Make Public Investment Management Reform Happen in Korea

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Outline

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2. Before the Reform: What went Wrong and Why?
3. PIM Reform Evolution and Performance
4. Main Drivers for Reform and Lessons Learned
5. Concluding Remarks

1. Motivation

- Financial crisis in the last half of 1997 had a devastating impact on the Korean economy.
- To address the fundamental causes of the crisis and to revitalize the economy, the government took bold and decisive steps to initiate comprehensive structural reforms.
- The government adopted a series of quality control efforts for efficient public investment management (PIM).
- The paper seeks to explain the institutional arrangement and reform efforts, highlighting main discussion points that facilitated successful reforms.

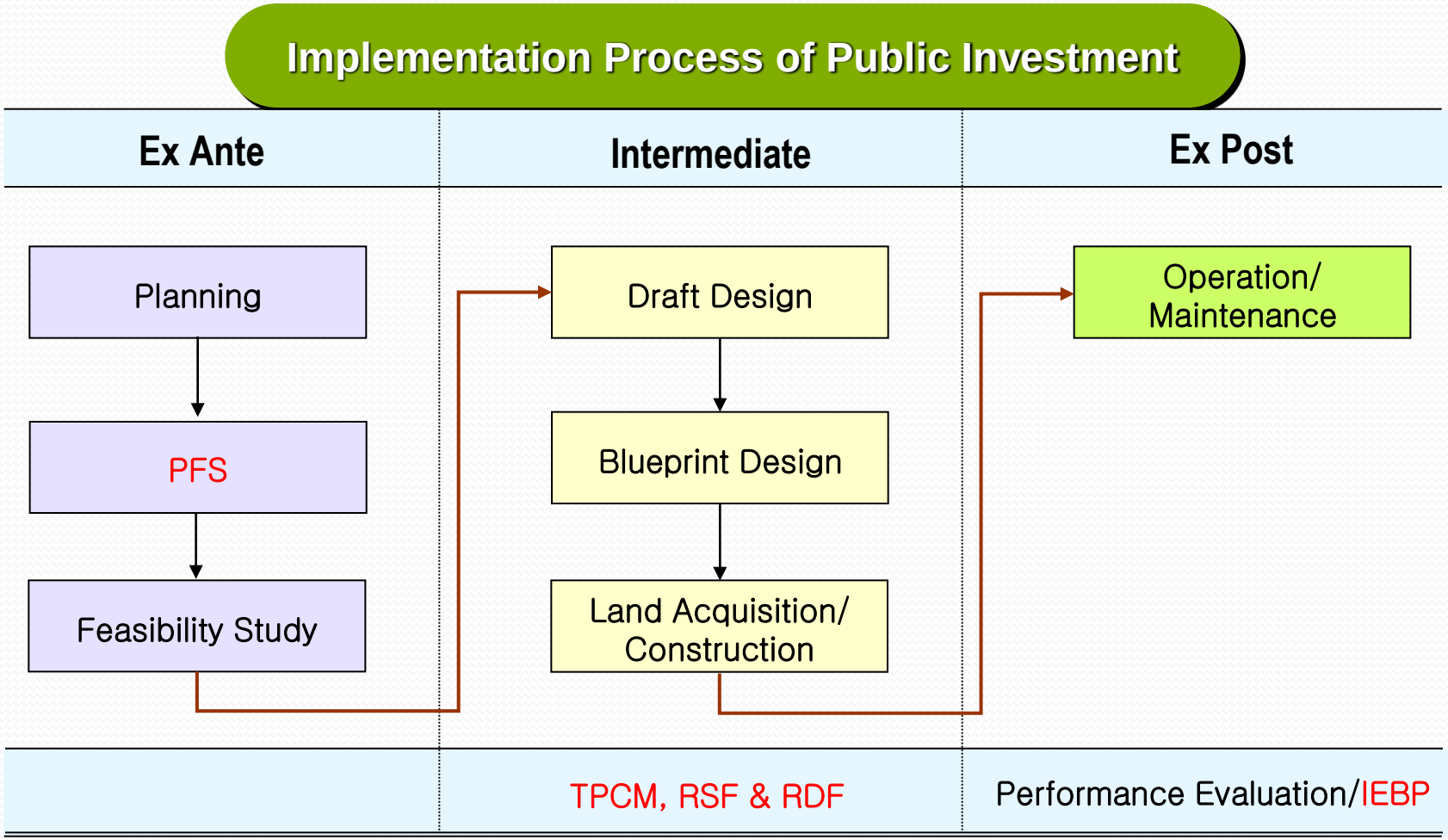
2. Before the Reform: What went Wrong and Why?

