by the National Assembly should be mandated given their importance in the national economy.

revamped the system to mandate PFS conducted by a specialist institution designated by the Minister of Strategy and Finance with the aim to improve the efficiency of public institution projects and ensure the financial soundness of public institutions.

On March 22, 2016, the government established new provisions in Article 40(3) of the Act on the Management of Public Institutions¹⁷⁾ requiring that new investment projects and capital contribution projects pursued by public institutions undergo PFS. Accordingly, public institution projects were required to undergo PFS unless exempted by law. Under the previous PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects, new investment projects and capital contribution projects with total costs of KRW 50 billion or more and government funding and public institution contributions of KRW 30 billion or more were subject to PFS. Under Article 25-3 of the Enforcement Decree of the Act on the Management of Public Institutions established on March 22, 2016, the minimum project value was raised to total project costs of KRW 100 billion or more and government funding and public institution contributions of KRW 50 billion or more.

The Ministry of Economy and Finance amended the PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects on September 28, 2017 to reflect improvements made in the PFS scheme. This amendment allowed for outsourcing PFS to experts outside the specialist institutions designated to conduct PFS, and for reducing the study period to two months in exceptional cases where there have been previous similar PFS cases. Also, in consideration of the government's policy orientation, job creation effects were included as an element for policy analysis, and the social discount rate and the financial discount rate for present value estimation in B/C and PI analyses were lowered from 5.5% to 4.5%.

The Ministry of Economy and Finance focused on facilitating PFS, incorporating social value, and improving efficiency, which were reflected in the amended PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects of December 27, 2018 (enforced on January 1, 2019). Three major changes were made under this amendment. First, application rounds for PFS for public institution projects increased from two times (end of January and June) to three times (end of January, May, and September) annually.

17) Entered into effect on September 23, 2016.

This was to avoid unnecessary delays in PFS caused by public institutions putting in requests for not fully elaborated projects due to the time limits. Second, the simplified PFS scheme was further tightened. In the past, simplified PFS were applied to international bidding projects and projects with similar preceding cases, and the PFS scheme did not differ from the general PFS other than simply referring to preceding study cases to shorten the study period. Under the amended guidelines, the scope of the simplified PFS was redefined as projects that would offer strong benefits for the public and have insignificant necessity to consider profitability, for example, building and expanding public offices and projects to meet international environmental regulations, and profitability analysis became omissible in a simplified PFS. Third, “social contribution” was established as a new evaluation item. Previously, only part of quantifiable social values were considered in economic feasibility analyses. This change allowed for specifically taking unquantifiable social values into consideration.

For PFS evaluation items, the Ministry of Economy and Finance pursued improvements with focuses on reflecting economic and social conditions, ensuring timely pursuit of public institution projects, and the efficiency of the scheme. On April 29, 2020, the ministry amended the PFS Guidelines for Public Enterprises’ and Quasi-Government Institutions’ Projects (enforced on May 1, 2020). The amendment introduced four major changes.

First, the PFS evaluation items for domestic and overseas projects were reorganized. PFS for domestic projects were divided into capital and non-capital regions, and the regional underdevelopment evaluation system was changed from a merit and demerit system to a merit system. As part of the policy analysis, the “impact on residents’ living conditions” was added with the aim to understand the impact of projects pursued by public institutions, for example, power plants and industrial complexes, on the lives of local residents from the early stage. The guidelines also specified examples of special evaluation items and encouraged the use of these evaluation items in PFS. For overseas projects, the “ripple effects over small and medium enterprises” were added as one of public benefit evaluation items to take their external effects on the national economy into consideration. The financial feasibility analysis was also restructured to consider both overall project feasibility and investors’ perspectives on

feasibility. This was intended to consider investors' cash flow as an important factor to determine a project's profitability.

Second, to reduce the time required to conduct PFS, the guidelines specified time limits—four months for overseas projects and five months for domestic projects. To make sure this provision has effects in practice, public institutions were required to fill out a checklist before filing a PFS request to understand their preparedness and were encouraged to proceed with PFS for these projects only when they were sufficiently concretized. The guidelines also stated that where PFS are urgently needed or there are preceding cases of PFS, public institutions are encouraged to take advantage of a simplified PFS (which takes only two months to complete) to reduce research inputs and simplify administrative processes.

Third, in an effort to tighten Total Project Cost Management (TPCM), the government established the Total Project Cost Management Guidelines for Public Enterprises and Quasi-Government Institutions on August 26, 2020 (enforced on September 1, 2020). These guidelines aim to improve the efficiency of the budget execution of public institutions by ensuring the reasonable adjustments and management of total costs of major projects at public institutions under Article 5 of the Act on the Management of Public Institution pursuant to the provisions in Article 40 of the Act on the Management of Public Institution.

Fourth, to improve the efficiency of PFS on the operational side, new analytical techniques were introduced, and the use of scenario analysis was encouraged. Previously, PFS were conducted based on project plans filed by public institutions, but under the new guidelines the institution conducting the PFS was allowed to discuss with the relevant institution to identify and apply alternatives. For the sake of efficiency in operation, requirements for the resubmission of a PFS request were eased, and the number of policy experts involved in overall evaluation using Analytic Hierarchy Process (AHP) was increased from two to four people to strengthen policy evaluations in addition to the existing technical and theory-based evaluations. Lastly, in favor of projects that aim to strengthen industrial competitiveness in the fields of materials, components, and equipment, projects relating to these industries were given additional points in AHP.

In July 2021, the Ministry of Economy and Finance revised the PFS Guidelines for

Public Enterprises' and Quasi-Government Institutions' Projects (enforced on August 1, 2021) focusing on improving the efficiency of performing PFS and ways to reflect more thoroughly specific nature of a project. The amendments are largely threefold:

First, it was intended to promote the timely implementation of the institution's project through a faster PFS by improving the use of 'rapid PFS' and establishing a prior consultation procedure. To this end, the operating guidelines were revised from voluntary and exceptional application of rapid PFS to apply-by-rule method if the project meets requirements for rapid PFS. In addition, a prior consultation procedure was newly established to allow preparatory consultations with the specialized agency (KDI) at the stage of establishing the project plan, upon request by the public institution, even before applying for a PFS. Such complementary procedure is intended to prepare in advance the set of documents and materials required for PFS in order to prevent delays in performing PFS.

Second, the amendment intends to improve research methodology by taking into consideration the characteristics of individual projects. By utilizing data provided by syndication when evaluating the profitability of overseas project financing, and preferential treatment was given when evaluating the possibility of financing if loan participation in a project was confirmed. In addition, consideration for policy nature of overseas investment projects at the level of foreign policy was strengthened; overseas projects in developing countries which are implemented as part of foreign policy are to be given preferential treatment in the policy evaluation. Moreover, 'national and public land development projects commissioned by the state and local governments' were additionally stipulated as cases where profitability analysis can be omitted.

Lastly, in order to enhance the operation of the PFS system, new regulation was made to allow public institutions with very poor financial soundness to have their financial evaluation points be deducted. The reason for such measure was to strengthen the link between the financial soundness of public institutions and PFS. In addition, a definition clause on 'investment' was newly adopted in the guidelines to clarify projects subject to PFS. Participation of various experts who are not part of the research team was expanded in mid-term and final reporting meetings to strengthen accountability.

2) Progress

Table below shows the progress of the PFS scheme for public institution projects.

<Table VI-1> Progress of the PFS scheme for public institution projects

Year	Details
2005	<ul style="list-style-type: none"> • Self-conducted pre-feasibility analysis. - Conducted by public institutions themselves.
2010	<ul style="list-style-type: none"> • Measures to strengthen public institution project feasibility reported in May. - Financial Strategy Meeting. • Measures to strengthen public institution project feasibility included in November. - Budgeting guidelines deliberated and approved. • PFS process by government-designated specialist institutions developed in November. - Improvement in PFS for public institution projects. • Tightening of PFS for major projects pursued by public institutions in December. - Presidential work report.
2011	<ul style="list-style-type: none"> • Execution Plans for PFS for Public Enterprises' and Quasi-Government Institutions' Projects announced in January.
2012	<ul style="list-style-type: none"> • Measures to substantialize PFS for public institution projects announced in November.
2013	<ul style="list-style-type: none"> • Execution Plans for PFS for Public Enterprises' and Quasi-Government Institutions' Projects amended in February.
2016	<ul style="list-style-type: none"> • Act on the Management of Public Institutions amended in March (enforced on September 23, 2016). - Strengthening of legal grounds for PFS. - Stricter requirements for PFS exemption. • Legislation pre-announcement for the Enforcement Decree of the Act on the Management of Public Institutions in June (enforced on September 23, 2016). - Projects subject to PFS: New investment and capital contribution projects with total costs of KRW 100 billion or more and institutional investment of KRW 50 billion or more. • PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects in November (enforced on November 7, 2016). - Specified requirements for PFS exemption, exemption process, and RSF.
2017	<ul style="list-style-type: none"> • PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects amended in September (enforced on September 28, 2017). - Improvements made: simplified PFS for similar projects, expeditious PFS process, diversifying institutions to conduct PFS, greater social benefits for each type of project, considerations given to job creation effects, changes in discount rates, and stricter policy feasibility evaluation.
2018	<ul style="list-style-type: none"> • PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects amended in December (enforced on January 1 2019). - Improvements made: more rounds for PFS applications, promotion of simplified PFS, 'social contribution' included as an evaluation item, and more.
2020	<ul style="list-style-type: none"> • PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects amended in April (enforced on May 1, 2020). - Improvements made: shorter research periods, evaluation items revamped, etc. • Total Project Cost Management Guidelines for Public Enterprises and Quasi-Government Institutions established in August (enforced on September 1, 2020). - managing changes to project cost by project stage.
2021	<ul style="list-style-type: none"> • PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects amended in July (enforced on August 1, 2021). - Improvements made: strengthen fast-track PFS, preferential treatment to individual project (overseas project financing, projects pursued as foreign policy), etc.

B. Grounds

The PFS for public institution projects is grounded on Article 40 of the Act on the Management of Public Institutions and Article 25-3 of its Enforcement Decree. Article 40(3) of the Act on the Management of Public Institutions provides “[t]he institution head shall conduct a preliminary feasibility study as prescribed by Presidential Decree, in order to compile a budget for a new investment project and capital investment” and prescribes conditions for exemption.

Act on the Management of Public Institutions
Article 40 (Budget Compilation)

- ③ The institution head shall conduct a preliminary feasibility study as prescribed by Presidential Decree, in order to compile a budget for a new investment project and capital investment: Provided, That such preliminary feasibility study need not be conducted for any of the following projects: [Newly Inserted on March 22, 2016] [Enforced on September 23, 2016]
1. A project for which the preliminary feasibility study is conducted pursuant to Article 38 of the National Finance Act among projects funded by the government budget;
 2. A project related to inter-Korean exchanges and cooperation or a project implemented under an agreement or treaty entered into with another country;
 3. A simple improvement and maintenance project implemented to increase the use of an existing facility, such as road maintenance and improvement of deteriorated waterworks;
 4. A project that needs to be implemented urgently to support the recovery from a disaster defined in subparagraph 1 of Article 3 of the Framework Act on the Management of Disasters and Safety (hereinafter referred to as “disaster”), or to ensure the safety of facilities and to cope with health or food safety issues;
 5. A project that needs to be implemented urgently to prevent a disaster, to which the consent of the competent Standing Committee of the National Assembly has been granted;
 6. A project that should be implemented pursuant to the statutes;
 7. A project that needs to be implemented as a national policy in order to ensure balanced regional development and to cope with urgent economic and social situations, and that meets both of the following requirements. In such cases, the details of a project exempt from the preliminary feasibility study and the grounds for exemption shall be reported without delay to the competent Standing Committee of the National Assembly:
 - (a) A detailed project plan including the purpose, scale and implementation method of the project and other matters shall have been formulated;
 - (b) The project shall have been confirmed at the meeting of the State Council because it needs to be implemented as a national policy.

**Enforcement Decree of the Act on the Management of Public Institutions
Article 25-3 (Preliminary Feasibility Study)**

- (1) The head of a public corporation or quasi-governmental institution (hereafter referred to as "institution head" in this Article) shall apply for a preliminary feasibility study as provided for in the main clause of Article 40 (3) of the Act to the Minister of Economy and Finance, if he or she intends to compile a budget for any new investment project or capital investment that meets both of the following requirements:
1. The total required budget is 100 billion won or more;
 2. The sum of the amounts to be contributed by the State and the relevant institution is 50 billion won or more.

