

출장복명서

1. 출장개요

- 출장지: 파라과이(아순시온)
- 출장자: 김강수 부장(국토·인프라정책연구부)
- 출장기간: 2016년 6월 12일 ~ 2016년 6월 17일
- 출장목적: IDB 주최 "Challenges in project prioritization and management of the pre-investment in infrastructure" conference 초청발표

□ 출장일정

일 짜	활 동 사 양
2016.06.12(일)	한국(인천공항) 출발
2016.06.13(월)	아순시온 도착
2016.06.14(화)	예비타당성 조사의 성과와 과제 발표 및 컨퍼런스 참가
2016.06.16(목)	아순시온 출발
2016.06.17(금)	한국(인천공항) 도착

2. 발표내용

A Strong Project Appraisal Scheme ; The Preliminary Feasibility Study (PFS) ?

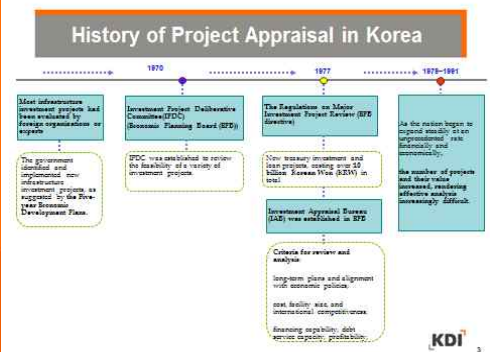
Kangsoo KIM (kskim@kdi.re.kr)
Director and Vice President
Department of Land and Infrastructure Policy
Korea Development Institute

June 14, 2016

Korea's Leading Think Tank **KDI**

CONTENTS

1. Evolution of Feasibility Study in Korea
2. How to manage the Preliminary Feasibility Study(PFS)
3. Features of PFS
4. Performance and Achievements of PFS
5. Key Success Factors
6. Challenges and the way forward



[illegible]

(unit: trillion won, % of expenditure)

Welfare

Economic Infrastructure

Source: Ministry of Strategy and Finance, Korea. Consolidated Fiscal Balance, Respective Year.

KDI

- As a government reform initiatives in response to the financial crisis of 1997-98, a new PIM started in 1999.

- The MPB tried to take over the FS from the line ministries
- Line ministries, esp. MOCT, violently resisted to transferring the ownership of FS, claiming that feasibility studies require each of their unique expertise, and that no single country allows a budget authority to carry out feasibility studies by itself.
- The Enforcement Decree of the Budget and Accounts Act was amended in April 1999 to require that any new large project be carried out with a pre-feasibility study, feasibility study, basic design, implementation design, compensation, and construction.

Figure 10 consists of two charts. The left chart is a histogram showing the distribution of traffic forecasting errors. The x-axis is labeled 'Traffic forecasting error(%)' and ranges from -100 to 80. The y-axis represents frequency, ranging from 0 to 35. The mean is noted as 41.75. The right chart is a line graph showing the percentage of errors greater than or equal to a threshold (x-axis, 0 to 100) for three methods: Traffic forecasting error(%) (green line), Actual traffic (red line), and Forecast traffic (blue line). The y-axis represents the percentage, ranging from 0 to 1.0. The legend indicates: $\Delta = \frac{E - E_0}{E_0} \times 100$, Δ : Traffic forecasting error(%), E : Actual traffic, E_0 : Forecast traffic.

- The baseline cost of the Seoul-Busan High Speed Rail (KTX) project has more than tripled from 5.5 Trillion KRW (\$5.5 Billion USD) to 18.5 Trillion KRW (\$18.5 billion USD)
 - A feasibility review committee investigated the FS.
- Thirty-two out of thirty-three projects (1994-98) were evaluated as feasible in FS.
 - Conflict of interests
 - ✓ Line Ministry: Budget maximizing and irreversible decision making behavior
 - ✓ Engineers and professors: Keep up the market
 - FS as a formality: optimism bias (cost down, benefit/demand up)
 - No Check & Balance

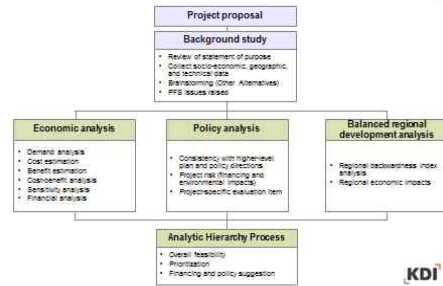
- Provisional, or short and brief, and
 - The PFS costs about 80-100 million Won, and takes about 6 months; Detailed FS costs about 300 million to 2 billion Won.
- Preceding a (detailed) feasibility study

