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< Session 4 >

Approaches for PPP Risk Sharing and Risk Management in Korea

Sunghwan Shin

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Hongik University

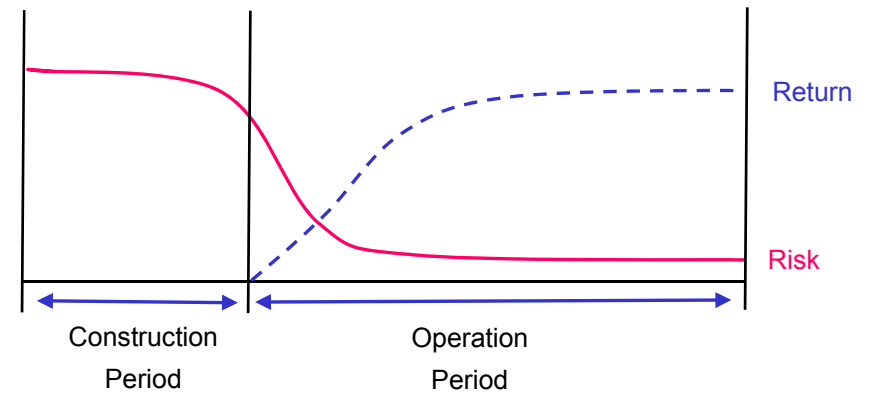
PPP Risk Sharing and Risk Management in Korea

- ❖ How to transfer appropriate level of risk to concessionaires and provide them with reasonable expected returns for the risk is a key

1

- **Overall risks change during the project life**

- Bidding cost risk
- Construction risk
- Revenue forecast risk
- Political risk
- Operation (cost & revenue) risk, etc.



2

- **Long-term Project: stability of the cashflow from project is important**

❖ Basic Principles of Risk Sharing > Law and Regulations

Types and classification of risk

- Risks related to PPP project implementation shall be classified based on the cause as **attributable 1) to the government, 2) to the concessionaire, and 3) to force majeure.**

- **The competent authority**, when announcing the request for proposal or proposal content for unsolicited projects, **shall include information on risk types, classification, etc.**
 - that will apply to the proposed project, thereby allowing the concessionaire to make forecasts of the risk involved in project implementation.

❖ Basic Principles of Risk Sharing > Law and Regulations

Risk Handling and Allocation Guidelines

- **Those risks that are foreseeable and can be insured shall be **handled by insurance as much as possible.****
 - Those losses or added expenses that are not covered by insurance shall be allocated through negotiation by and between the negotiating parties.

- **The party or **parties responsible for the risk must be clearly outlined in order to conclude the concession agreement.****
 - Risk attributable to the government shall be borne by the government, and risk attributable to the concessionaire shall be borne by the concessionaire.
 - For force majeure situations, the allocation ratio shall be mutually agreed and decided upon based on their characteristics.
 - Neither government nor the concessionaire may request additional user fee adjustment or compensation for loss on the grounds of the party's own risk allocation.

❖ Mechanisms for mitigating (sharing) risks

1 Compensation for Proposal Cost

2 Construction Subsidy

3 Minimum Revenue Guarantee (MRG) and Redemption of Excess Revenue

4 Infrastructure Credit Guarantee Fund

5 Early Termination

6 Refinancing

❖ Compensation for Proposal cost

Purpose

- **compensate the unsuccessful bidder for a portion its project proposal cost for the purpose of promoting the competition in Projects since 2003**
 - Bidding costs are the major obstacle to overcome for private participants to bid for PPP projects. (in some projects, as high as USD10 million.)

Calculation

- **The maximum amount of compensation as followings**
 - Only 1 unsuccessful bidder: **25% of basic design cost**
 - 2 or more unsuccessful bidder: 30% of basic design cost for 2nd contender and 20% of 3rd contender
(*Basic design cost: applying the basic design rate for the government project as set forth in the budget compilation guideline)

Exclusion

- **unsuccessful bidders who earned the engineering score under certain level (eg. average “C” level from A~E 5 level evaluation),**
- **Unsuccessful bidders who submitted the project proposal containing service quality significantly below the required level.**

Notice

- **The competent authority is to provide the details in the RFP**
 - such as whether the compensation is available, the size of compensation, criteria and procedures of compensation, and due period of compensation

PPP Risk Sharing and Risk Management in Korea

(Source: Annual Basic Plan for Private Participation in Infrastructure, MOSF)