2. Projects Subject to PFS and Implementation Structure

A. Selection and exemption of projects

Pursuant to Article 25-3 of the Enforcement Decree of the Act on the Management of Public Institutions, PFS for public institutions project applies to public institutions' new investment and capital contribution projects with total costs of KRW 100 billion or more and the sum of government financial support and public institutions' investment amounts to KRW 50 billion or more. Total project costs refer to the sum of all costs and expenses for the implementation of the project, whether it be borne by the state, local governments, public institutions, or private players. If a project has no definite endpoint, the sum of the project costs for the first five years is taken into consideration. Projects subject to PFS are selected by the Minister of Economy and Finance after deliberation by the Public Institution Project PFS Advisory Committee, which also advises the Minister of Economy and Finance on requirements for PFS exemption, changes in evaluation methods, the designation of institutions to conduct PFS, and other matter for efficient PFS operation and development.

Article 40(3) of the Act on the Management of Public Institutions provides exemptions from PFS, which are

- ① A project for which the preliminary feasibility study is conducted pursuant to Article 38 of the National Finance Act among projects funded by the

government budget

- ② A project related to inter-Korean exchanges and cooperation or a project implemented under an agreement or treaty entered into with another country
- ③ A simple improvement and maintenance project implemented to increase the use of an existing facility, such as road maintenance and improvement of deteriorated waterworks
- ④ A project that needs to be implemented urgently to support the recovery from a disaster defined in subparagraph 1 of Article 3 of the Framework Act on the Management of Disasters and Safety (hereinafter referred to as “disaster”), or to ensure the safety of facilities and to cope with health or food safety issues
- ⑤ A project that needs to be implemented urgently to prevent a disaster, to which the consent of the competent Standing Committee of the National Assembly has been granted
- ⑥ A project that should be implemented pursuant to the statutes
- ⑦ A project that needs to be implemented as a national policy in order to ensure balanced regional development and to cope with urgent economic and social situations, and that meets both of the following requirements. In such cases, the details of a project exempt from the preliminary feasibility study and the grounds for exemption shall be reported without delay to the competent Standing Committee of the National Assembly:
 - (a) A detailed project plan including the purpose, scale, and implementation method of the project and other matters shall have been formulated
 - (b) The project shall have been confirmed at the meeting of the State Council because it needs to be implemented as a national policy

B. Process of PFS

1) Project selection

Public institutions select projects subject to PFS and assessments of the of project

plan in accordance with Article 40(3) of the Act on the Management of Public Institutions and the PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects. The head of a public institution is required to submit the project plans of all investment and capital contribution projects with total costs of KRW 100 billion or more and where the sum of government financial support and institutions' investment amount exceeds KRW 50 billion¹⁸⁾ to the institution to conduct PFS and the Minister of Economy and Finance by the end of January, May, or September in the preceding year.¹⁹⁾ The time of submission may be changed if a project is urgently required or there is an unavoidable circumstance.

2) PFS request

The head of a public institution that intends to draw up a budget for a project that is subject to a PFS is required to submit the project plan to the specialist institution to conduct the PFS, in principle, within 30 days from being notified that a PFS should be conducted. In an unavoidable circumstance, this timeframe may not be applied by an agreement with the Minister of Economy and Finance. The year of project implementation means the year in which budget is put in the project for the first time.

C. PFS implementation structure

PIMAC, KDI is a designated specialist institution that conducts PFS for public institution projects under Article 16 of the PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects. The institution that conducts PFS hosts meetings to discuss findings from and results of PFS and may ask relevant officials of the ministry in charge of the public institution, and officials from the Ministry of Economy and Finance to attend the meetings as needed. In principle, a PFS should be completed within four months if an overseas project, five months if a domestic project,

18) Under the PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects of August 2020. The threshold before the 2016 amendment was new investment and capital contribution projects with total costs of KRW 50 billion or more and government financial support and institutional investment of KRW 30 billion.

19) A Schedule to the PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects (August 2020) provides a project plan template for public institutions.

and seven months if an overseas resource development and exploration project or a domestic industrial complex project. This period may be extended or shortened by mutual agreement with the Minister of Economy and Finance if the project plan changes, a scenario or alternative analysis is required, or there is just cause in consideration of the nature of the project and the difficulty of the study.

The institution that conducts PFS may charge the public institution for the study based on the cost estimation standards established in consultation with the Ministry of Economy and Finance. Upon completion, the institution should send the final PFS report to the Minister of Economy and Finance and the head of the public institution, which then draws up a budget in consideration of the results of the PFS.

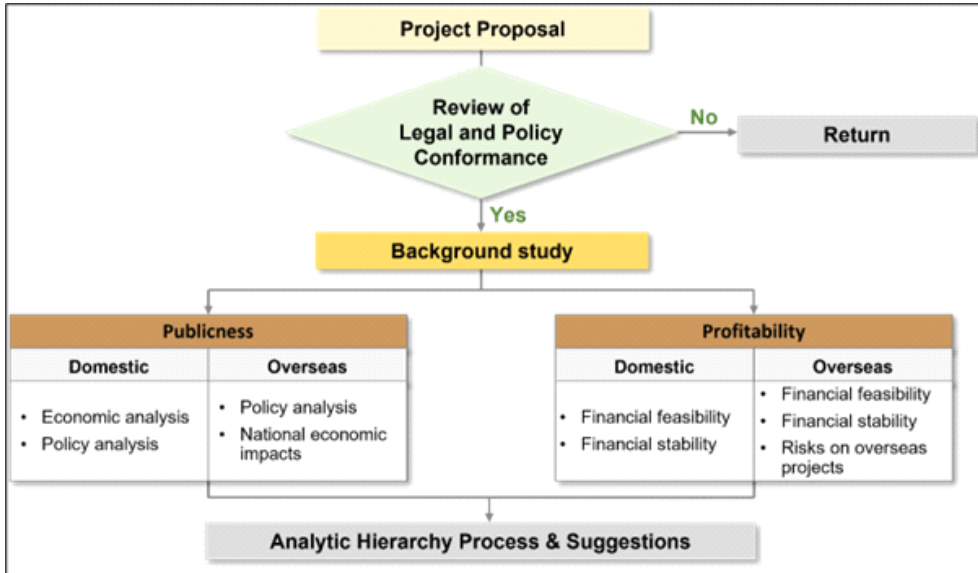
3. Public Institution Project PFS Process and Details

A. Process

PFS for public institution projects aim to determine the feasibility of projects pursued by public institutions and facilitate reasonable decision-making on the right timing of project implementation and the right scale of the project by reviewing the project plans and analyzing the considerations for project implementation. As shown in the figure below, a PFS involves preliminary review of the project plan's legal and policy fitness and evaluations with focuses on two pillars of publicness and profitability. Finally, a comprehensive evaluation (AHP) is conducted, and if needed policy recommendations are made.²⁰⁾

20) Adapted from Ministry of Economy and Finance, PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects (July 2021).

[Figure VI-1] Public institution project PFS workflow



Source: KDI, *A study on amendment to the PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects* (2nd ed.), 2018.

B. Details

1) Domestic Projects

The publicness evaluations use the same analytical framework as PFS for government-financed projects to evaluate economic and policy feasibility.

Economic feasibility evaluations are based on cost-benefit analysis and involve analysis of the project's costs and benefits from the perspective of the national economy to present a benefit-cost (B/C) ratio. In doing so, demand for the project is estimated to calculate the benefits and project costs, and all expenses for project implementation are summed to estimate the total costs.

Policy feasibility evaluations consist of 'compulsory' and 'optional' evaluation items, which are either quantitative or qualitative. Compulsory evaluation items are 'fitness to the foundational purpose of the institution', 'consistency with state policy and higher-level and relevant plans', the 'willingness of interested parties including the ministry in charge of the relevant public institution', 'preparedness for the project',

‘environment and safety’, ‘ripple effects over the local economy’, the ‘effect of balanced regional development’, ‘job creation effects’, the ‘effect of improvement to employment quality’, ‘social contribution’, and ‘impact of residents’ living conditions’. Optional evaluation items are taken into consideration depending on the characteristics of the project, looking into matters not quantified as compulsory evaluation items.

The profitability evaluations involve financial feasibility and stability evaluations. Financial feasibility evaluations delve into the profitability of the investment plan by analyzing the flow of revenues from facility operation in comparison with the investment using the profit index method. Financial stability evaluations look into the public institution’s financing standing, likelihood of funding for the investment, risk for potential additional funding requirements, and the project’s impact on the financial stability of the institution. The overall evaluations employ the AHP technique based on the results of these evaluations to produce a quantitative score.

2) Overseas Projects

Overseas projects are also subject to comprehensive analysis of the feasibility of the project in consideration of its publicness and profitability (using the AHP technique), as in domestic projects. However, they are not subject to economic analysis, and the publicness evaluations involve delving into policy feasibility and ripple effects over the domestic economy. The ‘ripple effect evaluations’ look into the project’s ‘export employment and resource effects’, i.e., how the institution’s activities will influence the nation’s export and resource security and how much employment they will create, as well as the project’s ‘impact on the institution’s competitiveness’, i.e., what the synergies will be between the project and the institution’s essential business. Also, the ‘ripple effects of overseas advancement over small and medium enterprises’ are taken into consideration. Profitability evaluations take into consideration the project’s financial feasibility and stability, and risks, in particular, the country risk as well as the project risk in and of itself.

3) Evaluation weights

Different weights are applied to domestic and overseas projects in public institution

project PFS as provided in the PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects (July 2021). The weights in domestic project PFS are 70% to publicness and 30% to profitability, which may vary in consideration of specific projects' characteristics. In principle, the weights in overseas project PFS are 35% to publicness and 65% to profitability, which too may vary in consideration of a specific project's characteristics.

<Table VI-2> Weights given to publicness and profitability in public institution project PFS

Project	Weight
Domestic	Publicness 70%, profitability 30%
International	Publicness 35%, profitability 65%

Source: Ministry of Economy and Finance, PFS Guidelines for Public Enterprises' and Quasi-Government Institutions' Projects, July 2021.

Section 2. Overview of Reassessment Studies of Feasibility

1. Total Project Cost Management

The Total Project Cost Management (TPCM) for projects pursued by public institutions aims to improve the efficiency of the budget execution of public institutions by ensuring reasonable adjustments and management of the total costs of major projects drawn up by the heads of public institutions under Article 5 of Act on the Management of Public Institutions based on the provisions in Article 40-3 of the Act on the Management of Public Institutions and Article 25-4 of its Enforcement Decree. This involves stage-specific project cost management including PFS, feasibility studies, basic planning, basic and working design, procuring and contracting, and construction.

To do so, the Ministry of Economy and Finance established the Total Project Cost

Management Guidelines for Public Enterprises and Quasi-Government Institutions on August 26, 2020. The total costs of a project refer to the sum of all costs and expenses incurred in the project under Article 40 of the Act on the Management of Public Institutions, including the value of resources and land already possessed and contributions by the state, local governments, other public institutions, and private players.

A construction project's total costs are the sum of all costs and expenses incurred, consisting of construction costs, compensation costs, and auxiliary expenses. An informatization project's total costs are the sum of all costs and expenses for system development, etc., consisting of equipment purchase and rental costs and software development costs, among others. An overseas project's total costs are the sum of all costs and expenses to implement the project overseas, consisting of construction investment, capital investment, contribution to other corporations, etc. A resource project's total costs are the sum of all costs and expenses for resource exploration or development, consisting of pre-drilling exploration costs, drilling costs, project development costs, and miscellaneous costs.

Projects planned by the heads of public institutions under Article 40 of the Act on the Management of Public Institutions that have undergone PFS (including those exempted from PFS under Article 40(3) of the Act on the Management of Public Institutions) or RSF under Article 31 of the same act are subject to TPCM.

To avoid waste of budget, the Total Project Cost Management Guidelines for Public Enterprises and Quasi-Government Institutions provide that projects that fall under certain criteria should be subject to Reassessment of Demand Forecast (RDF), RSF, and reassessments of project plans.

2. Reassessment Studies of Feasibility

A. Requirements

Under Article 40-3 of the Act on the Management of Public Institutions, projects that fall under conditions provided by a Presidential Decree are subject to RSF. The following are the requirements for RSF provided in Article 25-4 of the Enforcement

Decree of the Act on the Management of Public Institutions and Article 31 of the Total Project Cost Management Guidelines for Public Enterprises and Quasi-Government Institutions:

① The heads of public institutions shall conduct reassessment studies of feasibility for any of the following projects:

(1) A project for which the preliminary feasibility study has never been conducted because its total project cost or state funding and public institution contribution did not reach the scale subject to a preliminary feasibility study, but the total project cost has increased to the scale subject to a preliminary feasibility study during the course of the implementation of the project

(2) A project that has been implemented without undergoing a preliminary feasibility study, although it falls within the projects subject to a preliminary feasibility study, because the project cost was reflected in the budget

(Note) If a project's budget was already drawn up but is yet to be executed, the project should be subject to RSF.