❑ The National Finance Act of 2006 provides the legal basis of the PES

Coverage of The PFS

- ❑ All new large-scale projects with total costs amounting to 50 Billion KRW (about 50 Million USD) or more are subject to PFS.
 - Local government and PPP (Public-Private Partnership) projects are also subject to PFS if central government subsidy exceeds 30 Billion KRW.
- ❑ Initially focused on economic infrastructure, PFS has expanded to social infrastructure and non-infrastructure (e.g. R&D, welfare) programs.
- ❑ Projects without effectiveness of PFS are exempted
 - Typical building projects: government offices and correctional institutions
 - Legally required facilities (specified in the law): sewage and waste treatment facility
 - Rehabilitating projects and restoration from natural disaster
 - Military facilities and projects related with national security

Flowchart of PFS Analyses



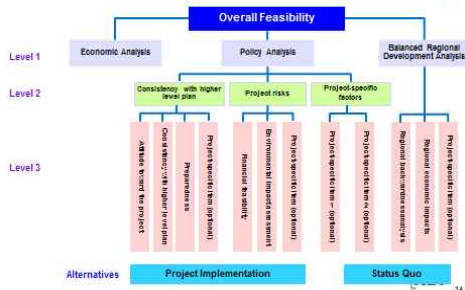
Management ; Selection of External the PFS Research Team

- ❑ Multi-disciplinary PFS team
 - Three or more organizations are involved
 - e.g. KDI (Project manager), University professors (Transportation demand analysis), and private Engineering firms (Cost estimation)
- ❑ Open Recruitment for external experts or outsourcing PFS research team throughout the homepage announcement of KDI, Public Procurement Service Agency, related associations and daily newspaper advertisement.
 - Consider the main research and project experiences and comprehensive reviews on the PFS external research team (expertise, impartiality, accountability)
 - Exclusion of stakeholder through the checking school ties, regionalism, pre-feasibility participation etc.
 - School ties and regionalism with KDI internal research team for internal PFS conducted are also excluded.

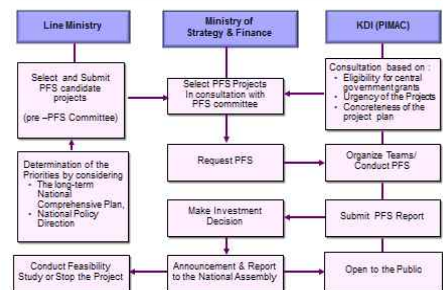
Management ; Selection of External the PFS Research Team

- ❑ Selection of outsourcing PFS research team through a public tender evaluation by the evaluator consisting of KDI PIMAC, Ministry of Strategy and Finance and the competent authorities officials, external experts.
 - Evaluation criteria: Understanding of Project, Approach method, Institutional assessment, Outcomes, Input personnel evaluation

Analysis Structure in the PFS



PFS Implementation Procedure



Management ; PFS progressives

- ④ Kick-off Meeting
 - Attendance: MOSF, KDI PIMAC, PFS Research Team
 - Meeting Issue: PFS overview, guidelines and schedule
- ⑤ Progress Check Meeting
 - Attendance: PIMAC, Internal reviewer, External research team, external experts
 - Meeting Issue: Background, survey result, issues and schedule
- ⑥ KDI 1st Check Meeting
 - Attendance: PIMAC, Internal reviewers, External research team, external experts
 - Meeting Issue: Cost, Demand, Benefit Estimation result and tentative result of B/C



Management ; the PFS progressives

- ④ MOSF 1st-Check Meeting
 - Attendance: KDI PIMAC, PFS research team, MOSF and Line ministry
 - Meeting Issue: Cost, Demand, Benefit Estimation result and Tentative result of B/C
- ⑤ KDI 2nd Check Meeting
 - Attendance: KDI PIMAC, Internal reviewer, External research team, external experts
 - Meeting Issue: Major changes after 1st Meeting, Result of Policy and Balanced Regional Development Analysis
- ⑥ MOSF 2nd Check Meeting
 - Attendance: KDI PIMAC, PFS research team, MOSF and Line ministry
 - Meeting Issue: Major changes after 1st Meeting, Result of Policy and Balanced Regional Development Analysis

Management ; (implicit) Code of Conduct

- ① Reference the regionalism for the duty avoidance of stake when KDI internal PFS team selected.
- ② Prohibit sensitive information leakage obtained in connection with conducting PFS.
 - KDI internal team (KDI Code of Conduct), external researchers (service declaration)
- ③ Not accepting any kind of bribes from relevant competent authorities.
 - (example) Expenditure from PFS service charge for expenses when having meetings with competent authorities and relevant local government.