- Anecdotal cases
  - Seoul-Busan Express Railway (KTX) Project re-assessed in February 1998: baseline cost had increased from 5.5 billion(USD) to 18.5 billion (USD).
  - Between 1994 and 1998, 32 out of 33 large-scale projects were evaluated as feasible.
  - Critics noted that the feasibility study team underestimated costs and overestimated benefits, which combined results led to higher B/C ratio.
- What went wrong and why?
  - Polluted by interested groups
    - ✓ Line ministries: guilty of conflict of interests
    - ✓ Finance/economic planning ministry: lacking in their expertise and knowledge
    - ✓ Local governments as well as the politicians: the most heavily biased in the conflict of interests
  - No independent review process
    - ✓ Quality control could be performed by an internal agency (research agency, NGO, university, etc.) or by a central government agency → No independent body until 1998.
  - "Economic value" isolated from "social value"
    - ✓ While "economic value" is quantifiable through cost-benefit analysis, "social values" such as policy consistency, environmental impact, or balanced-development goal, etc., are not quantifiable.
    - ✓ There existed no rule to combine "economic value" and "social value'"
    - ✓ Sometimes, "social values", without transparency, interrupted the approval decision.

2. Before the Reform: What went Wrong and Why?

- Lack of standardized guidelines and databases
  - ✓ A lot of manuals and guidelines had been published by various countries and experts. However, a Korean version of standardized guidelines was not formally announced yet.
  - ✓ Poor databases, underdeveloped and/or loosely updated, prevented good performance of the assessment.
- Ex ante appraisal, and nobody cares thereafter
  - ✓ Every interested group took serious care of the project appraisal results.
  - ✓ Once the decision is made, no group paid attention to how and what needed to be done in the later stages.
- Capital project budgeting inconsistent with the Medium Term Expenditure Framework (MTEF) budget
  - ✓ Greater disjoint between projects cycles and the budget cycles.
  - ✓ MTEF budgeting has been undertaken since 2004, but, in most cases, the project management was regarded as one thing while MTEF budgeting was another.

3. PIM Reform Evolution and Performance



* Evaluation works in RED characters are owned by budget ministry

- ✓ TPCM (Total Project Cost Management)
- ✓ PFS (Preliminary Feasibility Study)
- ✓ RSF (Re-assessment Study of Feasibility)
- ✓ RDF (Re-assessment of Demand Forecast)
- ✓ IEBP (In-depth Evaluation of Budgetary Program)

BOX 1: Stages and Timing of Project and Budget Cycles

Stages and Timing of Project Cycle and Budget Cycle

Project Cycle			Budget cycle	
Project stages	**Timing**		**Budget stages**	**Timing**
Idea or definition	Prior 1 to 10 years		Policy framework and strategic plan (medium term priorities and plans)	1 year before
Prefeasibility			Macroeconomic and fiscal strategy (revenue and debt forecasts)	
		Approval in principle	Strategic or medium-term budget for 3-5 years	6 months before
Feasibility			Detailed capital and current budget formulation	
Detailed plan	**Time 0**	**Budget approval**	Finance and Budget authorization and appropriation legislation	**Time 0 : End of prior financial year**
Construction or implementation	1-10 years		Budget implementation	Financial year
Ex post evaluation			Budget accounting, reporting & monitoring	
Operation	5-30 years		Audit of public accounts	Following year or years
Ex post evaluation			Evaluation of policies and programs	
Termination or reinvestment	6-40 years			

BOX 2: Types of Evaluation and Its Application

- Phases of evaluation and application
  - Pre-feasibility
  - Feasibility
  - Re-appraisal
  - Ex post
- Conditions for application
  - Threshold values (that trigger evaluation)
  - Exempted sectors/areas
  - Sub-national governments
  - State-owned enterprises
  - PPPs
- Types
  - Cost-Benefit Analysis (CBA)
  - Cost-Effectiveness Analysis (CEA)
  - Multi-Criteria analysis (MCA)
  - Simplified methodologies

3-1. Effective Project Appraisal through Preliminary Feasibility Study

Preliminary Feasibility Study (PFS) Reform Initiative

- Short and brief evaluation of a project to produce information for budgetary decision
  - Owned by the Ministry of Strategy and Finance (MOSF)
  - Professionally supported by an independent organization: KDI PIMAC
- Meaning of “PRELIMINARY” is two-folded:
  - Provisional; and
  - Preceding a (detailed) feasibility study
- The National Finance Act of 2006 provides the legal framework of PFS