❖ Construction subsidy

- The government may grant construction subsidy to the concessionaire, if it is inevitable to maintain the user fee at an appropriate level
- Subsidy shall be determined in the individual concession agreement

(unit: billion KRW, %)

Type		Number of Projects	Total Project Cost (amount)	Total Private Investment Project Cost (amount)	Financial Subsidy for construction	
					(amount)	(ratio, %)
Central Government Managed Projects	Road	23	18,125	13,591	4,534	25.02
	Railways	6	7,152	4,496	2,656	37.14
	Seaport	16	4,389	3,299	1,090	24.83
	Logistics	5	860	849	11	1.28
	Airport	7	602	602	0	0.00
	Environment	5	962	244	717	74.53
	Subtotal	62	32,090	23,081	9,008	28.07
Local Government Managed Projects	Roads	13	1,506	1,191	314	20.85
	Parking lot	17	114	112	2	1.75
	Environment	45	1,538	588	951	61.83
	Others	5	337	337	0	0.00
	Subtotal	80	3,495	2,228	1,267	36.25

(Source: PIMAC, End of Dec. 2007)

* The amount is sum of under operation, under construction and preparing to construction projects.

PPP Risk Sharing and Risk Management in Korea

❖ Minimum Revenue Guarantee and Redemption of Excess Revenue

- **MRG system is a method for private participants and the government to share the revenue forecast risk.**
 - The higher MRG level (or the narrower the guarantee and redemption band) is, the more risk is transferred to the government from private participants
- **Guarantee coverage for MRG decreased over time.**

Coverage: MRG and Redemption of Excess Revenue

(unit: yr, %)

		1995~2003	2004~2005			2006~present	
Guarantee Period (yr)		1~20	1~5	6~10	11~15	1~5	6~10
Solicited Project	Guarantee (%)	90	90	80	70	75	65
	Redemption (%)	110	110	120	130	125	135
Unsolicited Project	Guarantee (%)	80	80	70	60	None	
	Redemption (%)	120	120	130	140		
Condition		-	MRG is nullified for projects which earn less than 50% of projects revenue.				

MRG Subsidy for Projects under Operation

(unit: billion KRW)

	2001	2002	2003	2004	2005	2006	Total
Number of Project	2	2	3	6	5	7	-
Amount	65.3	73.7	142.0	157.8	123.3	186.2	748.4

PPP Risk Sharing and Risk Management in Korea

❖ Minimum Revenue Guarantee and Redemption of Excess Revenue

- In the past, high levels of MRG became a burden to government, but in the future, no MRG may create an opposite problem.
 - competition became more fierce, returns became lower, and the risks became higher