KDI 20

Korea's Leading Think Tank

Part-03 Features of The PFS

Features of the PFS

Well developed evaluation guidelines

- Detailed description of methodology and procedures of PFS implementation to avoid ambiguity
- PFS guidelines by sector:
 - Roads, rail, seaports, airports, dams, and cultural facilities
 - Using the same dataset for different projects in the same sector
- Continuous revision of guidelines through academic research



KDI 24

Features of PFS

Neutrality and Objectivity

- External experts to join PFS

Multi-disciplinary PFS team

- Three or more organizations are involved
- e.g. KDI (Project manager), University professors (Transportation demand analysis), and private Engineering firms (Cost estimation)

- Open review process

Open review process

- Independent reviewer is designated
- Open discussion on a mid-term and final PFS reports
- Reviewed by the MOSF and line ministries, PIMAC, and field specialists from private and public sectors

25

Features of the PFS

Owned by the Ministry of Strategy and Finance (MOSF), evaluated by Independent Evaluation unit, PIMAC

- PFS is a evaluation of a project to produce information for budgetary decision
- PFS evaluated by KDI PIAMC, an independent research institute, provided some buffer from political and bureaucratic pressure.

KDI 22

Features of the PFS

The Expanded Role of Policy Analysts (PFS team) in PFS, beyond Information Providers:

- PFS team members (e.g. Team leader (KDI), Demand/Professor), Cost (Engineer))) and Advisory committee members (Staff of PIMAC and peer reviewers) make their explicitly quantified judgments on project desirability
- Judgments are respected in the government decision-making.
 - PFS results are rarely overruled by budget ministry and the National Assembly

Clear and Explicit Binary judgment (feasible/non feasible) on the overall feasibility

- Minimizing uncertainty and arbitrary Interpretation of acquired information from analysis
- Gained increasing acceptance as a highly information means of budget allocation

KDI 23

Features of PFS

Unified tool to consider the possibility of PPP (Public Private Partnerships)

Phase 1: Feasibility study (Decision to Invest)

- The cost-benefit analysis and AHP is conducted to determine feasibility of the project from a national economy perspective.

Phase 2: Value for Money Assessment (Decision on PFI)

- The government payment of PSC (Public Sector Comparator) is compared against that of PFI (Private Finance Initiative) to assess whether the PFI achieves VFM.

KDI 26

Features of the PFS

Various values are incorporated and evaluated

- Various values (job creation, environmental impact, regional equity, project-specific factors) are incorporated in the frame of PFS evaluation
- Multi-criteria decision making technique (AHP) is adopted to combine quantitative and qualitative elements of evaluation
 - PFS results are rarely overruled by budget ministry and the National Assembly
 - Gives weight on each element through pair-wise comparison
 - A project is evaluated as feasible if AHP score is 0.5 points or more out of 1.0 point

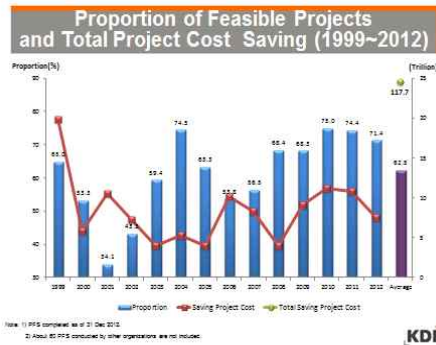
Systematic Management

- Procedures of PFS : Selection of PFS projects, manage and external experts, five report review meetings, code of conducts



KDI 27

Part-04 | Performance and Achievements of the PFS



KDI 29

Performance and Achievements of the PFS

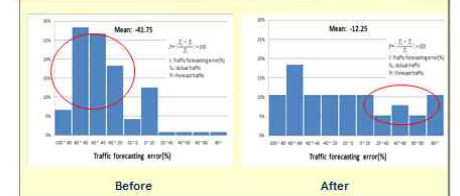
- **Establishing management system to ensure objectivity, consistency, and transparency**
 - General guidelines to minimize the methodological ambiguity
 - External experts on PFS team to reflect open review and to gain supports from potential adversarial group
 - Systematic management
 - Minimization of impact of external interest groups on evaluation
- **Comprehensive framework analyzing various factors**
 - A multi-criteria decision making technique is developed to combine quantitative and qualitative elements of evaluation into a decision under a hierarchical structure.