3-1. Effective Project Appraisal through Preliminary Feasibility Study

Coverage of PFS

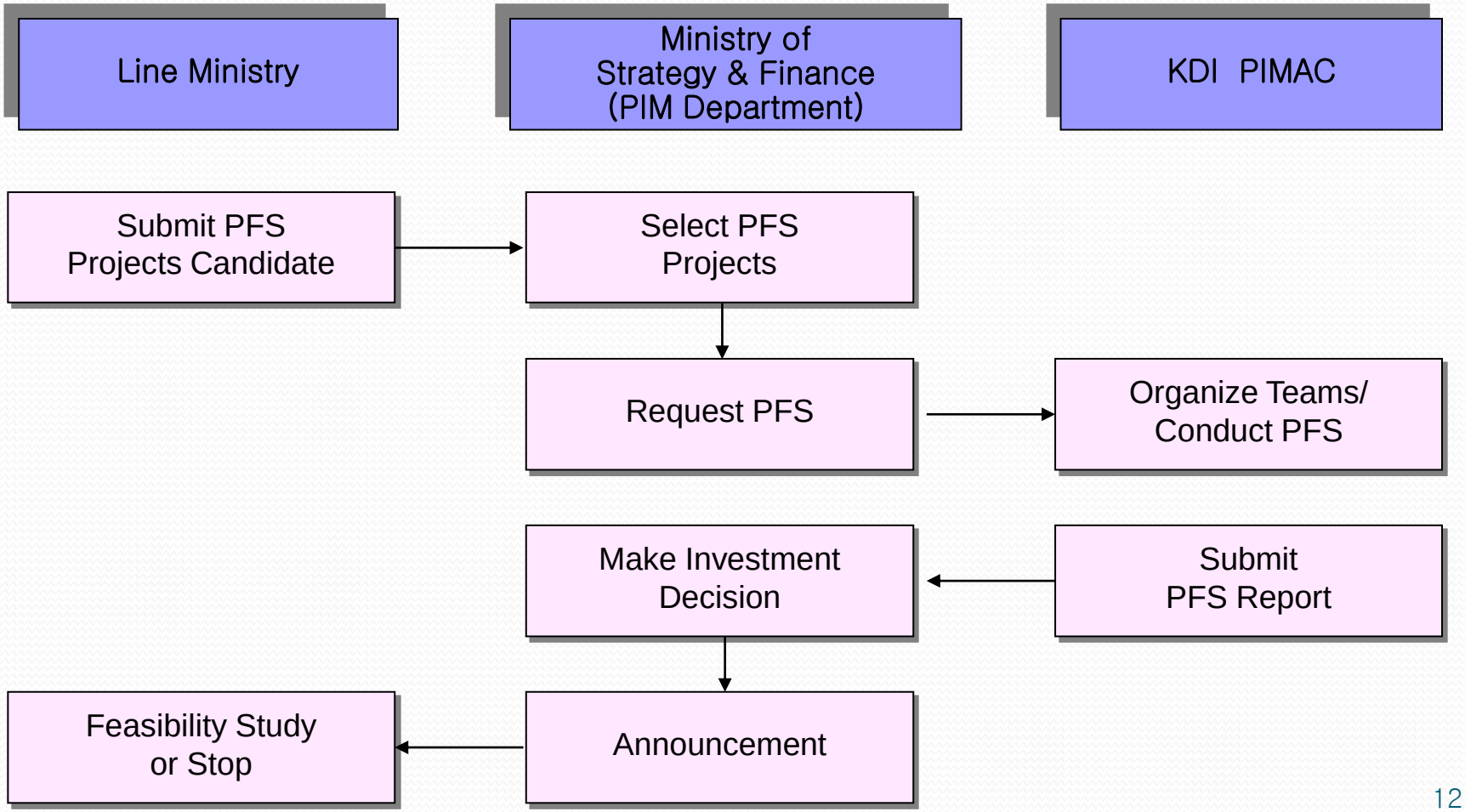
- All new large-scale projects with total costs amounting to 50 billion Won ($50 million USD) or more are subject to PFS.
  - Before the NF Act, PFS was centered on infrastructure projects.
  - PFS has expanded to non-infrastructure (e.g. R&D, welfare) programs.
- Local government and PPP (Public-Private Partnership) projects are also subject to PFS if central government subsidy exceeds 30 billion Won.
- The following types of projects are exempted from PFS:
  - Typical building projects such as government offices and correctional institutions
  - Legally required facilities such as sewage and waste treatment facility
  - Rehabilitating projects and restoration from natural disaster
  - Military facilities and projects related with national security