(3) A project of which the total project costs, excluding compensation for land required for the implementation of the project and inflation, have increased by 30% or more compared with the initial total project costs excluding compensation for land

(Note 1) Compensation for land (including land already possessed) that was included in the initial total project costs should not be included in the calculation of the total project costs to see if the project is subject to an RSF, which should be calculated based on <Schedule 4> "Total project costs calculation for RSF".

(Note 2) Project stages are divided into design, construction, etc. If an investment project involves no design or construction stages, RSF are applicable when a policy is set to increase the amount of investment by 30% or more.

- (4) A project, if falling under Article 26(3), of which demands have decreased by 30% or more
 - (5) A project for which an RSF has been requested to be conducted by the Board of Audit and Inspection Korea
 - (6) Other projects for which the head of office in charge of a public institution or the Minister of Economy and Finance acknowledge as necessary to conduct an RSF to avoid, for example, waste of budget due to redundant investment
- ② Notwithstanding the provisions in Paragraph 1, the heads of public institutions, in consultation with the head of the competent authority and the Minister of Economy and Finance, may not conduct an RSF if they deem that there is no practical use of conducting an RSF where a significant part of the project has been completed, hence, significant sunk costs, if the project is pursued in response to urgent economic or social needs, or if the implementation of the project is urgently needed for disaster prevention, recovery support, and/or safety.

Meanwhile, Article 36 of the guidelines provides that, where the RSF is omitted under any of the circumstances provided in 31(2) of the guidelines, a reassessment of project plans may be conducted with the aim to consider the appropriate level of project scale, costs, and alternatives in a way comparable to an RSF.

B. Key elements of RSF

In principle, the PSF techniques provided in Chapter 6 of the Total Project Cost Management Guidelines for Public Enterprises and Quasi-Government Institutions are applicable *mutatis mutandis* to RSF, considering the feasibility of the project based on ‘publicness’ and ‘profitability’ analysis. The overall assessment uses the AHP techniques to produce measurable results, and policy recommendations may be made to highlight risk factors for the project and policy considerations.

Section 3. Track Records of Public Institution Investment Projects

1. Preliminary Feasibility Study

A. Track records between 2011 and 2021

As of the end of December 2021, 650 requests have been received from public institutions to see if their projects were subject to PFS. Of them, 281 projects were found to be subject to PFS. For the past three years an average of 46 projects were considered if they were subject to PFS annually, and 35 projects underwent PFS. Requests from public institutions to consider if their projects were subject to PFS plunged in 2017 and thereafter, but in the same period, more than 30 projects underwent PFS annually. In 2021, 49 project plans were submitted, and 40 projects were considered subject to PFS.

<Table VI-3> PFS requests from public institutions and selected projects

(Unit: No. of Projects)

2011-2018			2019			2020			2021			Total		
Requests	Selected	(%)	Requests	Selected	(%)	Requests	Selected	(%)	Requests	Selected	(%)	Requests	Selected	(%)
512	176	34.4	48	35	72.9	41	30	73.2	49	40	81.6	650	281	43.2

Of the 281 projects selected for PFS, 85, 52, and 40 projects were submitted by the five power companies, the Korea Land and Housing Corporation (LH), and the Korea Power Corporation (KEPCO), respectively. The five power companies' projects accounted for a significant portion of the projects, as most of the large-scale projects pursued by public institutions are energy-related projects. In 2021, energy-related and industrial complex projects also accounted for the majority of the projects selected for PFS, 17 projects from the five power companies, seven projects from the LH, and

seven projects from KEPCO. By type, power generation and equipment projects had the largest share of 25 projects.

<Table VI-4> Projects selected for public institution projects PFS

(Unit: No. of Projects)

Public Institution	2011-18	2019	2020	2021	Total
Korea Land & Housing Corporation	27	8	10	7	52
KEPCO and affiliates ²⁾ (five power companies counted separately)	24	5	4	7	40
Five power companies	55	5	8	17	85
Port authorities ³⁾	10	1	0	1	12
Airport and water resources corporations	13	2	0	2	17
Korea Rural Community Corporation	7	0	0	0	7
Korea Asset Management Corporation	9	1	0	2	12
Korea District Heating Corporation	7	1	0	0	8
Others	24	12	8	4	48
Total	176	35	30	40	281

Notes: 1) Year selected for PFS.

2) KEPCO, Korea Power Engineering Company, and Korea Hydro and Nuclear Power Company.

3) Includes Busan Port Authority, Korea Container Terminal Authority, and Ulsan Port Authority.

<Table VI-5> Public institution projects selected for PFS, by area

(Unit: No. of Projects)

Year	Power generation and equipment	Industrial complex	Residential area and land development	Port	Road and railroad	Resource development	Others	Total
2011-2016	42	21	28	12	0	2	10	115
2017	17	4	6	0	1	0	0	28
2018	23	3	5	1	0	0	1	33
2019	11	9	6	2	4	1	2	35
2020	12	5	5	0	5	1	2	30
2021	25	3	6	2	2	0	2	40
Total	130	45	56	17	12	4	17	281

Note: Year selected for PFS.

Of the 281 projects, final reports have been published for 206 projects as of the end of December 2021, and 155 of them were found “feasible.” The PFS prevented 105 of 281 projects (51 deemed infeasible, 54 withdrawn), avoiding budget waste of KRW 131.7 trillion (infeasible projects worth KRW 41.7 trillion, withdrawn projects worth KRW 90.0 trillion). Of the 206 projects for which PFS were actually conducted, 75.2% were considered feasible. Of all projects selected for PFS including ones withdrawn from PFS or discontinued by public institutions, 59.6% were considered feasible.

<Table VI-6> Results of public institution project PFS

(Unit: No. of Projects, KRW 100 million)

Year requested	Status								Total	
	Feasible		Infeasible		Withdrawn		Study in progress			
	No. of projects	Total project costs	No. of projects	Total project costs	No. of projects	Total project costs	No. of projects	Total project costs	No. of projects	Total project costs
2011	11	41,496	4	9,012	1	2,042	-	-	16	52,550
2012	5	35,150	3	36,218	9	62,146	-	-	17	133,514
2013	12	76,499	6	40,392	5	47,590	-	-	23	164,481
2014	8	19,775	3	3,903	3	3,369	-	-	14	27,048
2015	13	55,225	4	153,483	3	6,278	-	-	20	214,986
2016	15	235,432	7	23,726	3	8,600	-	-	25	267,758
2017	14	90,413	7	41,606	7	47,566	-	-	28	179,585
2018	17	352,677	3	4,651	13	671,415	-	-	33	1,028,743
2019	24	195,570	7	68,651	4	11,712	-	-	35	275,933
2020	20	294,946	6	24,091	4	22,640	-	-	30	341,677
2021	16	129,398	1	11,202	2	16,953	21	349,852	40	507,405
Total	155	1,526,581	51	416,935	54	900,311	21	349,852	281	3,193,680

Note: 1) As of the end of December 2021

2) Year selected for PFS.

The results of 206 PFS have been published for an annual average of 18.7 cases. Power generation and equipment projects accounted for the largest proportion of them.

<Table VI-7> Results of public institution project PFS by area

(Unit: No. of Projects)

Year published	Power generation and equipment	Industrial complex	Residential area and land development	Port	Road and railroad	Resource development	Others	Total
2011	2	2	5	2	-	-	2	13
2012	3	-	4	-	-	-	-	7
2013	4	2	1	4	-	-	-	11
2014	4	-	2	1	-	-	1	8
2015	4	3	3	1	-	-	-	11
2016	8	4	1	2	-	2	-	17
2017	10	5	6	1	-	-	4	26
2018	14	4	4	-	1	-	-	23
2019	12	1	4	2	-	1	1	21
2020	15	10	6	1	6	1	2	41
2021	16	2	5	1	3	-	1	28
Total	92	33	41	15	10	4	11	206

Notes: 1) Projects for which PFS were completed as of the end of December 2021.

2) Others include training centers and water resources projects.

From 2011 to 2021, approximately 48.3% of domestic projects pursued by public institutions were found economically feasible as a result of economic analysis of PFS.

<Table VI-8> Results of economic feasibility analysis, 2011-2021 (domestic projects)

(Unit: No. of Projects)

Category	Power generation and equipment	Industrial complex	Residential area and land development	Port	Road and railroad	Others	Total
Total projects	65	33	41	15	10	12	176
B/C \geq 1	Projects	28	17	14	12	7	85
	Proportion	43.1%	51.5%	34.1%	80.0%	70.0%	58.3%

Notes: 1) Projects for which PFS were completed as of the end of December 2021, excluding overseas projects that were exempted from economic feasibility analysis.

2) For scenario projects, the most positive results were considered.

Meanwhile, 57.8% of the public institution projects PFS were analyzed as financially viable.

<Table VI-9> Results of profitability analysis by area, 2011-2021

(Unit: No. of Projects)

Category		Power generation and equipment	Industrial complex	Residential area and land development	Port	Resource development	Road and railroad	Others	Total
Total projects		92	33	41	15	4	10	11	206
PI ≥ 1	Projects	68	12	22	5	2	9	1	119
	Proportion	73.9%	36.4%	53.7%	33.3%	50.0%	90.0%	9.1%	57.8%

Notes: 1) Projects for which PFS were completed as of the end of December 2021.

2) For scenario projects, the most positive results were considered.

Taken together, the overall analysis results using Analytic Hierarchy Process (AHP) show that 75.2% of the projects subject to PFS were considered feasible. This result drops to 59.6% if withdrawn or discontinued projects (54 cases) were included.

<Table VI-10> Results of overall feasibility analysis by year and area, 2011-2021

(Unit: No. of Projects)

Category		Power generation and equipment	Industrial complex	Residential area and land development	Port	Resource development	Road and railroad	Others	Total
Total projects		92	33	41	15	4	10	11	206
AHP ≥ 0.5	Projects	73	23	27	12	3	9	8	155
	Proportion	79.3%	69.7%	65.9%	80.0%	75.0%	90.0%	72.7%	75.2%

Notes: 1) Projects for which PFS were completed as of the end of December 2021.

2) For scenario projects, the most positive results were considered.

B. PFS for public institution projects in 2021

In 2021, PFS for public institution projects were conducted for 28 projects as shown in table below.

<Table VI-11> PFS for public institution projects, 20201

No.	Project Name	Public Institution
1	Busan Research and Development Special Zone High-tech Complex District Development Project	Korea Land & Housing Corporation (LH)
2	Next Generation Business System Building Project	Korea Electric Power Corporation (KEPCO)
3	U.S. Trumbull Combined Gas Power Generation Project	Korea East-West Power Corporation
4	Jeju Data Center Construction Project	Jeju Free International City Development Center
5	Wando Geumil Offshore Wind Power	Korea South-East Power Corporation
6	Yangju Eun-nam Industrial Complex Development Project	Korea Industrial Complex Corporation
7	East Sea1 Floating Offshore Wind Power Generation Project	Korea National Oil Corporation
8	Iksan City Land Development Project of Old Police Station Site	LH
9	Seoul Gangdong Hanam-Namyangju City Railroad Construction Project	LH
10	Goyang-Eunpyeong City Railroad Construction Project	LH
11	Han River Bridge Construction Project	LH
12	Busan New Port LNG Hub Terminal Complex Project	Korea Gas Corporation
13	Pakistan Kalam-Asrit Hydroelectric Power Generation Project (2)	Korea South-East Power Corporation
14	Hadong Combined Thermal Power Plant Construction Project	Korea Southern Power Corporation
15	Hapcheon Combined Thermal Power Plant Construction Project	Korea Southern Power Corporation
16	Dangjin Thermal Power No. 5-10 Environmental Facility Improvement Project	Korea East-West Power Corporation
17	Yeosu Natural Gas Power Generation Plant Construction Project	Korea Western Power Corporation
18	ESS for System Stabilization Project	KEPCO
19	Boryeong No. 5 Fuel Conversion Construction Project	Korea Midland Power Corporation
20	Boryeong No. 6 Fuel Conversion Construction Project	Korea Midland Power Corporation
21	Bucheon City Daejangan Development Project	LH
22	Jung-gu Seoul Makers Park and Administrative Building Project	LH
23	Busan Jacheon Residential Area Improvement Project	LH
24	U.S. KEC Combined Gas Power Project (2)	Korea Western Power Corporation
25	Bundang Generation Headquarters Renewal Project	Korea South-East Power Corporation
26	Andong Combined Thermal Power Plant Construction Project	Korea Southern Power Corporation
27	Shinhonam Combined Power Generation Project	Korea East-West Power Corporation
28	Geongju Natural Gas Power Generation Plant Construction Project	Korea Western Power Corporation

Notes: 1) Projects for which PFS were completed as of the end of December 2021.

2) Withdrawn projects excluded.