KDI 32

Performance and Achievements of PFS

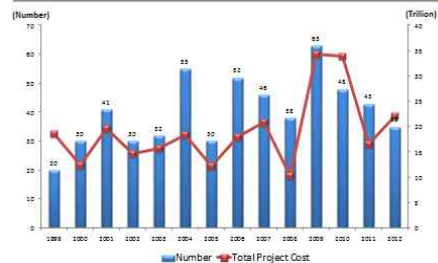
□ Preventing Optimum Bias in Transport Investment Appraisals

• Distribution of Traffic Forecasting Errors before and after PFS



KDI 33

Number and Total Project Cost (1999~2012)



KDI 30

Performance and Achievements of the PFS

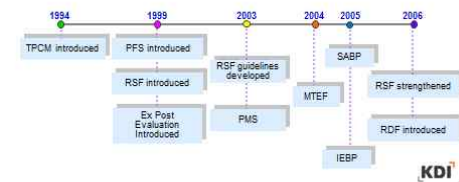
- **Role as preemptive fiscal expenditure management tool**
 - Economic Infra (1999) → Social Infra → R&D and Social Program (2007, 8) → SOE Projects (2011) → TE proposals (2014)
- **Enhancing fiscal efficiency by preventing non-feasible projects**
 - As available capacity of government budget expanded, productivity of fiscal expenditure was enhanced by allocating national budget into more productive sector
 - Only about 60% of the projects were feasible preventing start of unnecessary or not urgent projects

KDI 31

Performance and Achievements of the PFS

□ A stepping stone of the Integrated Public Investment Management System

- Same/similar methodologies and inquiry process were applied
- Other evaluations are spin-off products of PFS



KDI 34

Revision of the PFS Guidelines (1)

□ Improvement of the Feasibility Evaluation methods

- About 134 experts from universities, private companies and other government funded research institutes have been involved in

Year	Institutional Reform	Guidelines Publication
1999	- Introduce PFS process - Economic Analysis + Policy Analysis - Standardize Main Premise - Appraisal Period, Discount Rate, Value of Travel Time - Use Basic Travel Demand Data	1st Standard Guideline Published - General, Road & Railway
2000	- Introduce AHP method for Multi-Criteria Analysis - Adopt Different Discount Rate by Sector - General Sector 7.5%, Water Resource Sector 6.0% - Revise Basic Travel Demand Forecast Data - Study using KOTI Data - Update Main Index	2nd Standard Guideline(revised) Published - General, roadway, railway(revised) - OD & Network Study
2001	- Add new benefit item : Environmental Benefit - Revise Basic Travel Demand Forecast Data - KTDB - Update Main Index	3rd Standard Guideline(3rd) Published - General, roadway, railway(3rd)

KDI 35

Revision of the PFS Guidelines (2)

Year	Institutional Reform	Guidelines Publish
2004	- Adjust Discount Rate - 7.5% → 6.5% - Change Appraisal Period of Road sector - 20years → 30years - Improve AHP technique - Number of AHP evaluators increased - Give Range of Weight for Economic Analysis (45-65%) - Update Main Index(Cost, Benefit)	4th Standard Guideline(4th) Published - General, road & railway(4th)
2006	Improve AHP structure - Separate Balanced Regional Development Analysis from Policy Analysis(15-25% weight)	
2007	Adjust Discount Rate - 6.5% → 5.5%	
2008	Assess potential of PPP as a procurement option	
2009	Adjust AHP weight - 15-20% weight to Balanced Regional Development Analysis	5th Standard Guideline(5th) Published - General, road & railway(5th)
2011	Adjust AHP weight - 20-30% weight to Balanced Regional Development Analysis	

KDI 36

Korea's Leading Think Tank

Part-05 Key Success Factors

KDI

Key Success Factor

- ❑ Management system that embraces potential adversarial experts
 - Open review system
 - Multi-disciplinary PFS team
- ❑ Presenting binary judgment (either feasible or non-feasible) which is clear and explicit
 - Minimizing uncertainty in interpreting the feasibility and preventing arbitrary interpretation of suggested information
 - Increasing acceptance as a highly informative means and as a decision making support tool