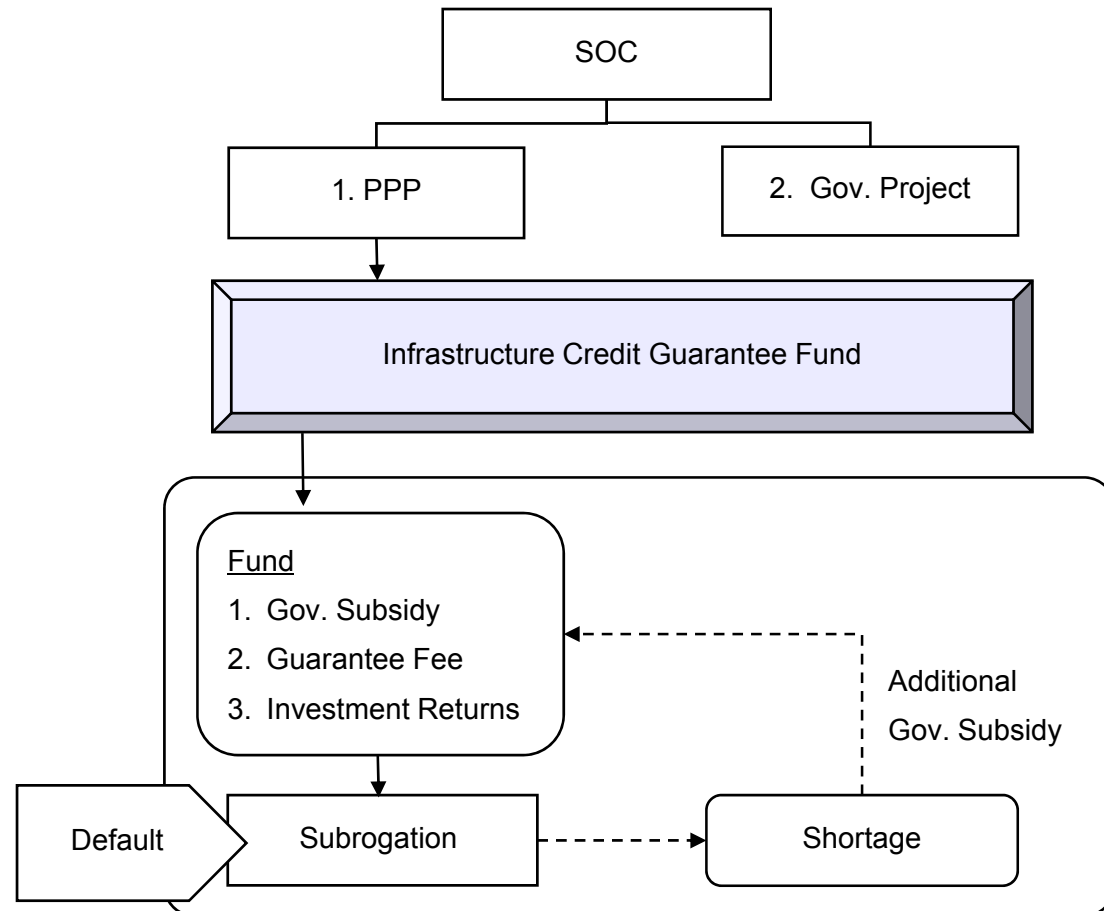
Projects without MRG

Progress	Sector	Type	Number of Project	
			By Sector	Total
Under Operation	Airport	Solicited	6	8
	Logistics		1	
	Port		1	
Under Construction	Road	Unsolicited	1	7
	Logistics	Solicited	2	
	Port	Unsolicited	1	
		Solicited	3	
Preparing to Construction	Logistics	Unsolicited	2	10
	Road		4	
	Port		2	
	Environment		2	
Under Negotiation	Road	Unsolicited	8	12
	Port		1	
	Railway		1	
	Environment		2	
Under Review	Road	Unsolicited	2	2

(Source: PIMAC, End of Dec. 2007)

❖ Infrastructure Credit Guarantee Fund

- In order to provide credit guarantee to a concessionaire who wants to obtain a loan from financial institutions for PPP projects since 1994.
 - When the project guaranteed by ICGF defaults, ICGF subrogates on behalf of the project company
- ICGF consists of annual government subsidies, guarantee fees, and investment returns



❖ Infrastructure Credit Guarantee Fund

Scope of Guarantee

- loans and borrowings from financial institutions by concessionaires for private investment project expenses

Guarantee Limit

- Infrastructure Bond issued pursuant to the Act on PPP

- for a single company up to KRW 100 billion (exceptions: the director of the managing organization deems it unavoidable, in which case the limit shall be KRW 200 billion)

Guarantee Fee & Types

- Maximum annual fee rate: 1.5%

Types	Contents	Guarantee rate (%)
Facility fund Guarantee	Guarantees against concessionaire's debt on construction fund	0.3~1.3*
Government subsidy guarantee	A ceiling on the guarantee is established in preparation for concessionaire's operation fund shortage resulting from delayed subsidy payment	0.3
Refinancing guarantee	Guarantee support on refinancing where the current high interest loan is changed to new interest loan or SOC Bond	0.3~1.3*
Operating revenue guarantee	A ceiling on the guarantee is established in preparation for concessionaire's operation fund shortage resulting from reduced operational revenue guarantee	0.5
Infrastructure bond guarantee	Guarantee for Infrastructure Bond issued to procure funds necessary for concessionaire in project implementation	0.3~1.3*