2. Project Plan Reviews

Article 8 of the guidelines provides that the Minister of Economy and Finance may ask the heads of public institutions, where he/she deems it necessary to ensure the financial soundness of the public institutions and the efficient implementation of projects, to have their projects that are exempted from PFS undergo project plan review. Under this provision, six project plans have been reviewed since 2015. In 2021 one project plan review, Replacement of Nuclear Reactor Heads for Hanbit No. 5, 6 and Haneul No. 3, 4, was performed.

<Table VI-12> Public institution project plan reviews

(Unit: No. of Projects)

Year	2015	2019	2020	2021	Total
Project plans reviewed	2	1	2	1	6

<Table VI-13> Public institution project plan reviews in 2021

No.	Project	Public Institution
1	Replacement of Nuclear Reactor Heads for Hanbit No. 5, 6 and Haneul No. 3, 4	Korea Hydro and Nuclear Power Company

Notes: Projects for which reviews were completed as of the end of December 2021.

3. Reassessment Study of Feasibility

Following the establishment of the TPCM guidelines for public enterprise and quasi-government institution projects (August 26, 2020), three RSF were conducted in 2021.

<Table VI-14> Public institution project RSF

(Unit: No. of Projects)

Year	RSF			Total
	Feasible	Infeasible	Withdrawn	
2020	3	-	1	3
2021	3	-	-	3

<Table VI-15> Public institution projects that underwent RSF in 2021

No.	Project	Public Institution
1	Construction and Operation of Hydro Stations Investment to Special Purpose Company	Korea Gas Corporation
2	Northeast Asia Energy Hub Ulsan North Port Project	National Oil Corporation
3	Incheon International Airport Second Joint Office Expansion Project	Incheon International Airport Corporation

Notes: Projects for which RSF were completed as of the end of December 2021.

4. Re-examination of Project Plan Review

Following the establishment of the TPCM guidelines for public enterprise and quasi-government institution projects (August 26, 2020), one case of Re-examination of Project Plan Review was conducted in 2021.

<Table VI-16> Public institution project that underwent Re-examination of Project Plan Review in 2021

No.	Project	Public Institution
1	Construction of In-house Emergency Response Base by Nuclear Power Plant Headquarters	Korea Hydro and Nuclear Power Company

Notes: Projects for which Re-examination of Project Plan Review was completed as of the end of December 2021.

Chapter VII

Policy Research and Service

Section 1. Policy Research Overview

To ensure the quality and efficiency of services at PIMAC, the institute develops guidelines and conducts research projects relating to government-financed investment project evaluations, PPP project evaluations, and public institution project PFS. <Table VII-1> shows the track records of the research projects conducted by PIMAC.

<Table VII-1> Guidelines developed and research projects conducted

(Unit: projects)

Year	Government-financed investment project evaluation			PPP project evaluation			Public institution project PFS			Performance evaluation of special cases of taxation			Total		
	Guidelines	Studies	Sub total	Guidelines	Studies	Sub total	Guidelines	Studies	Sub total	Guidelines	Studies	Sub total	Guidelines	Studies	Total
1999	3	1	4	-	-	-	-	-	-	-	-	-	3	1	4
2000	6	6	12	-	-	-	-	-	-	-	-	-	6	6	12
2001	6	6	12	-	-	-	-	-	-	-	-	-	6	6	12
2003	1	-	1	-	-	-	-	-	-	-	-	-	1	-	1
2004	5	4	9	-	-	-	-	-	-	-	-	-	5	4	9
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	4	17	21	-	-	-	-	-	-	4	17	21
2007	-	1	1	2	7	9	-	-	-	-	-	-	2	8	10
2008	4	-	4	-	11	11	-	-	-	-	-	-	4	11	15
2009	-	1	1	1	7	8	-	-	-	-	-	-	1	8	9
2010	-	-	-	1	6	7	1	-	1	-	-	-	2	6	8

Year	Government-financed investment project evaluation			PPP project evaluation			Public institution project PFS			Performance evaluation of special cases of taxation			Total		
	Guidelines	Studies	Sub total	Guidelines	Studies	Sub total	Guidelines	Studies	Sub total	Guidelines	Studies	Sub total	Guidelines	Studies	Total
2011	-	4	4	2	2	4	-	-	-	-	-	-	2	6	8
2012	3	2	5	-	2	2	-	-	-	-	-	-	3	4	7
2013	5	5	10	3	8	11	2	1	3	-	-	-	10	14	24
2014	-	-	-	1	8	9	-	3	3	-	-	-	1	11	12
2015	2	1	3	-	6	6	-	-	-	-	-	-	2	7	9
2016	2	3	5	1	3	4	-	2	2	1	1	2	4	9	13
2017	2	5	7	2	6	8	-	1	1	-	-	-	4	12	16
2018	-	2	2	2	12	14	2	2	4	-	-	-	4	16	20
2019	-	3	3	-	2	2	-	1	1	-	-	-	-	6	6
2020	-	5	5	1	8	9	-	5	5	-	-	-	1	18	19
2021	4	3	7	-	6	6	1	2	3	-	-	-	5	11	16
Total	43	52	95	20	111	131	6	17	23	1	1	2	70	181	251

Notes: 1) Projects completed at the end of each year.

2) Four in-depth studies for government-financed projects were conducted until 2013.

1. Guidelines Studies

Guidelines studies are intended to develop and revise the guidelines and instructions for PIMAC's services, such as general and area-specific guidelines for government-financed project evaluations (PFS and RSF) and public institution project PFS, and guidelines and instructions for PPP project services.

<Table VII-2> ~ <Table VII-6> show the lists of these guideline instructions.

<Table VII-2> Studies of government-financed project evaluation guidelines

Study	Revision	Year
Study of standard guidelines for PFS	1st	1999
	2nd	2000
	3rd	2001
	4th	2004
	5th	2008
	6th	2016
Study of standard guidelines for PFS for road and railway projects	Detailed guidelines	2021
	1st	1999
	2nd	2000
	3rd	2001
	4th	2004
	5th	2008
	5-1st	2013
Study of standard guidelines for PFS for water resources projects	6th	2017
	Detailed guidelines	2021
	1st	1999
	2nd	2001
	3rd	2003
	4th	2008
Study of standard guidelines for PFS for port projects	5th	2017
	1st	2000
	2nd	2001
Study of standard guidelines for PFS for airport projects	3rd	2013
	1st	2000
Study of standard guidelines for PFS for health and welfare projects	2nd	2001
	3rd	2013
Study of standard guidelines for PFS for medical facility projects	1st	2004
Study of standard guidelines for PFS for informatization projects	1st	2012
	2nd	2013
Study of standard guidelines for feasibility reverification (study of standard guidelines for RSF)	1st	2004
	2nd	2012
	Detailed guidelines	2021
Study of standard guidelines for PFS for R&D projects	1st	2008
Study of the improvements to CVM analysis guidelines for PFS	-	2012
Study of standard guidelines for PFS for other non-investment government-financed projects and pilot project evaluations (study of the revision and complementation of the standard guidelines for other government-financed project PFS)	1st	2009
	2nd	2013
Study of standard guidelines for PFS for industrial complex projects	1st	2015
Study of standard guidelines for PFS for culture and tourism projects	1st	2015
	Detailed guidelines	2021
Study of standard guidelines for PFS for development projects	-	2016

<Table VII-3> Studies of guidelines for PPP project support (BTO projects)

Study	Revision
Study of the improvement in the BTO PPP project plan evaluation framework	2005.12
Detailed instructions for PPP project plan evaluation	2009.06
Detailed instructions for unsolicited BTO project VFM analysis (proposal review) and preferential scoring	2007.01
Study of detailed instructions for BTO PPP project VFM analysis	2010.06
Study of guidelines for PPP environmental project VFM analysis (Study of the estimation of benefits in the environmental field)	2007.12
	2011.08
	2018. 06
Study of detailed instructions for PPP port project VFM analysis	2013.08
Study of detailed instructions for feasibility analysis in hybrid (BTO+BTL) projects (Study of the development of detailed instructions for hybrid PPP projects)	2013.04
	2020.12
Study of detailed instructions for PPP rehabilitation project feasibility analysis	2013.02
Standard concession agreement for BTO projects—road projects	2007.02
	2007.10
	2008.05
	2009.08
	2010.04
	2020. 07 ¹⁾
Standard concession agreement for BTO projects—environmental projects	2008.06
Standard basic planning for BTO facility projects—road projects	2007.03
	2010.04
Study of detailed instructions for refinancing	2007.12
	2014.08
Detailed instructions for competitive negotiation	2017.03
Study of detailed instructions for projects with expiring management and operation rights	2017.05
Study of standard output specifications—centering on sewage and waste treatment facilities	2018.12
Study of detailed instructions for PPP project feasibility analysis and project plan review	2018.12

Note: 1) The standard concession agreement was amended based on the results of a PPP project support study titled "Analysis of issues in the standard concession agreement and improvement measures" (2019); hence, it was not counted in <Table VII-1>.

<Table VII-4> Studies of guidelines for PPP project support (BTL projects)

Study	Revision
Request for Proposals for BTL multiuse school facility projects	2007.01
Detailed instructions for feasibility analysis and VFM analysis for BTL PPP projects	2005.05
	2005.08
	2006.09
	2009.03
	2010.01
	2011.04
Study of detailed instructions for BTL PPP project feasibility analysis	2012.04
Standard concession agreement for BTL PPP projects	2005.11
	2006.09
	2008.11
	2009.03
	2010.01
	2011.04
	2020.07 ¹⁾
Detailed instructions for BTL PPP project facility management and operation	2009.04
Instructions for BTL PPP Request for Proposals	2005.05
	2005.08
	2006.09
	2009.03
	2010.01
	2011.04

Note: 1) The standard concession agreement was amended based on the results of a PPP project support study titled "Analysis of issues in the standard concession agreement and improvement measures" (2019); hence, it was not counted in <Table VII-1>.

<Table VII-5> Studies of guidelines for PFS for public institution projects

Study	Revision	Year
(Commissioned) development of detailed working plans for PFS by public enterprises and quasi-government institutions	-	2010
Study of general guidelines for PFS for public enterprise and quasi-government institution projects	1st	2013
	2nd	2018
	3rd	2021
Study of standard guidelines for PFS for public institution international projects	1st	2013
	2nd	2018

<Table VII-6> Studies of guidelines for performance evaluation of special cases of taxation

Study	Revision	Year
(Commissioned) Study of general guidelines for PFS for special taxation	-	2016

2. General Studies

General studies are all studies conducted in relation to PIMAC's services other than guideline studies. <Table VII-7> ~ <Table VII-10> provide the lists of general studies.

<Table VII-7> General studies of government-financed projects

Year	Study
1999	White paper on pre-feasibility study
2000	Establishment and analysis of Multi-Region Input-Output (MRIO) model to estimate public investment projects' impact on regional economy
2000	A study of applying multicriteria analysis to pre-feasibility studies
2000	Improving criteria and procedures of fiscal support for PPP projects
2000	Measures to improve efficiency of budget management in public investment projects I
2000	A basic study of introducing <i>ex post</i> program evaluation
2000	A study of methodology and means to facilitate value engineering
2001	A study of guidelines for O-D and network analysis for pre-feasibility study
2001	Analysis of the socioeconomic ripple effects of public investment
2001	A study of environmental cost estimation in pre-feasibility study of transportation projects
2001	A study of introducing <i>ex post</i> program evaluation and evaluation methodology
2001	A study of applying multicriteria analysis to pre-feasibility studies II
2001	Measures to improve efficiency of budget management in public investment projects II
2004	A study of value estimation of culture and science museum
2004	Establishment of PFS database
2004	A study of financing for urban railway projects and possibility of adopting the PPP method
2004	Measures to improve efficiency of budget management in public investment projects II: Centering on TPCM performance and improvement measures
2007	Study of Korea Transport Database (KTDB) review and fiscal investment evaluation
2009	Study of estimation of operation and maintenance costs for preliminary feasibility studies for road projects
2011	Study of the economic value estimation of transport facilities
2011	Comparative study of auxiliary facility cost estimation