KDI 40

Korea's Leading Think Tank

Part-06 Challenges and the way forward

KDI

Key Success Factors

❑ Legal & Regulatory Framework

- National budget guideline(1999) → Enforcement Decree of the budget and accounts Act(1999) → The National Finance Act(2006)
- The legal framework of PFS enhanced by the National Finance Act(2014) covering higher standards for exemption, and institutions' roles

❑ Linkage between PFS results and budget allocation

- Though both politicians and bureaucrats do not want to lose their discretion to make decisions,
- Bureaucrats:
 - Escaped from the political pressure and blame avoidance strategy for the failure in fiscal spending
 - Oversight of the Board of Audit and Inspection

KDI 38

Key Success Factors

- Politicians:
 - Budget authority has the upper hand in budget allocation
 - Respection on the independent and authoritative institution's judgment
 - The public having more chance to monitor government and politician's activities

❑ Inclusion of various values constantly changing over time in evaluation framework

❑ Improvement of guidelines not only to intensify objectivity, consistency and transparency but also to avoid the methodological and procedural ambiguity

❑ Providing relevant plans and policy information

- Information about feasibility as well as optimal scale of the projects and budget, optimal alternatives and efficient strategy in public investment

KDI 39

Challenges and the Way forward

❑ Expansion of PFS result disclosure

- National Finance Act
 - Pursuant to the "Official Information Disclosure Act" Article 7, head of the entities in charge thereof shall disclose data on PFS results including demand forecast, etc

❑ Systematic management of reflecting outside view

- Consolidation of research and management system including Open Review and Discussion, Having potential adversarial experts on PFS team, Independent Reviewer

Challenges and the Way forward

❑ Continuous evaluation guidelines revision

- To minimize the methodological and procedural ambiguity
- To improve objectivity, consistency, transparency
- To improve the validity of PFS judgments to provide more relevant policy advice

❖ Sector guidelines (road, rail, seaport, airport, water resources, cultural facilities, R&D Program, TE) and Evaluation guidelines regarding categories (Electricity, Housing Lots, Social welfare, Tax expenditure, and Overseas investment Projects)

❖ Distributional impacts

- Suggested project might have differential impacts on individuals, amongst other impacts, according to their: income, gender, age, geographic location.

KDI 42

KDI 43

Korea's Leading Think Tank

KDI

Korea's Leading Think Tank

KDI



Some Issues

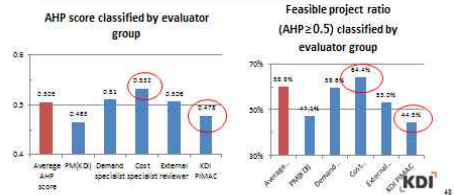
- To much transferring the authority of budget decision-making from the politicians or bureaucrats to policy analysts?
- Is explicit binary judgment on the feasibility desirable?
- Does technical values explain all? ; myth of technical value
 - A blind faith in B/C ratio and AHP Scores of PFS evaluation
 - The familiarity and understanding of the B/C ratio and AHP score to the public

KDI 47

Some Issues

- Is there a possible drawback that PFS might inhibit appropriate and efficient projects due to the conservative assessment?

Analysis of decisionmaking behavior reflected on AHP



KDI 48

3. 회의 세부내용

- 회의 주제: 엘살바도르 공공투자 제도개선
- 참석자: 김강수 부장(KDI), 이종욱(기획재정부), IDB(Juan Alberti)
- 엘살바도르 공공투자 제도개선 자문의 배경
 - 공공투자제도의 비효율성 문제는 엘살바도르 정부의 오랜 숙원 과제로 국가계획과의 연계가 미흡하고 사전타당성검증의 소홀, 조달과정에서의 투명성 저하 등을 원인으로 다양한 형태의 부작용이 발생하고 있음.
 - 아울러, 정체된 경제성장의 촉진을 위해 공공투자를 확대하는 등의 계획을 가지고 투자 시스템 효율성 제고를 위한 제도개선에 착수함.
 - 이에 대통령실, 국토부, 재정부 등 관계부처 합동으로 공공투자관리단을 설치하였고 IDB에서는 관리단의 활동을 위한 용역비를 일부 지원하고 있음.
- 주요자문내용
 - 벤치마킹 사례 제시, 엘살바도르 공공투자제도 심층분석, 엘살바도르 공공투자 담당공무원 교육, 제도개선 우선순위 선정 등
- 기타
 - 수출입은행에서 엘살바도르 공공투자제도 개선에 대한 용역을 발주할 예정