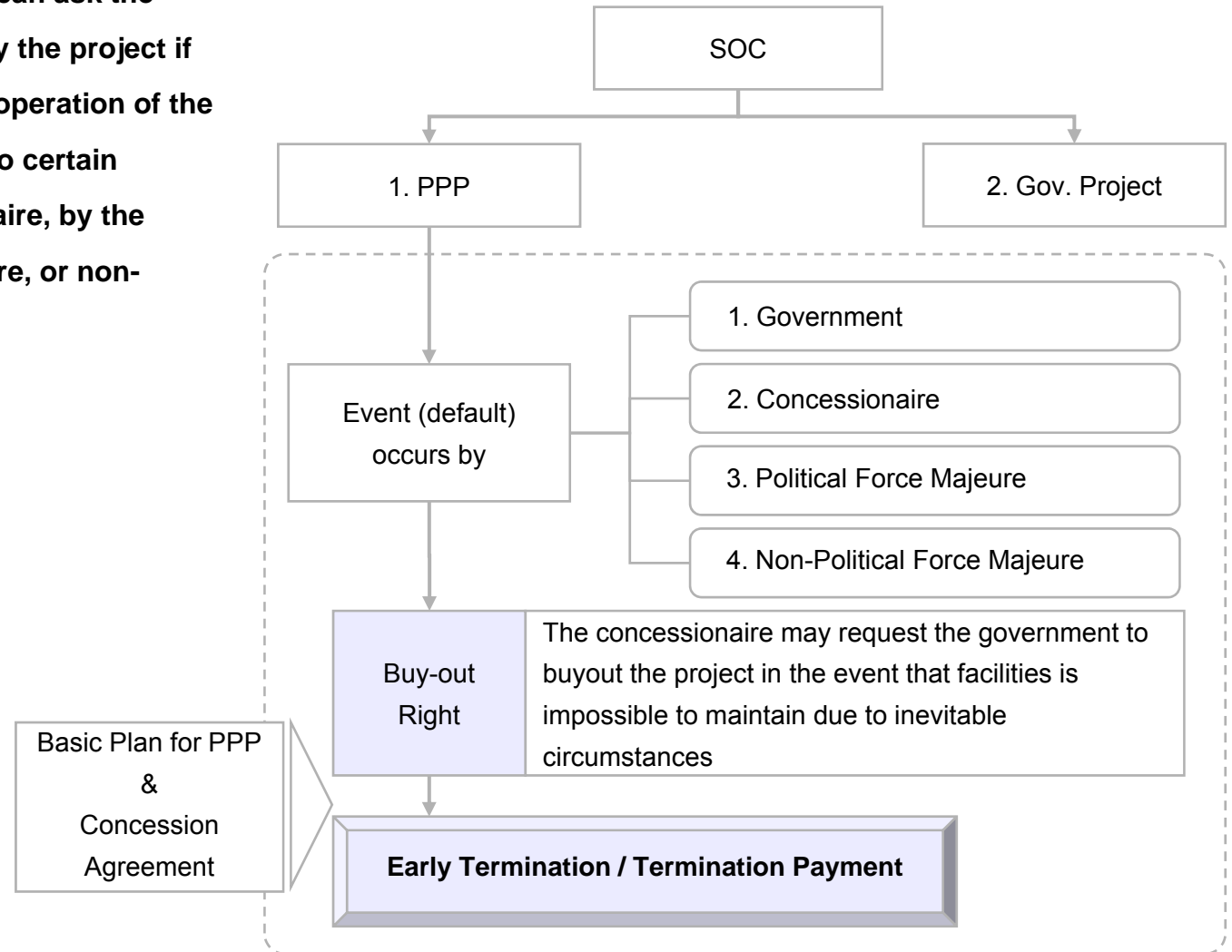
* The guarantee rate is applied in the degree of risks involved in the guarantee and the corporate credit rating.

Cases

- Up to 2008, there were 3 default projects guaranteed by Infrastructure Credit Guarantee Fund.
- All of them were subsequently back to normal operation status.

❖ Buyout Right and Early Termination

- PPP project company or the SPC can ask the central or local government to buy the project if the construction or management/operation of the facility becomes impossible due to certain reasons (default by a concessionaire, by the government, political force majeure, or non-political force majeure)



❖ Buyout Right and Early Termination

Calculation Guidelines for Early Termination Payment of BTO Projects

- During the construction period: already incorporated private investment amount, and the opportunity cost if applicable
- During the operating period: weighted average of 1) depreciated value of the already incorporated private investment amount and 2) the present value of the project (weight varies depending upon the cause of default)

category	BTO	
	Construction Period	Operating Period
Default by Concessionaire	Incorporated private investment amount	Depreciated value of the amount on the left
Default by Government	Incorporated private investment amount \times [1 + current IRR (B)]	Weighted average of 1) the sum of the depreciated value of the amount on the left & 2) present value of the project for the remaining operating period
Non-political force majeure	Incurred private investment amount \times [1 + Standard debt interest rate (A)]	Same as above
Political force majeure	Incorporated private investment amount \times [1 + (A+B)/2]	Same as above

Cases

- Up to 2006, there are 2 events of Early Termination.