BOX 3: Project Appraisal Scheme (Chile vs Korea)

- Thresholds – Appraisal system applies for projects > (*approx.)*
  - Chile: US$ 150,000
  - Korea: US$ 50 million
  - Norway Euro 100 million
  - Ireland: Euro <0.5 mln, simple assessment; 0.5-5 mln, single appraisal; 5-20 mln, MCA; > 20 mln, CBA
- SOEs – partially covered in both Chile and Korea
  - In Korea, if over threshold, covered; in Chile, coverage of SOE sectors is increasing over ti me (e.g., port authorities brought in 2 years ago)
- Sub-national governments partially covered in both Chile and Korea
  - In Chile municipalities are exempted, but others are covered if over threshold (in some s ectors, sectoral ministry must provide technical endorsement as well, e.g. education); in Korea SNGs covered if subsidy exceeds US$ 30 million
- Exempted sectors – Defense in both Chile and Korea
- Emergencies/reconstruction – Exempted in both Chile and Korea
- Phases – mostly applied in pre-feasibility phase
- Political priorities – Presidential Priority (PP) projects in Chile (President also has veto over ap praisal system)

3-1. Effective Project Appraisal through Preliminary Feasibility Study

Roles and Responsibilities in PFS



BOX 4: Key Roles and Responsibilities (Chile vs Korea)

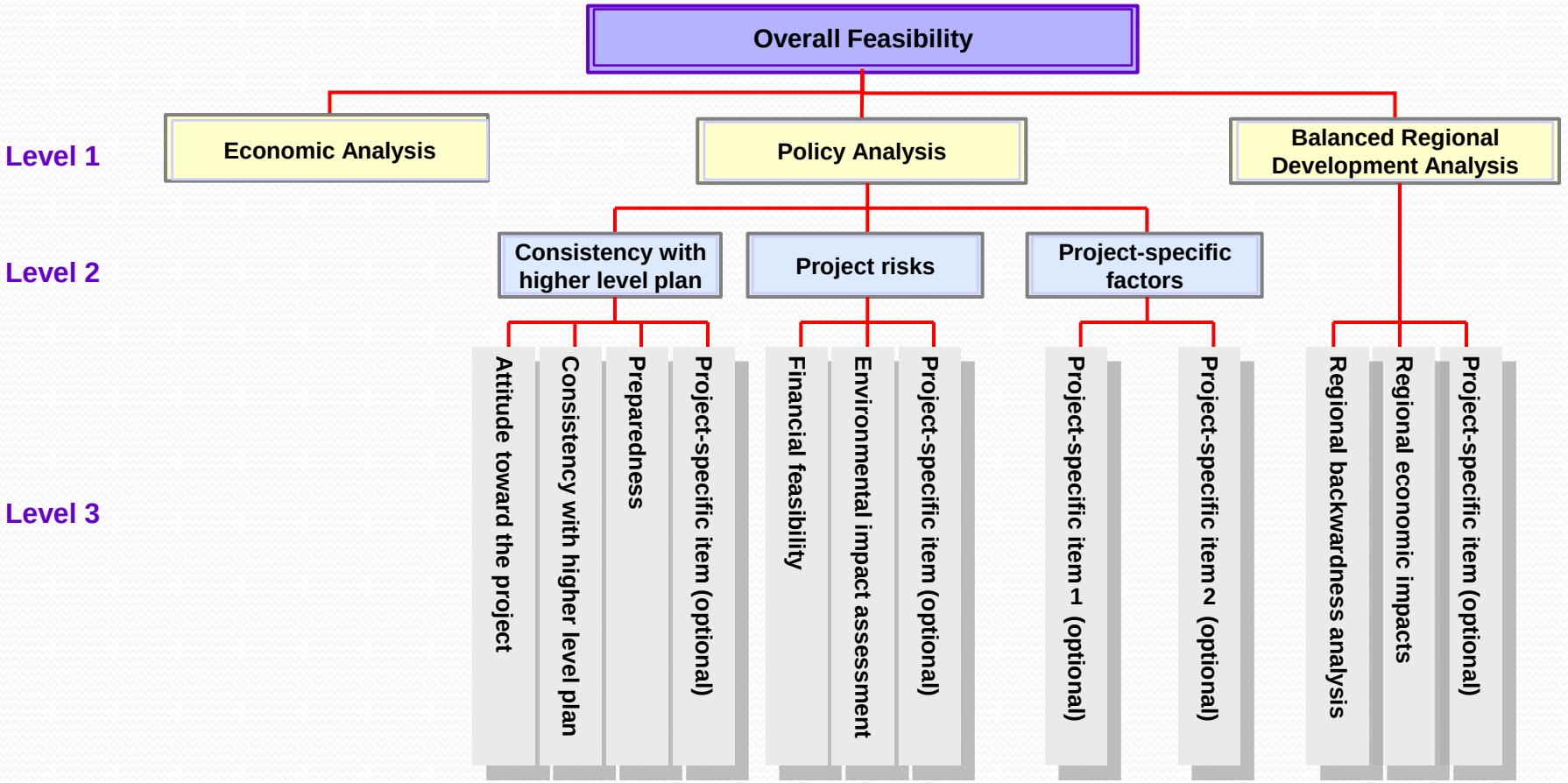
- Key responsibilities at pre-feasibility: Proposing, appraising, and reviewing