Year	Study
2011	Review of existing dams' utility water supply capacity
2011	International study of preliminary feasibility study systems and case studies
2012	Study of estimation of operation costs for preliminary feasibility studies for railway projects
2012	Study of estimation of travel time value
2013	Analysis of characteristics of AHP decision-making
2013	Study of land expropriation process and issues in Korea
2013	Study of efficient financing and use of transport facilities
2013	Study of issues surrounding PFS in the transportation field
2013	Study of improvement of stability of PFS results for road projects
2015	Study of <i>ex post</i> validation of PFS—centering on road and railway projects
2016	Study of management costs incurred by construction period extension in government-commissioned projects
2016	Study of land costs in feasibility studies
2016	Study of preliminary feasibility study implementation system
2017	Study of methodology to analyze employment effects in government-financed project evaluations
2017	Study of methodology to improve the contingent valuation method (CVM) model
2017	Study of methodology to calculate benefits of transport projects
2017	Study of methodology to estimate demand and benefits in feasibility studies of new transportation means
2017	Detailed examination of feasibility study items
2018	Study of measures to improve road maintenance costs for feasibility studies
2018	Study of improvement of feasibility studies for transport projects using big data
2019	Study of Korea Transport Database review and issues in the transportation sector
2019	Study of criteria for multidimensional method application to estimate benefits of reducing flood damages
2019	Revamping the preliminary feasibility study system in the social sector
2020	Case-based examination of improvement of preliminary feasibility study methodology—centering on road projects
2020	Study of estimation of benefits of improved reliability of travel time
2020	Study of issues surrounding preliminary feasibility studies in the transportation sector II
2020	Study of decision-making in public investment projects
2020	Study of directions for infrastructure investment to promote regional hubs in preparation for population change
2021	A Study of the Characteristics of Route Bus Mobility Based on Big Data
2021	A Study on Improving the Efficiency of Projects in the Social Sector
2021	A Study on the Policy Effect of Financial Investment Projects

<Table VII-8> General studies of PPP project support

Year	Study
2006	A study of formulation of request for proposal for BTL projects
2006	A study of the evaluation method for BTL projects
2006	A study of the standard concession agreement for BTL projects
2006	Methods for BTL project management
2006	A study of government payment for BTL projects
2006	Study of risk reflection methods in PPP project VFM analysis
2006	A study of guidelines for output specifications of BTL military housing facilities (military family housing)
2006	A study of guidelines for output specifications of BTL military housing facilities (military barracks)
2006	A study of guidelines for output specification of BTL educational facility projects
2006	A study of standard output specification for BTL sewerage projects
2006	A study of promoting a public involvement (PI) in BTL projects
2006	A study of the use of private advisory service in PPP projects
2006	Study of estimation of payment for early termination of PPP projects
2006	Study of countermeasures to surges in land compensation costs in BTO projects
2006	Study of improved use of industry-based credit guarantee funds in PPP projects
2006	Study of Request for Proposals in BTO PPP projects
2006	Study of standard concession agreement for BTO PPP projects
2007	Public investment management center database development I
2007	Mid- and long-term plans and strategies for PPPs
2007	A study of standard request for proposal for BTL school complex facilities projects
2007	A study of a standard financial model for BTO projects on roads, railways, and ports
2007	A study of measures to facilitate supplementary and ancillary projects
2007	A study of standardization of concession agreements for BTO environmental projects
2007	Study of private investment legislation consolidation
2008	Study of welfare effects of PPP projects and optimum fiscal policy
2008	Study of application of BTL projects to basic environmental facilities
2008	Study of the PPP project environment in Southeast Asia
2008	A study of the formulation of standard request for proposals for BTO projects in urban railways
2008	A study of performance evaluation and development strategy of BTL projects
2008	Comparison between Korean and Japanese PPP systems for Korean system improvement
2008	Study of negotiation management and guidelines in PPP projects

Year	Study
2008	Study of application of government contracts to PPP projects
2008	Study of promotion of PPP projects in tourism
2008	Study of PPP project consistency with national policy and priority
2008	Study of estimation and application of utilities and auxiliary costs in PPP projects
2009	Study of improvement of PPP project evaluation scheme
2009	Study of connection between ODA and PPP in infrastructure projects in developing countries
2009	A study of a standard financial model for BTL projects
2009	Study of evaluation management and evaluation panel pool management
2009	Study of advancement to the Chinese infrastructure market using PPP project type
2009	Study of BTL project facility management and operation guidelines
2009	Study of measures to increase demands for roads built by PPPs
2010	Study of revision of three instructions including BTL project facility basic planning
2010	Study of financial agreements in PPP projects
2010	Study of operation costs in PPP projects and improvement measures
2010	Management of appropriate tolls in road PPP projects
2010	Guide for Act on Private Participation in Infrastructure
2010	Comparative analysis of WTO GPA and FTA agreements and Act on Private Participation in Infrastructure
2011	Guide for standard BTL concession agreement
2011	Study of improvement of PPP system
2012	Study of local companies' engagement in international PPP projects
2012	Study of operation costs in PPP projects: Centering on road projects with minimum revenue guarantee
2013	Study of public rental housing supply and PPP
2013	Study of development of auxiliary project manual
2013	Study of management of PPP projects after expiry of concession agreement
2013	A study of standard output specification for BTL water supply improvement projects
2013	Study of allowance of private proposals for BTL projects
2013	Study of legal issues in PPP projects in 2012
2013	Empirical study of VFM analysis for PPP projects
2013	Study of applicability of BTL projects to welfare facilities
2014	Study of improvement of BTL service performance
2014	Comparison of PPP projects between Korea and Australia
2014	Study of fund investment in PPP projects and deregulation
2014	Detailed instructions for auxiliary business review in PPP projects

Year	Study
2014	Case study of <i>ex post</i> VFM analysis for PPP projects (expressways)
2014	Study of determination of profit rate in BTO PPP projects
2014	Study of Korea Transport Database (KTDB) review and preliminary feasibility study
2014	Analysis of key indicators and trends in public investment
2015	Study of termination of concession agreements and payment for early termination in PPP projects—centering on BTO projects
2015	Study of BOO projects
2015	Study of legal issues in public investment in 2014
2015	Study of vitalization of PPP projects in service
2015	Study of causes of financial litigations in PPP projects and implications
2015	Comparison of PPP projects among Korea, Philippines, and Indonesia
2016	Institutionalization of new risk-sharing method for PPP projects
2016	Study of compensation and damage in projects for public interest: Centering on PPP projects
2016	Measures to introduce SIB to public services
2017	Development of performance indicators for road PPP projects and case studies
2017	PPP project performance evaluation and awareness survey
2017	Study of advancement into overseas private investment markets—centering on the Asian PPP market
2017	Study of project condition adjustment methods
2017	Study of improvement of PPP law for operation-type PPP project implementation
2017	Study of restructuring of insolvent PPP projects
2018	Trends in infrastructure investment policy and implications—Australian case studies
2018	Study of improved estimation of rent benefits
2018	Basic study of relation between risk-sharing structure and profitability in PPP projects
2018	Study of legal issues in PPP projects (2015–2017)
2018	Study of environmental factors and execution of dispositions for public interest
2018	Study of return of equity in PPP projects
2018	Study of efficiency of risk sharing in PPP projects
2018	Study of financial issues in PPP projects
2018	Basic study of estimation of benefits of urban regeneration—centering on infrastructure improvement projects
2018	Study of improvement of poorly managed port PPP projects
2018	Study of vitalization of publicly solicited infrastructure funds
2018	Analysis of issues surrounding corporate tax in PPP projects and institutional improvement
2019	Study of refinancing in BTL projects
2019	Analysis of issues surrounding standard concession agreements and improvement measures
2020	Study of improvement of PPP system following application of all-inclusive system
2020	Study of improvement of quantitative VFM analysis
2020	Price evaluation criteria for RFP review
2020	Study of types of PPP projects
2020	Study of improvement of Request for Alternate Proposals in standard Request for

Year	Study
	Proposals
2020	Study of mid- and long-term development of PPP projects
2020	Study of institutionalization of operation-type PPP projects
2020	Study of improvement of preferential treatment for initial proposer
2021	A Study on Quantitative VfM Calculation and Implementation Alternatives for PPP projects - Focusing on Investment Risk Sharing Type -
2021	A Case Study on the right of Management and Operation of PPP projects
2021	A Study on the Legislation and Case Study on Force Majeure in PPP projects
2021	A Study on the Trends and Implications of each country's Infrastructure Policy Response in the COVID-19
2021	A Comparative Study on Termination Payment and Implementation Method for the Investment Risk Sharing Type and Hybrid Type PPP projects
2021	A Study on the Cost Structure of PPP projects

<Table VII-9> General studies of PFS for public institution projects

Year	Study
2013	Study of PFS for public enterprise and quasi-government institution projects
2014	Basic study of risk factor assessment in public institution international projects—centering on overseas power projects
2014	Study of estimation of costs of conducting PFS for public institution international projects
2014	Basic study of easing of risk factors in public institution international projects using insurance
2016	Study of necessity to introduce total project cost management to public institution projects
2016	Study of social discount rates
2017	Study of improvement of efficiency of investment and operation of railway projects
2018	Study of key issues relating to profitability analysis in PFS for public institution international projects
2018	Study of demand and benefit estimation in knowledge industry center development projects
2019	Study of estimation of power supply benefits and external costs of air pollutants
2020	Study of institutional improvement and complementation of PFS for public institution domestic projects
2020	Study of institutional improvement and complementation of PFS for public institution international projects
2020	Study of development of PFS system for international projects using equity return indicators
2020	Study of complementation of analytical methods for PFS for industrial complex projects
2020	Exploration of application of power intensity to power pricing
2021	A Study on the Improvement of the Methodology for Estimating the Benefits of MICE Industrial Exhibition Hall
2021	A Study on Estimation of Construction Cost of Industrial Complex Development Project (Focusing on Site Construction)

<Table VII-10> General study of performance evaluation of special cases of taxation

Year	Study
2016	Study of establishment of tax expenditure evaluation methods

Section 2. Policy Research in 2021

In 2021, 16 research projects were conducted as shown in <Table VII-11>, consisting of seven studies of government-financed projects (four guideline studies and one general study), six studies of PPP projects (general studies), and three studies of PFS for public institution projects (one guideline study and two general studies).

<Table VII-11> Guideline and general studies conducted in 2020

Year	Government-financed project evaluation			PPP project support			Public institution project PFS			Preferential tax treatment performance evaluation			Total		
	Guidelines	Studies	Subtotal	Guidelines	Studies	Subtotal	Guidelines	Studies	Subtotal	Guidelines	Studies	Subtotal	Guidelines	Studies	Subtotal
2021	4	3	7	-	6	6	1	2	3	-	-	-	5	11	16

Note: Projects with a scheduled end date in 2021; some of the projects are under revision and supplementation process.

<Table VII-12> provides a list of research projects conducted in 2021.

<Table VII-12> List of research projects conducted in 2021

No.	Project type	Title
1	Guideline	A Study on the Detailed Guidelines for Conducting Preliminary Feasibility Study (General Sector)
2	Guideline	A Study on the Detailed Guidelines for Conducting Preliminary Feasibility Study (Road and Railway Sector)
3	Guideline	A Study on the Detailed Guidelines for Conducting Preliminary Feasibility Study (Cultural and Tourism Sector)
4	Guideline	A Study on the Detailed Guidelines for Reassessment of Feasibility
5	General	A Study on the Characteristics of Route Bus Mobility Based on Big Data
6	General	A Study on Improving the Efficiency of Government-Financed Projects in the Social Sector

No.	Project type	Title
7	General	A Study on the Policy Effect of Government-Financed Projects
8	General	A Study on Quantitative VfM Calculation and Implementation Alternatives for PPP projects - Focusing on Investment Risk Sharing Type -
9	General	A Case Study on the Expiration of Right of Management and Operation of PPP projects
10	General	A Study on the Legislation on Force Majeure in PPP projects
11	General	A Study on the Trends and Implications of each country's Infrastructure Policy Response in the COVID-19
12	General	A Comparative Study on the Issues of Termination Payment and Implementation Method for Investment Risk Sharing Type and Hybrid-Type PPP projects
13	General	A Study on the Cost Structure of PPP projects
14	Guideline	(Revised) General guidelines for conducting preliminary feasibility studies of public enterprises and quasi-governmental organizations (third edition)
15	General	A Study on the Improvement of the Methodology for Estimating the Benefits of MICE Industrial Exhibition Hall
16	General	A Study on the Estimation of Construction Cost of Industrial Complex Development Projects - Focusing on Site Construction Projects

Note: Projects with a scheduled end date in 2020; some of the projects are under revision and supplementation process.

Section 3. PPP Project Policy Services in 2021

1. Education and Seminars on PPP Investment

Following the government's social distancing policy during the COVID-19 pandemic, PPP investment project education was conducted in the form of video lectures in 2021.

<Table VII-13> shows the PPP investment project education programs at PIMAC in 2021. In 2021, 2,947 people took six education programs.²¹⁾

21) In 2020, 1,503 people took the education programs.