❖ Buyout Right and Early Termination

Calculation Guidelines for Early Termination Payment of BTL Projects

- During the construction period: combinations of 1) already incurred private investment, 2) equity, 3) opportunity cost
- During the operating period: combinations of 1) present value of remaining lease payment, and 2) equity

category	BTL	
	Construction Period	Operating Period
Default by Concessionaire	(Private investment cost put in up to the time of termination)-(Equity Capital put in the time of termination)	(The PV of lease fee of the remaining period that is discounted by rate of return applied at the time of termination)-(Equity capital put in the time of termination) [E]
Default by Government	Net Private investment put in at the time of termination $\times [1 + C]$	$E+(F-E)X1/3$
Non-political force majeure	Net Private investment put in at the time of termination $\times [1 + (C+D)/2]$	$E+(F-E)X2/3$
Political force majeure	Net Private investment put in at the time of termination $\times [1 + D]$	The PV of the lease fee of the remaining period that is discounted by the rate of return applied at the time of termination [F]

* C: [Government bond interest rate] determined in the concession agreement

* D: [Government bond interest rate+additional rate] determined in the concession agreement

❖ Refinancing

Definition

- **modifying the project consortium's equity structure, investment share, debt financing conditions, etc. in comparison with the recent financial conditions following the concession agreement**

PPP Act

- **Basic Plan for Private Participation in Infrastructure, section 4-4 Refinancing (since 2004)**
 - In 2007, PIMAC formulated and enforced 'refinancing guideline' on the details of refinancing.
 - to clarify the refinancing rules, include explanations and examples for each provisions
 - main issue: estimation of Refinancing Gain.
 - contents: (1) Definition of Refinancing, (2) Basic Principle for Refinancing, (3) Sharing Gain ((a) rule, (b) calculation, (c) utilization), (4) steps for refinancing

Sharing Gain

- **The competent authority: the concessionaire = 50: 50**
- **Refinancing gain:** expected increase in IRR between Post and Pre refinancing
- **Utilization: improving the implementation conditions of PPP project**
 - lowering the user fee (as a priority), reducing the amount of guarantee of operational revenue, concession period, etc.

