Public Investment Management (PIM) in Korea

- Focusing on Preliminary Feasibility Study (PFS) -

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Korea Development Institute (KDI)

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Part I : History of PIM system in Korea

Part II : Introduction to PFS system

Part III : Method of PFS

Part IV : Performance of PFS by PIMAC

Part V : Lessons Learned
Part-01 History of PIM System in Korea
1990s increase in social welfare and infrastructure spending

Source: Ministry of Economy and Finance, Korea. Consolidated Fiscal Balance, Respective Year.
Criticism against feasibility studies in the past
  - Thirty-two out of thirty-three projects (1994~98) were evaluated as feasible in Feasibility Studies conducted by procuring ministries.
    - Conflict of interests
      - Line Ministry: Budget maximizing
    - FS as a formality: optimism bias (cost down, benefit/demand up)
    - No Check & Balance

  - In the wake of financial crisis, the issue of fiscal soundness became an important policy agenda.

Emergence of a New PIM
  - As a government reform initiative, a new PIM was initiated in 1999.
## Integrated Public Investment Management (I-PIM) System in Korea

<table>
<thead>
<tr>
<th>Ex Ante</th>
<th>Intermediate</th>
<th>Ex Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Draft Design</td>
<td>Operation/Maintenance</td>
</tr>
<tr>
<td>PFS</td>
<td>Blueprint Design</td>
<td></td>
</tr>
<tr>
<td>Feasibility Study</td>
<td>Land Acquisition/Construction</td>
<td></td>
</tr>
</tbody>
</table>

- **TPCM, RSF & RDF VE (Value Engineering) at Design stage**
- **Performance Evaluation/IEBP (In-depth Evaluation of Budgetary Program)**

*Evaluation works in RED characters are those whose ownership belong to the budget ministry.*
Part-02 Introduction to PFS System
Short and brief evaluation of a project to produce information for budgetary decision

- Owned by the Ministry of Economy and Finance (MOEF) and managed by designated institutions to perform evaluation
- While (detailed) feasibility study analyzes technical aspects of a project in detail, PFS emphasizes broader analysis of a project from a national socio-economic viewpoint.

Meaning of “PRELIMINARY” is two-folded:

- Provisional, or short and brief (about 6 months)
- Preceding a (detailed) feasibility study

The National Finance Act of 2006 provides the legal basis of PFS.
Features of PFS

- **Pillars of PFS:** *Objectivity, consistency* and *transparency*

- **Ministry of Economy and Finance Orders**
  - Operational Guidelines of Preliminary Feasibility Study
  - Comprehensive Guidelines for the Implementation of Preliminary Feasibility Study

- **Development of Evaluation Guidelines by PIMAC**
  - Detailed description of methodology and procedures of PFS implementation
  - 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 updates and research
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.
The MOEF designates specialized institutions to conduct the PFS

- The budget authority rather than the procuring ministries delegates the assessment of projects to specialized independent institutions.
  - Guarantees objectivity of the assessment
PFS Implementation Procedure

Line Ministry

Select and Submit PFS candidate projects (pre-PFS Committee)

Determination of the Priorities by considering
- The long-term National Comprehensive Plan
- National Policy Direction

Conduct Feasibility Study or Stop the Project

Ministry of Economy and Finance

Select PFS Projects in consultation with ‘Fiscal Project Evaluation Committee’

Request PFS

Make Investment Decision

Announcement & Report to the National Assembly

KDI PIMAC

Consultation based on:
- Eligibility for central government grants
- Urgency of the Projects
- Concreteness of the project plan

Organize Teams/Conduct PFS

Submit PFS Report

Open to the Public
Part-03  Method of PFS
Flowchart of PFS Analyses

- **Project proposal**
- **Background study**
  - Review of statement of purpose
  - Collect socio-economic, geographic, and technical data
  - Brainstorming (Other Alternatives)
  - PFS issues raised

- **Economic analysis**
  - Demand analysis
  - Cost estimation
  - Benefit estimation
  - Cost-benefit analysis
  - Sensitivity analysis
  - Financial analysis

- **Policy analysis**
  - Conditions to implement project (e.g. coherence with higher-level policies, acceptance by local residents)
  - Policy effects (social values on improving quality of life)
  - Project-specific evaluation (e.g. financing risk)

- **Balanced regional development analysis**
  - Regional backwardness index analysis
  - Regional economic impacts

- **Analytic Hierarchy Process**
  - Overall feasibility
  - Prioritization
  - Financing and policy suggestion
Features of PFS Analyses

- **Evaluation guidelines ensure the objectivity and consistency**
  - Provide basic process, methodology, commonly used models, average data & unit etc.
  - Individual project team can consider project-specific characteristics.