<Table VII-13> Education track records of PPP projects in 2021(Unit: people)

No.	Program	No. of people
First half	First (March) (Public Sector) Basic and advanced courses, and courses for financing (Private Sector) Basic courses and courses for private enterprises	594
	Second (April) The same curriculum	424
	Third (June) The same curriculum	588
Second half	Fourth (August) The same curriculum	518
	Fifth (October) The same curriculum	395
	Sixth (December) The same curriculum	428
Total		2,947

<Table VII-14> Results of additional training video production in the first half of 2021

Category	Program	Note
A basic course	Chapter 7 Understanding Feasibility Analysis and VFM (within 10 minutes)	
	Chapter 8 Explanation of the Guidebook on Inclusive Concept	
	Chapter 9 Q&A on PPP projects	
Education for private enterprises	Chapter 6 Introduction to Export-Import Bank's EDCF	

2. International Cooperation

As part of its international cooperation activities, KDI attended four online meetings in 2021 as listed in <Table VII-14>. Also notable is that, in December 2021, the Sixth Meeting of Infrastructure Financing and PPP Network of Asia and the Pacific was co-hosted by UNESCAP, KDI PIMAC, and China PPP Center to strengthen cooperation between international organizations and PPP networks in the Asia-Pacific

region. In addition, PIMAC's main data (KDI PIMAC Annual Report 2021; Study on the Detailed Guidelines for Conducting Preliminary Feasibility Study (General Sector) (2021) and 2020 Basic Plan for PPPs) were translated into English. It is expected to be used when visiting public officials from overseas countries who are interested in the public investment management system or perform related tasks, or when requesting related data in English version.

<Table VII-15> Track records of international cooperation in 2021

Category	No.	Program	Date	Place	Note
KDI co-host	1	6th Meeting of Infrastructure Financing and PPP Network of Asia and the Pacific	2021.12.9.	Bangkok (Thailand), Seoul (Korea), Beijing (China)	An international conference (Online)
KDI attendance	2	WAPPP 2021 Annual Congress	2021.6.16.	Geneva (Switzerland)	An international conference (Online)
	3	5th Meeting of Infrastructure Financing and PPP Network of Asia and the Pacific	2021.6.22.	Bangkok (Thailand)	An international conference (Online)
	4	Council of PPP Unit Heads	2021.10.25	Geneva (Switzerland)	An international conference (Online)
Meetings/Education in KDI	5	KDI PIMAC-AFDB business cooperation meeting	2021.5.31.	KDI PIMAC	An online meeting
	6	Mongolian Delegations' visit to KDI	2021.8.19.	KDI PIMAC	Face-to-face meetings in KDI
	7	Video Conference with the promotion team for the Mongolian PPP law revision	2021.9.28.	KDI PIMAC	An online meeting
	8	CABEI's visit to KDI	2021.11.17	KDI PIMAC	Face-to-face meetings in KDI

3. Database System Management and Operation

PIMAC manages key information in each stage of PPP projects (BTO and BTL) in its database system. The database contains data on PPP projects starting from 1994, ranging from Request for Alternate Proposals to Request for Proposals and completion of operation.

PPP projects were introduced by the Act on the Promotion of Private Capital into Social Overhead Capital Investment of 1994 and started surging when the law was

substituted by the Act on Private Participation in Infrastructure in 1999. In particular, the introduction of BTL PPP projects in 2005 further encouraged increases in government-solicited projects. As of the end of 2021, 786 PPP projects have been implemented.²²⁾

As records on these projects became valuable data, PIMAC found it necessary to manage the data in an efficient and organized manner; hence, the center developed the InfraInfo DB system.

To date, 786 projects have been announced and solicited, and the database contains stage-specific details on 269 BTO-type projects and 517 BTL projects.

<Table VII-16> InfracInfo DB system

Type	No. of projects	Remarks
BTO	269	Database of stage-specific records
BTL	517	

PIMAC has collected stage-specific key data on PPP projects from competent authorities since 2012 and added them to its database. Data collection is conducted under Article 163 of the PPP Project Basic Plan, and the Ministry of Economy and Finance sends competent authorities official requests for information. PIMAC collects, verifies the date, and adds them to the InfraInfo DB system. In 2018, the center developed a system to allow competent authorities to access the system using IDs assigned to each local city, province, and department to verify data on their projects. Since 2019, the Ministry of Economy and Finance and PIMAC have been working to unify the collection and publication of statistical data on PPP projects on this system.

22) Projects in progress after Request for Proposals and Request for Alternate Proposals, or completed as of the end of December 2021.

<Table VII-17> Basic materials for the database system

Type	Material
Stage-specific details on PPP projects	<ul style="list-style-type: none"> • Forms <ul style="list-style-type: none"> - Materials in the Request for Proposals and Request for Alternate Proposals stage - Materials in the concession agreement and amendment stage - Materials in the operation completion stage - Materials in the operation stage - Materials in the construction stage - Materials in the construction preparation stage
	<ul style="list-style-type: none"> • Documents submitted <ul style="list-style-type: none"> - Initial concession agreements and financial models - Amended agreements and changes in financial models
Government-financed project evaluations	<ul style="list-style-type: none"> • Project plans • Project review reports

To ensure stable and streamlined services, PIMAC concluded maintenance contracts for hardware, security equipment, and solutions with the aim to provide stable services and respond to changes in internal and external environments, for example, changes in relevant or interlinked systems, computing system replacements, user environment changes, and new software installation.

<Table VII-18> System maintenance

(Unit: sets)

Category	Program	Quantity	Remarks
Security	Database encryption	1	Personal information and confidential data encryption
Backup	Backup	1	System and data backup
DBMS	Oracle 11g	1	Database
Web program	Web service	1	InfraInfo DB system

Chapter VIII

Overview of Performance Evaluation of Special Taxation and Track Records

Section 1. Background and Grounds

1. Background

The Korean economy is prone to external impact. Thus, it is vital to secure financial reserves in case of economic recessions driven by external factors. Doing so requires curbing fiscal expenditures and/or increasing tax revenues, but there are surges in demand for fiscal expenditures due to low birth and aging trends and polarization. In 2020, in particular, national tax revenue decreased due to increase in tax support to support the economic recovery post-COVID-19, while the amount of national tax exemptions increased by 3.3 trillion won compared to 2019 to 52.9 trillion won, with the national tax reduction rate (14.8%) exceeding the statutory limit (13.6%). After that, in 2021 and 2022, the tax reduction/exemption rate is expected to decrease slightly to 14.3% and 14.2%, respectively.

<Table VIII-1> Annual tax expenditures

(Unit: KRW trillion, %)

Year	National tax exemption	Total national tax revenues	National tax deduction rate
2018	44.0	293.6	13.0
2019	49.6	306.7	13.9
2020	52.9	303.7	14.8
2021	55.9	332.7	14.3
2022	59.5	358.9	14.2

Notes: 1) National tax deduction rate = national tax exemption/(national tax exemption + total national tax revenues).

2) Three more items were added in 2012, but calculations for 2012 and thereafter were done with the same criteria as previous years for comparison.

3) National tax exemption (2021 and 2022): estimates in the 2022 tax expenditure budget.

4) Total national tax revenues: (2021) the second supplementary budget bill; (2022) 2022 government budget bill.

Source: Ministry of Economy and Finance, Tax Expenditure Budget, each year.

As an effort to curb tax exemptions and reductions, performance evaluation of special taxation was introduced by the amendment to the Restriction of Special Taxation Act in 2014. This amendment became legal basis for newly introducing special cases of taxation worth KRW 30 billion or more annually became subject to PFS for special taxation, and existing special cases of taxation due to expiry were required to undergo in-depth evaluations.

2. Overview of Tax Expenditures

A special case of taxation is a deviation from the standard taxation system, where the amount the taxpayer should pay decreases or increases. In practice, most special cases of taxation are exemptions and reductions of tax for particular policy purposes. The effect of reductions in national tax revenues on the national finance is the same with explicit government expenditures; hence, they are referred to as tax expenditures. In South Korea, the Restriction of Special Taxation Act aims to ensure fair taxation and the efficient operation of tax policies. Article 142-2 of the act defines tax expenditures as “financial support pertaining to special taxation, such as reduction or exemption of tax, non-taxation, income deduction, tax deduction, application of favored tax rate, or deferral of tax.”

Tax expenditures are divided into direct and indirect exemptions. Direct exemptions result in permanent easing of tax burden (or reductions in tax revenues), consisting of non-taxation, income deduction, favored tax rate, tax deduction, and tax exemption. Indirect exemptions mean the deferment of taxation for a certain period, consisting of reserves, deferral, and taxation carried forward.

Becoming a member of the Organization for Economic Cooperation and Development in 1996, South Korea started publicly announcing the actual results and estimates of national tax exemptions with the aim to improve the transparency and efficient management of the national finance. In 2010, the National Finance Act was amended to require that a tax expenditure budget that specifies the actual results and estimates of national tax exemptions in the previous, current, and following years be submitted to the National Assembly along with the budget bill.

According to the 2022 Tax Expenditure Budget, annual tax exemptions were KRW

52 trillion and 935.7 billion in 2020, KRW 55 trillion and 936.6 billion in 2021 (estimate), and KRW 59 trillion and 520.8 billion in 2022 (estimate). The 2022 tax expenditure masterplan presented a national tax exemption rate of 14.3% based on the national tax exemptions and national tax revenues (fixed) in 2021 and predicted that the rate would reach 14.2% in 2022 due to strengthening tax support for national strategic technology R&D and facility investment, special tax exemption for personal donations, and payment of employment subsidies. As a result, it is estimated that the national tax reduction or exemption rate slightly exceeding the statutory limit in 2020 will not exceed the statutory limit in 2021 and 2022.

<Table VIII-2> Annual national tax exemptions

(Unit: KRW 100 million, %)

Category	2020		2021		2022	
	(actual)	Proportion	(estimate)	Proportion	(estimate)	Proportion
• National tax exemptions (A)	529,357	100.0	559,366	100.0	595,208	100.0
Tax expenditures under the Restriction of Special Taxation Act	269,399	50.9	296,691	53.1	323,419	54.3
Tax expenditures under other tax laws	241,745	45.7	246,238	44.0	267,089	44.9
Tax expenditures by transitional measures	18,213	3.4	16,437	2.9	4,700	0.8
• Total national tax revenues (B) ¹⁾	3,036,717		3,327,157 ²⁾		3,588,658 ²⁾	
• National tax deduction rate [A/(A+B)]	14.8		14.3		14.2	
• National tax deduction rate statutory limit ³⁾	13.6		14.3		14.8	

Notes: 1) Following the amendment to Article 41 of the Enforcement Decree of the National Finance Act, national tax revenues include local consumption taxes.

2) Based on the second supplementary budget in 2021 (July 2021) and the 2022 government budget bill.

3) National tax deduction rate statutory limit = average national tax deduction rate in the past three years + 0.5%p.

Source: Ministry of Economy and Finance, 2022 Tax Expenditure Budget, 2021.

3. Grounds

The Minister of Economy and Finance has the authority for ex ante and ex post management of special cases of taxation under Article 142 of the Restriction of Special Taxation Act and Article 135 of its Enforcement Decree. Special cases of

taxation with annual value above a certain threshold may be subject to evaluations for items provided by a Presidential Decree, for example, the progress to achieve their intended purposes, their economic effects, income redistribution effects, and impact on government finance. KDI is designated as an institution to conduct such evaluations under Article 135-2 of the Enforcement Decree.