	Propose	Appraise	Review	Execute Decision
Chile	Line Ministry	Line Ministry	Central Evaluation Unit (MDS)	MDS decision stands unless overruled by President
Korea	Line Ministry	Central Evaluation Unit (PIMAC/KDI)	Central Evaluation Unit (PIMAC/KDI)	MOSF

- If review is favorable, line ministry goes on to prepare feasibility study
- Percentage of projects evaluated as feasible? In Korea 61.6% (1999-2011)
- Role of consultants: Thailand (consultants largely do the appraisal for line ministry clients), Norway (external consultants provide quality assurance for MOF before ap proval by cabinet)
- Information asymmetry: A key issue that needs to be managed
  - In Korea PFS "destroyed" asymmetry between LM and central agencies
  - In Chile use of required methodologies and decision rules (+capacity) successf ully used

3-1. Effective Project Appraisal through Preliminary Feasibility Study

Evaluation Scheme of Overall Feasibility in PFS



3-1. Effective Project Appraisal through Preliminary Feasibility Study

MCA by AHP (Analytic Hierarchy Process)

- AHP is a multi-criteria analysis (MCA) 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 seven or eight experts are involved in the decision making.
  - PFS team members (PM of PIMAC, Professors, and Engineers)
  - Advisory committee members (Staffs of PIMAC, and outside advisory members)
- Since 2005, the ranges of AHP weight were set to reflect importance of balanced regional development.

Economic Analysis	Policy Analysis	Balanced regional development analysis
40 ~ 50 %	25 ~ 35%	20 ~ 30%

- A project is evaluated as feasible if AHP score is 0.5 points or more out of 1.0 point.

BOX 5: Appraisal Methodology (Chile vs Korea)

- Foundation/Overarching Approach
  - Chile: CBA a la Harberger (U. Chicago) to Fontaine (U. Catolica) (General Methodology)
  - Korea: MCA a la Analytic Hierarchy Process (General Guidelines for PFS)
  - Others: Green Book in UK, Cost-Benefit Primer in NZ, Public Spending Code in Ireland
- Sector Application
  - Chile: approx. 20 sector-specific methodologies (water, transport, energy, communications, education, health, justice, sports, public buildings, etc.)
    - E.g., transport (CBA): economic benefits are time savings of users, operational cost savings, reduction in accidents, and reduction in noise
    - E.g., education (CEA): 3 levels (construction, expansion, replacement), where decision is based on analysis of need in terms of the network, population analysis, and transport analysis, taking into account sectoral norms (space per student, e.g.)
  - Korea: approx. 10 sector-specific methodologies (airports, ports, IT, roads/railways, social welfare, health, industrial complexes, etc.)
- National Economic Parameters
  - Chile and Korea: Major shadow prices estimated and updated annually/periodically – discount rate, social value of time, etc.
- Sensitivity/Risk Analysis (required by guidelines in UK and Ireland)
  - Adjustment for “optimism bias” recommended by the UK (e.g., for capital costs, adjust for bias using factors provided in the Green Book for buildings, civil engineering, equipment, etc.)