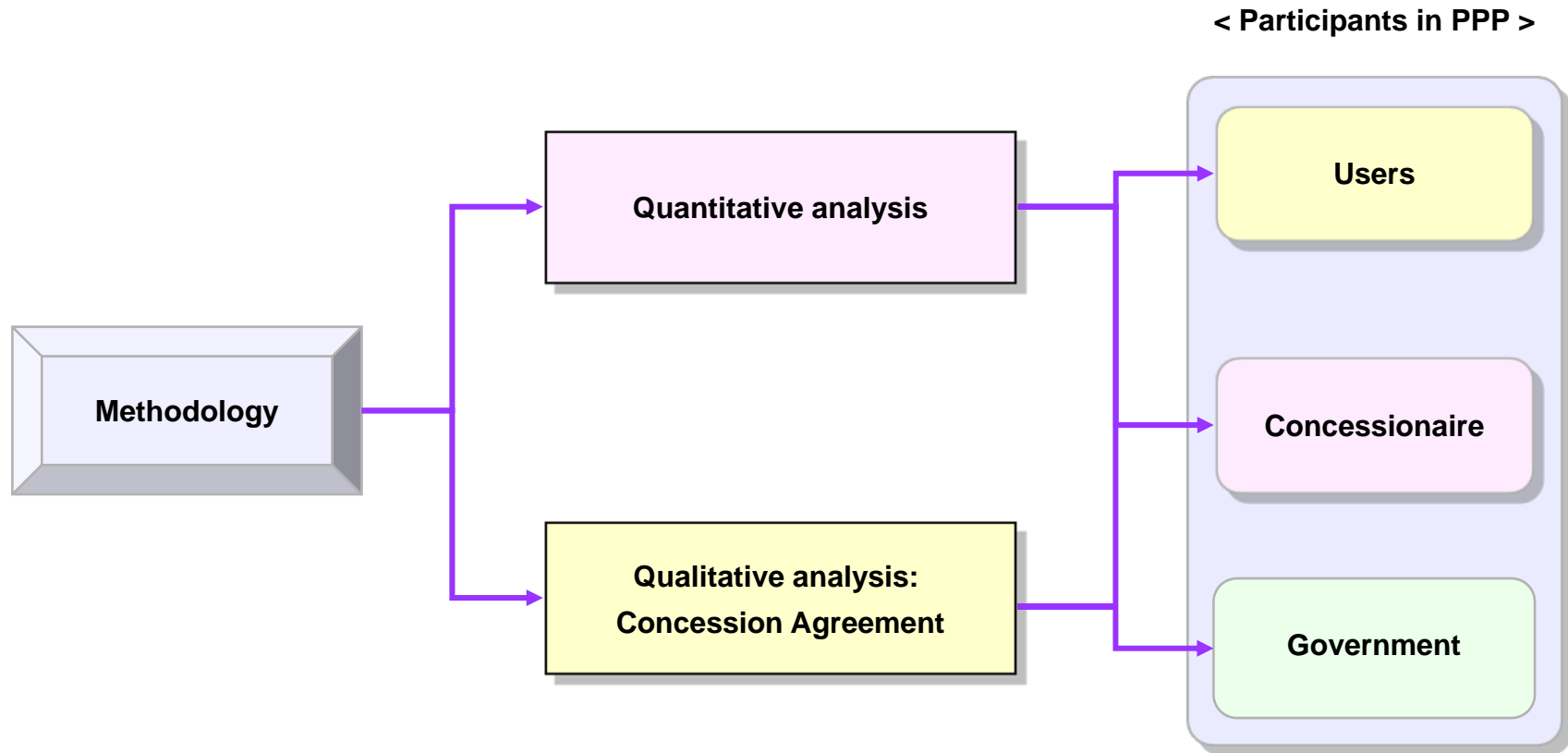
Case

- **3 projects have been refinanced and several more projects are in the process of refinancing**