<Table VIII-3> Legal grounds of performance evaluations of special taxation

Provision	Details
<p>Restriction of Special Taxation Act</p> <p>Article 142 (Ex Ante and Ex Post Management of Special Taxation)</p>	<p>(1) The Minister of Strategy and Finance shall establish a master plan for special taxation and restrictions on such special taxation, and notify the heads of central administrative agencies thereof after deliberation by the State Council no later than March 31 each year. <Amended by Act No. 11614, Jan. 1, 2013></p> <p>(2) The heads of central administrative agencies shall suggest tax reduction or exemption, including the objectives of, and policy effects expected from such tax reduction or exemption, estimated annual revenue effects, and related statistical data with respect to matters for which such reduction or exemption is deemed necessary for the efficient implementation of economic and social policies, etc., to the Minister of Strategy and Finance no later than April 30 each year. <Amended by Act No. 11614, Jan. 1, 2013></p> <p>(3) The heads of central administrative agencies shall present their findings on the analysis of effects by tax reduction or exemption, and on whether such tax reduction or exemption system is to be maintained with respect to the matters of special taxation prescribed by Presidential Decree, to the Minister of Strategy and Finance no later than April 30 each year. <Amended by Act No. 11614, Jan. 1, 2013></p> <p>(4) The Minister of Strategy and Finance may conduct an assessment of major special taxation: Provided, That with respect to special taxation, the application period of which ends in the relevant year (excluding matters prescribed by Presidential Decree, including matters wherein the repeal of such special taxation is apparent due to the extinction of eligible items), and the annual amount of which is not less than the amount prescribed by Presidential Decree, the results of the assessment conducted, within budgetary limits, by a specialized survey and research institution on the matters prescribed by Presidential Decree, including the level of target achievement, economic effects, effects of income redistribution, and effects on finance, shall be submitted to the National Assembly no later than 120 days before the commencement of each fiscal year. <Amended by Act No. 11614, Jan. 1, 2013; Act No. 12173, Jan. 1, 2014></p> <p>(5) In submitting a legislative bill that newly introduces special taxation, the annual amount of which is not less than the amount prescribed by Presidential Decree (excluding matters prescribed by Presidential Decree,</p>

Provision	Details
	<p>such as where necessary to cope with economic and social situations), such legislative bill shall be accompanied by the results of assessment conducted by a specialized survey and research institution on the matters prescribed by Presidential Decree, including the necessity and timeliness of the special taxation, expected effects, and potential problems. <Newly Inserted by Act No. 12173, Jan. 1, 2014></p> <p>(6) The Minister of Strategy and Finance may designate an institution to conduct specialized surveys and research in connection with suggestions for tax reduction or exemption under paragraph (2), presentation of opinions under paragraph (3), and assessments under paragraphs (4) and (5), and subsidize expenses incurred in relation to the operation, etc. thereof. <Newly Inserted by Act No. 11614, Jan. 1, 2013; Act No. 12173, Jan. 1, 2014></p> <p>(7) The Minister of Strategy and Finance may request the heads of the relevant administrative agencies, etc. to submit opinions or data, where deemed necessary for presenting opinions under paragraph (3), and conducting assessments under paragraphs (4) and (5). In such cases, the heads of the relevant administrative agencies shall comply with such request except in exceptional circumstances. <Newly Inserted by Act No. 11614, Jan. 1, 2013; Act No. 12173, Jan. 1, 2014></p> <p>(8) Matters concerning the establishment of master plans for special taxation and the restrictions thereon, suggestions for tax reduction and exemption, presentation of opinions on tax reduction and exemption, scope of major special taxation, designation of survey and research institutions under paragraphs (1) through (7), and other necessary matters shall be prescribed by Presidential Decree. <Newly Inserted by Act No. 11614, Jan. 1, 2013; Act No. 12173, Jan. 1, 2014></p> <p>[This Article Wholly Amended by Act No. 9921, Jan. 1, 2010]</p>
<p>Enforcement Decree of the Restriction of Special Taxation Act</p> <p>Article 135 (Ex Ante and Ex Post Management of Special Taxation)</p>	<p>(1) "Matters of special taxation prescribed by Presidential Decree" in Article 142 (3) of the Act means any of the following: <Amended by Presidential Decree No. 22037, Feb. 18, 2010; Presidential Decree No. 24368, Feb. 15, 2013; Presidential Decree No. 25590, Sep. 11, 2014></p> <ol style="list-style-type: none"> ① Matters concerning special taxation, the application period of which ends during the relevant taxable year; ② Matters concerning special taxation, in which cases two years have not elapsed since the enforcement of the special taxation; ③ Matters concerning existing special taxation, the scope of which is to be extended; ④ Matters concerning special taxation, which are enumerated in the master plan formulated under Article 142 (1) of the Act as those subject to review. <p>(2) The Minister of Economy and Finance may comprehensively assess the</p>

Provision	Details
	<p>following matters concerning special taxation pursuant to the main sentence of Article 142 (4) of the Act: <Newly Inserted by Presidential Decree No. 24368, Feb. 15, 2013; Presidential Decree No. 25590, Sep. 11, 2014></p> <ul style="list-style-type: none"> ① Matters requiring a comprehensive assessment by each field; ② Matters requiring efficiency of tax expenditures through an objective verification because the amount of reductions or exemptions is anticipated to increase continuously in the future; ③ Other matters recognized by the Minister of Economy and Finance as requiring an in-depth analysis and assessment. <p>(3) “Matters prescribed by Presidential Decree, including matters wherein the repeal of such special taxation is apparent due to the extinction of eligible items” in the proviso to Article 142 (4) of the Act means the following: <Newly Inserted by Presidential Decree No. 25590, Sep. 11, 2014></p> <ul style="list-style-type: none"> ① Matters wherein the repeal of such special taxation is apparent due to the extinction of eligible items; ② Matters related to inter-Korean exchanges and cooperation or those implemented under an agreement or treaty entered into with a foreign country; ③ Matters that the Minister of Economy and Finance recognizes as having no significant change in matters concerning existing special taxation, including the extent and scope of application, which have undergone assessment under Article 142 (4) of the Act within the recent three years. <p>(4) “Amount prescribed by Presidential Decree” in the proviso to Article 142 (4) of the Act means 30 billion won. <Newly Inserted by Presidential Decree No. 25590, Sep. 11, 2014></p> <p>(5) “Matters prescribed by Presidential Decree, including the level of target achievement, economic effects, effects of income redistribution, and effects on finance” in the proviso to Article 142 (4) of the Act means: <Newly Inserted by Presidential Decree No. 25590, Sep. 11, 2014></p> <ul style="list-style-type: none"> ① An analysis of effects of special taxation schemes, including the level of target achievement, economic effects, effects of income redistribution, and effects on finance; ② An analysis of the validity of special taxation schemes, including appropriateness of the purposes and objects of policies and means for implementing policies; ③ An analysis of the causes that hamper achievements of special taxation schemes and schemes to improve achievements.

Provision	Details
	<p>(6) “Special taxation, the annual amount of which is not less than the amount prescribed by Presidential Decree” in Article 142 (5) of the Act means a special taxation scheme, the annual amount of which is at least 30 billion won: Provided, That, in cases of a legislative bill that amends the conditions of an existing special taxation scheme, it refers to a special taxation scheme, the annual amount of which to be added to the amount of the existing special tax scheme is at least 30 billion won. <Newly Inserted by Presidential Decree No. 25590, Sep. 11, 2014></p> <p>(7) “Matters prescribed by Presidential Decree, such as where necessary to cope with economic and social situations” in Article 142 (5) of the Act means: <Newly Inserted by Presidential Decree No. 25590, Sep. 11, 2014></p> <ol style="list-style-type: none"> ① Matters necessary to be introduced in order to cope with economic and social situations; ② Matters related to inter-Korean exchanges and cooperation or implemented under an agreement or treaty entered into with a foreign country; ③ Matters necessary to be introduced urgently in order to implement a project, where the period for supporting an international or national event, or a similar event is temporary and the deadline for application is definite; ④ Matters that the Minister of Economy and Finance recognizes as those referred to in paragraph (8) and included in the details of the assessment conducted under Article 142 (4) of the Act, where it is intended to reflect the findings of the assessment under Article 142 (4) of the Act to improve an existing special taxation scheme. <p>(8) “Matters prescribed by Presidential Decree, including the necessity and timeliness of the special taxation, expected effects, and potential problems” in Article 142 (5) of the Act means: <Newly Inserted by Presidential Decree No. 25590, Sep. 11, 2014></p> <ol style="list-style-type: none"> ① The validity of policies, including the necessity and timeliness of the special taxation, expected effects, potential problems, and methods for support; ② The impact on various areas of the economy, including employment and investment; ③ The impact on the redistribution of income in various areas of the society, such as families, enterprises, and local communities. <p>(9) A legislative bill that amends matters concerning an existing special taxation scheme, including the change of a special tax rate and the addition of an item eligible for a special taxation scheme, shall be deemed a legislative bill that introduces a new special taxation scheme under Article 142 (5) of the Act: Provided, That an extension of the deadline for application of a special</p>

Provision	Details
	<p>taxation scheme shall not be deemed a legislative bill that introduces a new special taxation scheme. <Newly Inserted by Presidential Decree No. 25590, Sep. 11, 2014></p> <p>(10) The head of a relevant administrative agency or any other institution requested to present an opinion or data pursuant to Article 142 (7) of the Act shall submit his/her opinion or data within 10 days from the receipt of such request, if no deadline is specified for submission: Provided, That the head of a relevant administrative agency or any other institution may extend the period in consultation with the Minister of Economy and Finance thereon, if it is impracticable to submit an opinion or data within 10 days from the receipt of a request, but shall notify the Minister of Economy and Finance of the reasons and a management plan, if he/she has not maintained or managed, or is unable to produce the data requested. <Newly Inserted by Presidential Decree No. 25590, Sep. 11, 2014></p>

Source: Ministry of Government Legislation Korea Law Information Center (www.law.go.kr).

Section 2. Overview of Performance Evaluation of Special Cases of Taxation

1. Overview

The Minister of Economy and Finance has the authority for ex ante and ex post management of special cases of taxation under Article 142 of the Restriction of Special Taxation Act and Article 135 of its Enforcement Decree. Performance Evaluation of Special Cases of Taxation are divided into PFS for special taxation as ex ante evaluations and in-depth evaluations of special taxation as ex post evaluations.

PFS for Special Taxation are applicable to newly introduced special cases of taxation. The study aims to delve into their necessity, timeliness, and expected effects and problems to inform the decision maker. In-depth evaluations of Special Taxation are divided into compulsory and arbitrary in-depth evaluations. They aim to review the performance of the special cases of taxation and provide inputs for decisions on the expiry of the programs and institutional improvements.

2. Target Projects

A. PFS for Special Taxation

1) Applicable programs

New special cases of taxation are ones that are not listed in the law specified in Article 3(1) of the Restriction of Special Taxation Act (excluding the Restriction of Special Local Taxation Act), and the amount of special taxation under a given special case of taxation is the amount of annual tax revenue reductions resulting from the implementation of the special case of taxation. PFS for special taxation is applicable to new special case of taxation with an annual special taxation of KRW 30 billion or more and changes in existing special case of taxation with annual tax revenue reductions resulting therefrom of KRW 30 billion or more.²³⁾

2) Exemptions

Special case of taxation under individual tax law taxation systems that do not aim to ease the tax burden of certain taxpayers and will certainly continue for a long time, and ones that are intended to respond to socioeconomic situations, are introduced at a ministerial-level meeting, and are considered necessary by the Minister of Economy and Finance after deliberation by the advisory committee, are exempted from PFS.

① Matters that need to be introduced in response to any of the following economic or social situations are introduced at a ministerial-level meeting such as the Cabinet Meeting and the Economic Ministerial Meeting, and are considered urgently needed by the Minister of Economy and Finance after deliberation by the Performance Evaluation of Special Taxation Advisory Committee:

- a. Significant contraction of the overall economy or risks thereof, for example, declines in economic indicators such as economic growth rates and

23) Changes in existing special cases of taxation mean changes in the special tax rates or addition of beneficiaries, etc. These do not include extensions of applicable periods of existing special cases of taxation.

employment rates

- b. Significant contraction of certain economic activities or risks thereof, for example, specific industries, or production, employment, or investment
- c. Deterioration of key social indicators or risks thereof, for example, worsening income gaps and poverty

- ② Matters that are related to inter-Korean exchange and cooperation or are pursued under international agreements or treaties
- ③ Matters that involve temporary support with a clear timeframe and are urgently needed for the promotion of events such as international competitions and national events
- ④ Matters that are intended to improve existing special cases of taxation by incorporating findings from evaluations under Article 142(4) of the Restriction of Special Taxation Act, of which details are deemed by the Minister of Economy and Finance to have details on matters provided by a Presidential Decree under Paragraph 4, for example, the necessity and timeliness of the special taxation and the expected effects and problems.