3-1. Effective Project Appraisal through Preliminary Feasibility Study

Proportion of Feasible Projects by Sector in PFS

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total Projects (A)	Total Feasible Projects (B)	(B)/(A)
Road	45.5	27.3	30.0	33.3	72.7	87.5	36.4	63.0	63.3	75.0	50.0	80.0	192	110	57.3
Railway	50.0	57.1	35.7	75.0	71.4	53.8	83.3	40.0	20.0	100.0	80.0	85.7	86	50	58.1
Seaport	100.0	80.0	100.0	50.0	100.0	100.0	100.0	40.0	100.0	100.0	50.0	100.0	29	23	79.3
Culture and tourism	100.0	0.0	40.0	0.0	0.0	100.0	100.0	40.0	50.0	100.0	0.0	100.0	34	15	44.1
Water resources	100.0	100.0	0.0	0.0	60.0	66.7	66.7	100.0	100.0	50.0	91.7	-	34	23	67.6
Others	100.0	75.0	0.0	75.0	50.0	66.7	71.4	50.0	42.9	46.7	78.9	86.7	91	61	67.0
Average	63.2	50.0	34.1	43.3	60.6	74.5	63.3	53.8	56.5	68.4	67.7	86.7	466	282	60.5

3-2. Tightened Procurement and Capital Budget Implementation

TPCM (Total Project Cost Management) Reform Initiative

- TPCM is a device that budget ministry monitors expenditure on public investment and checks increase in project cost throughout the project cycle from planning to construction completed.

- Coverage of TPCM
  - Projects whose construction period exceeds two years; and
  - Civil engineering works whose TPC exceeds 30 billion Won (USD 30 million), or architectural projects whose TPC exceeds 10 billion Won (USD 10 million); and
  - Projects implemented by the central government or its agents, or by local governments or private institutions that include central government funding.

3-2. Tightened Procurement and Capital Budget Implementation

Principles of TPCM

- Increase in construction size through design modification is not allowed except for inevitable events.
- The construction costs are not arbitrarily inter-changeable between project phases or between construction units.
- The minister in charge of the project is to consult with the Minister of Strategy and Finance about adjusting TPC, if TPC change is inevitable.
- The line ministry is allowed to set construction contingencies for up to 8% of the contract price of a project to cope with inevitable design modification and amendment of the law and so on.

3-2. Tightened Procurement and Capital Budget Implementation

Performance of TPCM

- The amount of requested TPC has dropped significantly after 1999
  - The request for TPC increase in % of TPC has dropped from 26.4% (1996~1999) to 4.4% (2000~2003).
  - The amount of TPC adjusted in % of TPC has also dropped from 11.1% to 1.0.

Amount of TPC change before and after Reform

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

3-2. Tightened Procurement and Capital Budget Implementation

RSF (Re-assessment Study of Feasibility) Reform Initiative

- The same methodology and implementation procedure as PFS are applied.
- Under TPCM, RSF is conducted if:
  - TPC has increased by more than 20 percent (excluding price escalation and increase in land acquisition cost) of the cost endorsed by the MOSF at the previous phase of the project; or
  - the PFS has not been conducted although it falls under the PFS coverage.
- Decision making
  - RSF team makes judgment whether to continue or to stop the project.
  - Compared with PFS, it is emphasized to find alternatives to cut down size and cost of a project.

3-2. Tightened Procurement and Capital Budget Implementation

Performance of RSF by Sector

	2003	2004	2005	2006	2007	2008	2009	2010	Total Projects (A)
Road	3	2	6	10	9	10	24	18	82
Railway	0	1	0	0	2	1	0	3	7
Port	0	0	0	0	2	2	2	0	6
Buildings (Museums & Tourism)	1	0	0	0	0	0	1	2	4
Water Resources (Dam)	0	0	0	5	0	2	3	4	14
IT/R&D	0	1	0	0	1	0	0	0	2
Others	2	2	2	4	0	6	1	5	22
Sum	6	6	8	19	14	21	31	32	137

3. PIM Reform Evolution and Performance

3-3. Performance Management and Evaluation

System of Performance Management and Evaluation

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

3-3. Performance Management and Evaluation

- Despite the Enforcement Decree that requires the spending agency to file a performance evaluation report, only a small number of performance evaluation reports have been produced.
  - There is no sanction against violation of the Decrees.
  - The performance evaluation is in fact a self-evaluation conducted by spending agencies that have no incentive to implement the evaluation.
- Other reason for slow progress in performance evaluation is that no clear framework for evaluation has yet been established.
- Under IEBP, from 2005 to 2010, a total of 49 programs were evaluated, initiated and controlled by the MOSF. IEBP still has a lot of trouble implementing and feeding back the results.