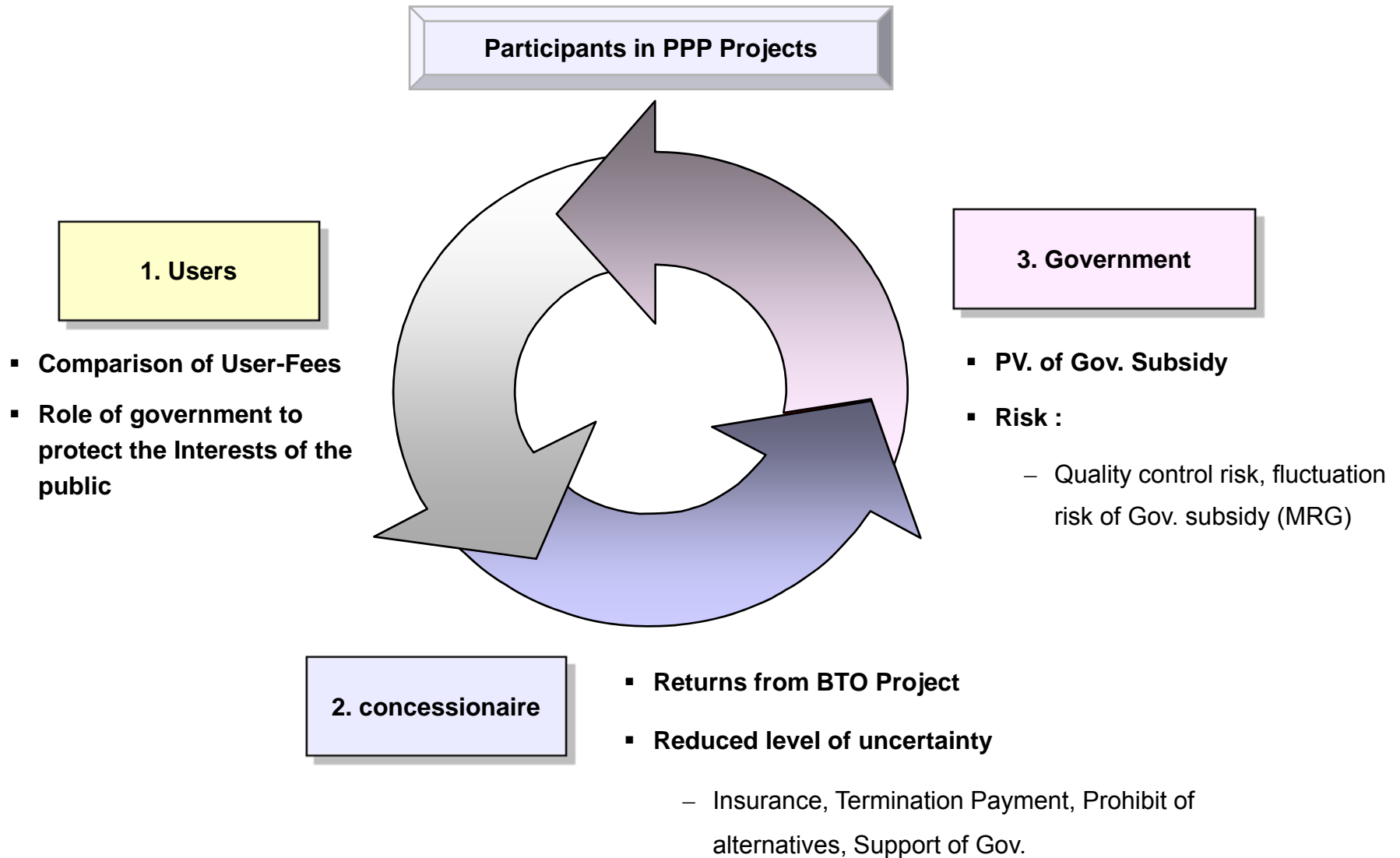
Remark

- **Typical refinancing in the past: Switch from equity to subordinated debts**
 - minimum capital structure requirement: 25% equity during construction period, 10% equity during operation period

❖ Evaluation



❖ Evaluation



PPP Risk Sharing and Risk Management in Korea

❖ Perspective of Users: User-fees of Roads

- User fees of PPP roads have approached to the user fees of public roads over time.

(unit: KM, %, KRW, times)

Results			Distance	Real Rate of Return	Gov. Financed (A)	Private Investment (B)	Ratio (B/A)	The First Agreement Date
			(KM)	(%)	(KRW)	(KRW)	(times)	
Under Operation	1	A - expressway	40.2	9.7	2,816	6,400	2.27	1995.10.27
	2	B - expressway	4.29	9.34	1,070	1,000	0.93	1997.2.28
	3	C - expressway	80.96	9.24	4,141	7,800	1.88	1997.04.03
	4	D - expressway	82.05	9.83	4,185	8,500	2.03	1998.03.17
	5	E - tunnel	2.96	8.03	982	2,000	2.04	1998.05
	6	F - expressway	36.3	9.52	2,626	3,000	1.14	2000.12.14
Under Construction	7	G - bridge	1.84	9.2	951	1,119	1.18	2002.06.17
	8	H - expressway	12.4	8.48	1,465	1,313	0.9	2002.06.27
	9	I - expressway	14.27	8.28	1,556	891	0.57	2003.12.22
	10	J - bridge	1.7	8	931	2,294	2.46	2004.03.19
	11	K - expressway	61.4	8	3,846	5,776	1.5	2004.03.19
	12	L - expressway	22.9	7.01	1,789	1,708	0.95	2005.01.10
	13	M - expressway	38.5	7.04	2,733	2,725	1	2005.01.10

PPP Risk Sharing and Risk Management in Korea

❖ Perspective of Users > Interests of the Public

	Guidelines for SOC Private Participation Projects
<p style="text-align: center;">Roles of Gov. for public interest</p>	<ul style="list-style-type: none"> ▪ Authority of supervising department to change concessionaire, to halt or make necessary changes on projects (2000) ▪ Authority of supervising department to adjust user fees, management and operation schemes in negotiation with the concessionaire (2000) ▪ Principle of the usage of the government's refinancing gains to lower user fees (2004)

❖ Perspective of Users > Case Study

Evolution: Increasing Government's role for public interests

- **1995 (Incheon Airport Highway, Cheonan-Nonsan Highway) : None**
- **1998 (Daegu-Busan Highway): [Article 30]** If expansion of the road is inevitable due to traffic volume, government may initiate the expansion project.
 - New Daegu-Busan Expressway (1998)
- **2002 (Busan-Kimhae LRT): [Article 76]** Authority of the central or local government to intervene the projects for the interests of the public according to the SOC act 45, 46, and 47.