B. special taxation in-depth evaluations

1) Compulsory in-depth evaluations

Compulsory in-depth evaluations are applicable to special cases of taxation that are due to expire in a given year (excluding ones that fall under any of the following) with annual special taxation of KRW 30 billion or more:

- ① Programs of which beneficiaries have ceased to exist, hence, clearly due to expire
- ② Programs related to inter-Korean exchange and cooperation or pursued under international agreements or treaties
- ③ Programs that underwent an in-depth evaluation in the past three years and were deemed by the Minister of Economy and Finance to have no significant changes in their details, for example, the size of the programs and the beneficiaries

2) Arbitrary in-depth evaluations

Arbitrary in-depth evaluations may be conducted for special cases of taxation that fall under any of the following:

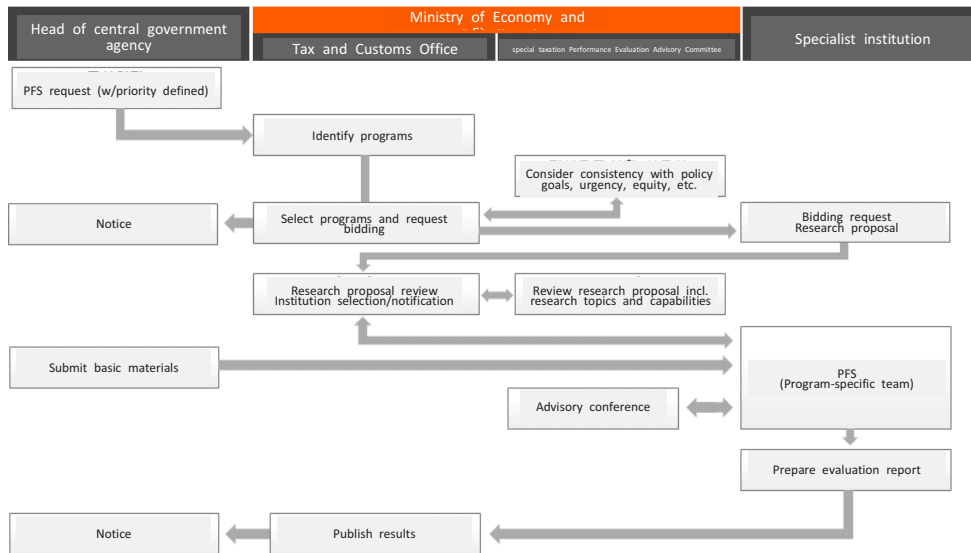
- ① special cases of taxation with similar purposes that need to be evaluated collectively
- ② special cases of taxation under which continued increases in tax exemptions are anticipated; hence, objective inspections are needed to ensure efficiency in tax expenditures
- ③ special cases of taxation for which in-depth evaluations are considered necessary on the grounds of the statements of opinions to the special taxation under Article 142(3) of the Restriction of Special Taxation Act
- ④ special cases of taxation that have existed for a certain time but for which objective performance evaluations have not been conducted
- ⑤ special cases of taxation that are deemed by the Minister of Economy and Finance to be in need of in-depth analysis and evaluations for the effective management of the programs

3. Process of performance evaluation of special cases of taxation

A. Process of PFS for Special Taxation

The Minister of Economy and Finance designates special cases of taxation to undergo PFS on request from the heads of relevant administrative organizations or by virtue of their own authority. The minister considers PFS requests received from the heads of relevant administrative organizations and selects programs in consultation with the special taxation Performance Evaluation Advisory Committee. PFS are commissioned to specialized institutions that are qualified to conduct evaluations under Article 135-2 of the Enforcement Decree of the Restriction of Special Taxation Act. - [Figure VIII-1] shows the process of the PFS.

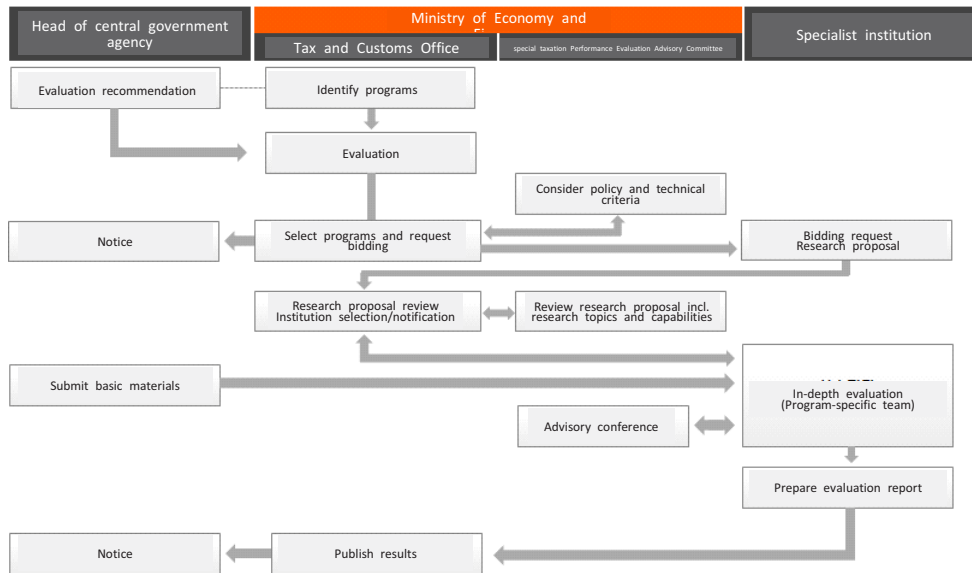
[Figure VIII-1> special taxation PFS process



B. Process of in-depth evaluation of special taxation

Programs for which in-depth evaluations will be conducted are designated annually between September and December, and additional selections may be available depending on the urgency of evaluations and budget availability. The Minister of Economy and Finance decides on the priority of the in-depth evaluations based on the necessity and feasibility of program evaluations and selects programs in consultation with the Performance Evaluation of Special Taxation Advisory Committee within budget. The heads of relevant administrative organizations may suggest that the Minister of Economy and Finance conduct in-depth evaluations for special cases of taxation they find in need of in-depth evaluations. The in-depth evaluations are commissioned to specialist institutions that are qualified to conduct evaluations under Article 135-2 of the Enforcement Decree of the Restriction of Special Taxation Act. - [Figure VIII-2] shows the process of the in-depth evaluation.

[Figure VIII-2] special taxation in-depth evaluation process



C. special taxation performance evaluation workflow

1) Workflow of PFS for special taxation

In a PFS for special taxation, specialized institutions submit research proposals to the Ministry of Economy and Finance upon its request for bidding, and the ministry consults the Performance Evaluation of Special Taxation Advisory Committee to select an institution to conduct the PFS.

A PFS for special taxation consists of policy analysis, economic analysis, and equity analysis, and a comprehensive evaluation using the AHP methodology based on these findings. Below are the items considered in each analysis stage.

- Policy analysis: necessity and timeliness of the special taxation, expected effects and problems, and methods to help resolve them.
- Economic analysis: impact on various aspects of the economy, such as employment and investment.
- Equity analysis: impact on income redistribution among households, businesses,

regions, etc.

- Comprehensive evaluation
 - PFS for special taxation employs the AHP methodology to produce measurable results in the comprehensive evaluation stage.

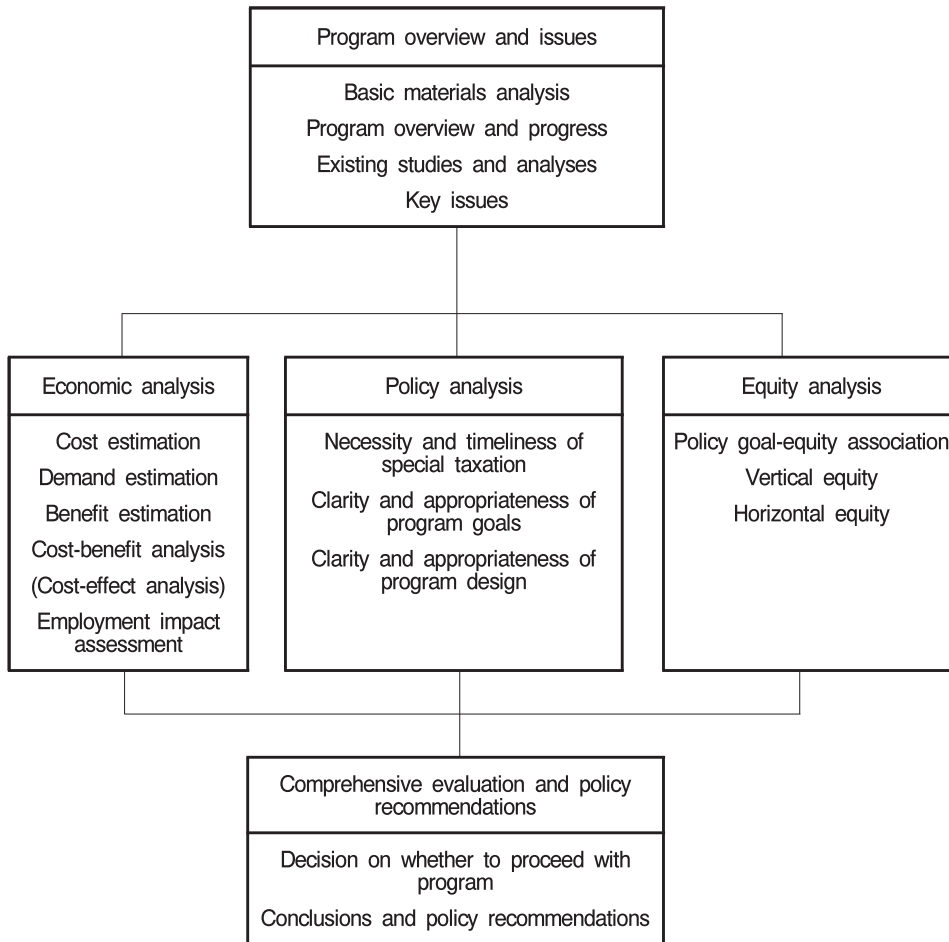
<Table VIII-4> Weights applied to AHP evaluation items

Analysis	Economy	Policy	Equity
B/C	30%–50%	30%–40%	20%–30%
E/C	25%–40%	30%–40%	30%–40%

Source: Ministry of Economy and Finance, special taxation PFS Guidelines, March 2020.

- Policy recommendations
 - If needed, policy recommendations may include comments on risk factors associated with the introduction of the special taxation program and other policy considerations.
 - Policy recommendations: necessity for an in-depth evaluation of the special cases of taxation, timing of the evaluation, and collection of relevant materials for the evaluation, among others, in consideration of the characteristics of the program, potential increases in the amount of the special taxation, costs for reevaluations, etc.

[Figure VIII-3] Workflow of PFS for special taxation



Note: In a special taxation in-depth evaluation, effectiveness analysis and feasibility analysis are conducted in lieu of economic and policy analysis, and no AHP evaluations are conducted.

2) Workflow of in-depth evaluation of special taxation

A in-depth evaluation of special taxation is commenced following the same process as the PFS for special taxation.

A in-depth evaluation of special taxation consists of feasibility analysis, effectiveness analysis, and equity analysis, based on which conclusions are drawn about the expiry or abolition of the special taxation program, recommendations for institutional improvement, etc.

4. Track records of performance evaluation of special cases of taxation

From December 2014 to December 2021, the Ministry of Economy and Finance selected 140 programs for performance evaluation of special taxation: 14 for PFS, 126 programs for in-depth evaluations (73 compulsory and 53 arbitrary in-depth evaluations).

<Table VIII-5> Programs selected by the Ministry of Economy and Finance for performance evaluation of special cases of taxation

(Unit: number of projects)

Year	PFS	In-depth evaluations		Total
		Compulsory	Arbitrary	
2015	3	14	3	20
2016	2	6	12	20
2017	2	8	9	19
2018	1	12	5	18
2019	2	3	13	18
2020	3	12	3	18
2021	1	18	8	27
Total	14	73	53	140

Note: Above number is based on the year of program commencement.

Of these, PIMAC conducted 51 evaluations: six PFS and 45 in-depth evaluations. The evaluation project that commenced in 2015 was commissioned by the Korea Institute of Public Finance (KIPF).

<Table VIII-6> Track records of performance evaluation of special cases of taxation conducted by KDI

(Unit: number of projects)

Year	PFS			In-depth evaluations		Total
	Projects	Project costs	Feasibility	Compulsory	Arbitrary	
2015	1	KRW 34.4B/year	Infeasible	-	-	2
2016	1	KRW 44.5B/year	Infeasible	3	5	9
2017	1	KRW 16.4B/year	Infeasible	3	3	7
2018	0	-	-	5	1	6
2019	1	KRW 210.6B/year	Infeasible	1	5	7
2020	2	KRW 30B/year ²⁾ KRW 27.4B/year ³⁾	Infeasible	7	1	10
2021	0	-	-	8	3	11
Total	6	-	-	27	18	51

Notes: 1) Above number is based on the year of program commencement.

2) Tax deductions for small and medium enterprise patent applications, registrations, and retention costs and patent intelligence surveys and analysis costs.

3) Value added tax return for goods purchased during the Korea Sale Festa.

In 2021, 11 evaluations were conducted including 11 in-depth evaluations (eight compulsory and three arbitrary).

<Table VIII-7> Performance evaluation of special cases of taxation conducted by KDI in 2021

Year commenced	Type	No.	Project
2021	Compulsory in-depth evaluation	1	Exemption from indirect tax on petroleum for agriculture, forestry, and fishing
		2	Tax reduction or exemption for start-up SMEs, etc.
		3	Capital gains tax reduction or exemption on land for public utility projects
		4	VAT zero rate for urban railway construction services
		5	Reduction of value-added tax paid by general taxi transportation business operators
		6	Special case for deduction of value-added input tax on recycled waste resources, etc. (excluding used cars)
		7	Refund of individual consumption tax on fuel for light-weight vehicles
		8	Reduction or exemption of individual consumption tax on taxi fuel
	Arbitrary in-depth evaluation	9	Special taxation for the establishment and operation of the sports department of a company
		10	Exemption from securities transaction tax on arbitrage transactions such as Korea Post
		11	Inclusion of claims in deductible expenses due to revocation of approval for establishment of a maintenance project association, etc.

Note: Year of publication.