4. Main Drivers for Reform and Lessons Learned

4-1. Sharp Demand for Better PIM

- Since 1962, the government had a long history of framing public investment as a tool for economic development.
  - A few authoritative decision makers decided the priority of projects, and the demand for policy analysis was very low.
- When the major infrastructure projects were completed, public investment were framed in a more complex way → National economic development could no longer be the dominant value for judging public investment → But no reform and no action.
  - Arguments for changing focus from national planning for development to multi-value investment criteria.
- Economic crisis in late1997 changed the situation rapidly → The public‘s sharp demand for better PIM made impossible for both politicians and bureaucrats to ignore reforms.

4. Main Drivers for Reform and Lessons Learned

4-2. Leading Role of the Korean Finance Ministry: Establishment of a separate PIM Unit

- In the past, line ministries used to have the ownership of the feasibility study, while the finance ministry used to cut project budgets, although not always on a reasonable basis.
- Clear ownership by the finance ministry: MOSF established a separate PIM Department who is responsible for PIM reforms of PFS, TPCM, and RSF.
- PFS, TPCM, and RSF mitigate information asymmetry between the finance ministry and line ministries and lead to better decision-making.
  - Finance ministry owns the final decision of the project appraisal and the budget for it, while the line ministries are responsible for identifying, designing, prioritizing, and forecasting the effects of the project.
- Management and coordination by the MOSF: the Review Committee for PFS, TPCM, and RSF have contributed to the establishment of the public inquiry processes at ministries and lower-tier governments.

4. Main Drivers for Reform and Lessons Learned

4-3. Making an Independent Review/Role

- At PFS, TPCM, and RSF processes, an independent review by Public and Private Investment Management Center (PIMAC) at Korea Development Institute (KDI) with some help from the policy analysts makes judgments on project desirability, and their explicitly quantified judgments are respected in most government decision-making.

- If the policy analysis merely plays a symbolic role and there are some disincentives for politicians and bureaucrats in utilizing its policy analysis, such an independent judgment of the PFS, TPCM, and RSF could not be made.

4. Main Drivers for Reform and Lessons Learned

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

- To overcome the arbitrary interpretation of analysis results, a multi-criteria decision-making model, Analytic Hierarchy Process (AHP) has been chosen because it has a strong theoretical foundation, is easy to apply, is flexible in including additional factors, and supports group decision-making.
- AHP is well designed for incorporating “qualitative social value” and “quantitative economic value” into an explicit decision-making process.
  - The PFS and RSF reports include AHP results: who evaluated what and how in formal and explicit way.

4. Main Drivers for Reform and Lessons Learned

4-5. Publicizing the Analysis and Decision Making Process

- Difficulty in reaching consensus may cause stalemate and the decision then goes into the realm of politics rather than that of policy analysis. → Facing the challenge, MOSF and PIMAC reduced the possibility of adversarial arguments effectively through co-opting other stakeholder groups into their decision-making process in PFS, TPCM, and RSF.
  - Invited best experts from universities, private companies, and other government-funded institutes, and asked external analysts to review their work.
  - Held meetings and seminars to hear other experts' opinions during its research.
  - In some cases, if project initiators request the inclusion of certain groups of analysts, they are invited to give their views during the process.

- Although debates over the reliability and validity of the assessment of project specific factors still occur, the inclusion of potentially debatable factors helps it to defend against possible criticism.