- **Cost-benefit analysis method is used to assess the economic feasibility of a project.**
  - CBA is conducted in accordance with sectoral guidelines for PFS (e.g. roads, railroads, ports, seaports, dams, and environment facilities).
  - B/C ratios calculated based on the estimation of demand, costs and benefits

- **Non-economic dimensions are also considered**
  - Evaluation in qualitative terms whether the project is justified in relation to relevant policy issues
  - Balanced regional development: regional backwardness analysis
Features of PFS Analyses

- **PFS assessment team**
  - Estimates costs and benefits of the project

- **Procuring ministry**
  - Presents the policy analysis

- **Sector sub-committee under the Fiscal Project Evaluation Committee**
  - Makes final decision after reviewing the economic feasibility, policy, and regional development analyses
AHP (Analytic Hierarchy Process)

- **AHP is a multi-criteria decision-making technique to combine quantitative and qualitative elements of evaluation into a decision under a hierarchical structure.**
  - Structures a complex decision problem into a hierarchy by grouping element of decision
  - Gives weight on each element through pair-wise comparison
  - The consistency of the weighting can be tested.

- **A group of experts are involved in the decision making.**
  - PFS team (e.g. Project Manager (KDI), Demand (Professor), Cost (Engineer))
  - Advisory committee members (peer reviewers)

- **A project is evaluated as feasible if AHP score is 0.5 points or more out of 1.0 point.**
Part-04  |  Performance of PFS by PIMAC
Role and Function of PIMAC (1)

- Promoting greater fiscal accountability and efficiency in public investment
  - Gatekeeper of public investment procurement by enhancing efficiency and transparency of public and private investment and provides various consulting services and research to improve related policies and analytical tools.
Role and Function of PIMAC (2)

- **Evaluation of large public investment projects**
  - Support **feasibility studies** to produce budgetary information
  - Provide **sectoral guidelines** for objective and comprehensive analysis of large public investment projects

- **Types of feasibility study**
  - The **Preliminary Feasibility Study (PFS)** prevents wasting of government budgets and enhances the efficiency of fiscal management by conducting ex-ante feasibility study on large public investment projects.
  - The **Assessment of Project Plan** reviews the appropriateness of project scale, total project cost and efficient alternatives of the projects in case the projects are exempted from the PFS.
  - The **Reassessment Study of Feasibility (RSF)** reassesses the feasibility of the projects with more than 20% increase in the total project cost during the implementation phase.
  - The **Reassessment of Project Plan** reviews the appropriateness of project scale, total project cost and efficient alternatives of the projects in case the projects are exempted from the RSF.
  - The **Reassessment of Demand Forecast (RDF)** re-examines the changes in demand in large public investment projects with long period of time from planning to completion.
Performance

- Feasibility studies on large public investment projects by PIMAC (cumulative, 1999-2021)

Performance of Feasibility Studies on Large Public Investment Projects by PIMAC (cumulative, 1999-2021)

Estimated Cost Savings of 218.5 trillion KRW (USD 157.2 billion)

- 943 Preliminary Feasibility Studies: 170 trillion KRW (USD 122.3 billion)
- 127 Assessment of Project Plan: 3.1 trillion KRW (USD 2.2 billion)
- 326 Reassessment Study of Feasibility: 40 trillion KRW (USD 28.8 billion)
- 112 Reassessment of Project Plan: 5.4 trillion KRW (USD 3.9 billion)
- 21 Reassessment of Demand Forecast
- 51 Assessment of Design Modification
Proportions of projects deemed feasible (1999~2021)

Number and percentage of projects that met the overall feasibility requirement in PFS (by area and year)

<table>
<thead>
<tr>
<th>Year</th>
<th>Road</th>
<th>Railway</th>
<th>Port</th>
<th>Culture, tourism, architecture</th>
<th>Water resource</th>
<th>Others</th>
<th>% deemed feasible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No. of projects</td>
<td>261</td>
<td>138</td>
<td>50</td>
<td>98</td>
<td>63</td>
<td>157</td>
<td>767</td>
</tr>
<tr>
<td>No. of projects deemed feasible</td>
<td>160</td>
<td>79</td>
<td>38</td>
<td>66</td>
<td>46</td>
<td>117</td>
<td>506</td>
</tr>
<tr>
<td>% feasibility</td>
<td>61.3%</td>
<td>57.2%</td>
<td>76.0%</td>
<td>67.3%</td>
<td>73.0%</td>
<td>74.5%</td>
<td>66.0%</td>
</tr>
</tbody>
</table>