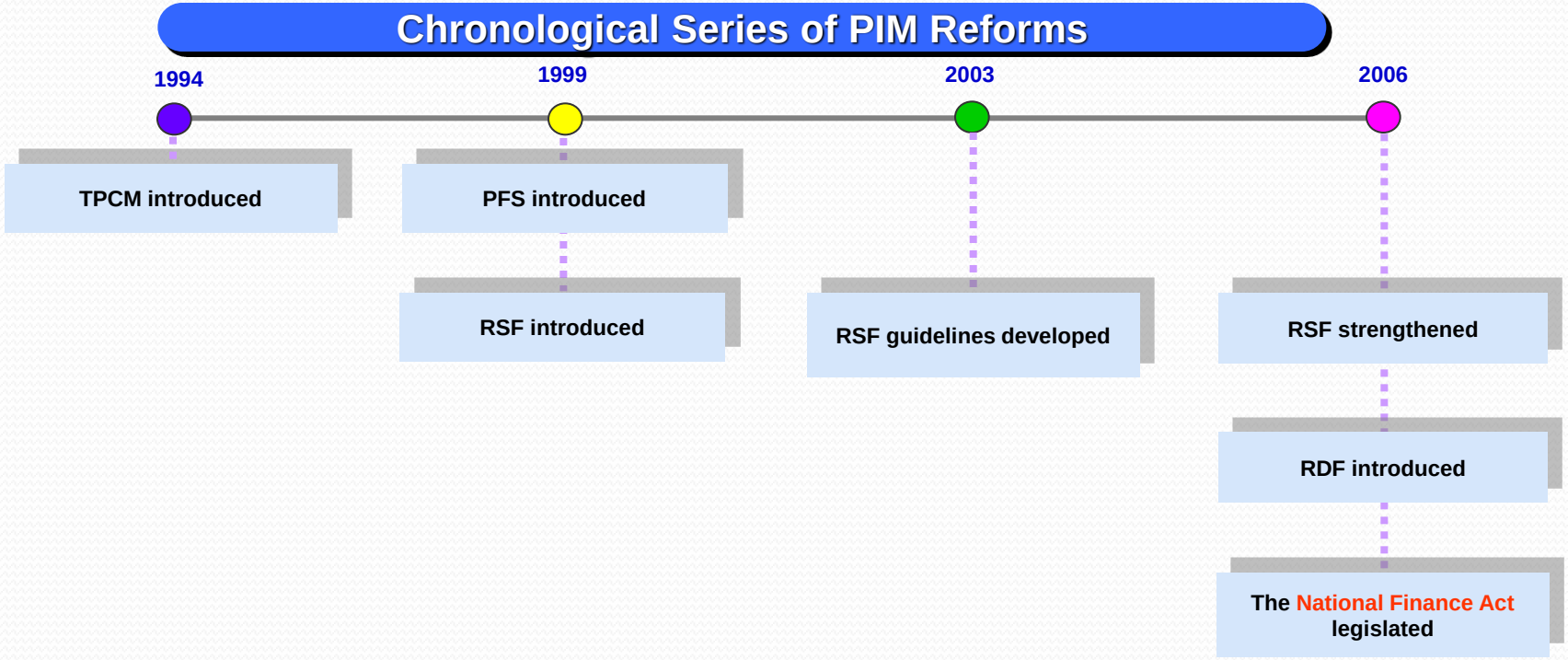
4-6. Providing Standard Guidelines and Manuals

- In order to improve the objectivity of the evaluation and secure consistency among projects, standard evaluation decision-making guidelines and manuals have been developed.
- The published guidelines and manuals cover the following sectors: roads, railways, ports, airports, water supply, cultural facilities, information industry facilities, and R&D investment.
- The guidelines stipulate to apply the same methodology and to use same or similar datasets for different projects in the same sector.
- Contribution for the standard guidelines and manuals triggered research on evaluation methodologies as well.

4. Main Drivers for Reform and Lessons Learned

4-7. Effective Sequences of Reforms along with Project Cycles

- In 1999, PFS for the first time provided a first step in the reform of the Total Project Cost Management (TPCM) system.
- This provided the impetus, to introduce, along with project cycles, RSF and the performance evaluation scheme in 2003, 2004 and 2006 respectively.



5. Concluding Remarks

- The period after the economic crisis in 1997 has witnessed active reforms to enhance efficiency and transparency in PIM and PFM.
  - Introduce MTEF
  - Initiatives of PFS, TPCM, and RSF
  - Slow progress in performance management and evaluation
  - Active private participation through PPP
- Main drivers for reforms and lessons learned
  - External demand for better PIM
  - Leading role of the Korean finance ministry: clear ownership in the public inquiry process by establishing a separate PIM Unit
  - Making an independent review/role
  - Presenting an explicit judgment model of an analytic hierarchy process(AHP)
  - Publicizing the analysis and decision making process
  - Providing standard guidelines and manuals
  - Effective sequences of reforms along with project cycles
- Challenges ahead
  - Strengthen performance monitoring and evaluation scheme
  - Upgrade MTEF
  - Build capacity for policy analysis and long-term forecasts
  - Present a new fiscal rule for public-private partnership (PPP) projects in comparison to that of traditional PIM → Need a unified framework for PIM and PPP

Thank You

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