## Annual total project costs saving through PFS (1999~2021)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total No. of projects</th>
<th>Total project costs (KRW 100mil.)</th>
<th>Total costs saved (KRW 100mil.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>20</td>
<td>271,559</td>
<td>197,956</td>
</tr>
<tr>
<td>2000</td>
<td>30</td>
<td>152,439</td>
<td>57,753</td>
</tr>
<tr>
<td>2001</td>
<td>41</td>
<td>198,401</td>
<td>105,823</td>
</tr>
<tr>
<td>2002</td>
<td>30</td>
<td>162,059</td>
<td>73,120</td>
</tr>
<tr>
<td>2003</td>
<td>32</td>
<td>176,278</td>
<td>39,885</td>
</tr>
<tr>
<td>2004</td>
<td>55</td>
<td>185,740</td>
<td>52,697</td>
</tr>
<tr>
<td>2005</td>
<td>30</td>
<td>123,561</td>
<td>39,569</td>
</tr>
<tr>
<td>2006</td>
<td>52</td>
<td>193,531</td>
<td>101,401</td>
</tr>
<tr>
<td>2007</td>
<td>46</td>
<td>189,476</td>
<td>82,947</td>
</tr>
<tr>
<td>2008</td>
<td>38</td>
<td>90,471</td>
<td>39,685</td>
</tr>
<tr>
<td>2009</td>
<td>63</td>
<td>303,290</td>
<td>91,362</td>
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<tr>
<td>2010</td>
<td>48</td>
<td>279,831</td>
<td>112,091</td>
</tr>
<tr>
<td>2011</td>
<td>99</td>
<td>228,262</td>
<td>107,606</td>
</tr>
<tr>
<td>2012</td>
<td>35</td>
<td>206,434</td>
<td>75,150</td>
</tr>
<tr>
<td>2013</td>
<td>16</td>
<td>34,445</td>
<td>9,421</td>
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<tr>
<td>2014</td>
<td>34</td>
<td>119,939</td>
<td>28,305</td>
</tr>
<tr>
<td>2015</td>
<td>18</td>
<td>64,689</td>
<td>31,323</td>
</tr>
<tr>
<td>2016</td>
<td>49</td>
<td>122,781</td>
<td>60,952</td>
</tr>
<tr>
<td>2017</td>
<td>31</td>
<td>239,904</td>
<td>103,175</td>
</tr>
<tr>
<td>2018</td>
<td>22</td>
<td>115,155</td>
<td>26,053</td>
</tr>
<tr>
<td>2019</td>
<td>25</td>
<td>145,667</td>
<td>10,692</td>
</tr>
<tr>
<td>2020</td>
<td>19</td>
<td>129,605</td>
<td>10,754</td>
</tr>
<tr>
<td>2021</td>
<td>110</td>
<td>318,876</td>
<td>241,633</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>943</strong></td>
<td><strong>4,052,393</strong></td>
<td><strong>1,699,353</strong></td>
</tr>
</tbody>
</table>

Note: No. of projects includes additional 176 PFS performed as bundles for five five-year road plans

Part-05  Lessons Learned
PFS has contributed to enhancing fiscal efficiency by preventing non-feasible projects from getting launched.

- One third of the projects were evaluated as ‘not-feasible’, preventing unnecessary use of budget and launching of projects that are not urgent.

PFS provides high quality information for decision-making in budget allocation.

- Budget allocation involves bargaining b/w the budget ministry and line ministries.
- In the past, line ministries used to provide selective information to receive more budget.
- On the other hand, the budget ministry cut/increased project budget based on reasons that were not always convincing (e.g. political reasons).
• PFS mitigates information asymmetry between the budget ministry and line ministries and leads to better decision-making.
  - The MOEF produces its own information that is more reliable than in the past.
  - PFS report includes information not just for binary decision (feasible/infeasible), but also provides policy suggestions and other useful information.

• PFS puts emphasis on the importance of the project conception and ex ante evaluation in the public investment management system.
  - The PFS team requires more concrete plan for evaluation purposes, which leads to elaboration of the project proposal in more concrete and economic way.
  - For example, in the past, some initial proposals for museum projects included only a building plan/design without exhibition plan.
**Contribution of PFS to PIM (3)**

- **PFS improved the quality of decision-making** by explicitly incorporating ‘social value’ into the evaluation process.
  - Policy analysis allows non-economic and qualitative factors to be incorporated into the evaluation.

- **PFS performed by designated institutions such as KDI, an independent research institute**, provided **buffer from political pressure and other influence** over the project.

- Despite some drawbacks, PFS as a system has settled in the public mind as a strong tool for maintaining fiscal efficiency as well as checking and balancing between budget and procuring ministries.
Thank You!