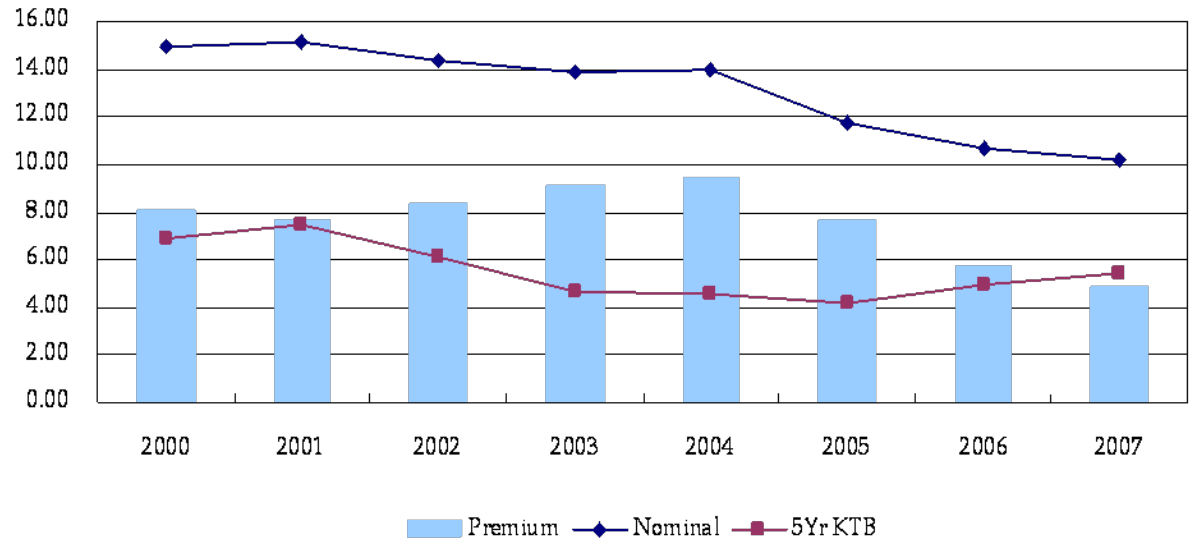
PPP Risk Sharing and Risk Management in Korea

❖ Perspective of Concessionaire : Average Rate of Return and Premium of BTO Projects

▪ Rate of Return

- Real rate of return: 6~9%
- Nominal rate of return: 11~14%
- Premium against GB 5: 6~9%

- **Real and Nominal returns have gradually decrease, but so have interest rates. The premium therefore increased in 2004, and then decreased in 2005.**



(unit: %)

		2000	2001	2002	2003	2004	2005	2006	2007	
Total	Num. of Project	7	2	3	4	10	8	6	7	
	Rate of Return	Real	9.54	9.67	8.93	8.67	8.75	8.09	6.42	5.99
		Nominal	14.95	15.15	14.37	13.83	13.97	11.78	10.68	10.23
		5Yr KTB	6.92	7.49	6.08	4.68	4.57	4.14	4.94	5.39
Premium		8.03	7.66	8.30	9.15	9.41	7.64	5.74	4.84	

(Source: PIMAC, End of Dec. 2007)

PPP Risk Sharing and Risk Management in Korea

❖ Perspective of Concessionaire > Risk and return for concessionaire

	Guidelines for SOC Private Participation Projects
Risk Mitigation	<ul style="list-style-type: none"> ▪ Classification of Risks: Obligated by Government, by Concessionaire, or Force Majeure ▪ Principles of Risk Control and Sharing: 1) Insurance, 2) Sharing, 3) Clarification of the obligor
Payment for Early Termination	<ul style="list-style-type: none"> ▪ Abstract level (2000): “May request for early termination payment in case ...” ▪ Elaboration (2003): <ol style="list-style-type: none"> 1) Differentiation of payment - (a) authority default, (b) concessionaire default, (c) non-political force majeure, (d) political force majeure 2) Differentiation of payment – (a) construction, (b) operation ▪ Further elaboration (2004): <ol style="list-style-type: none"> 1) Introduction of the concept of ‘fair cost of capital’ for the above 2X4 cases of early termination,
Support of Gov.	<ul style="list-style-type: none"> ▪ Simplification of the negotiation process for concession agreements (2004)

❖ Perspective of Concessionaire > Risk and return for concessionaire : Case Study

Early Stage (1995)

Declaration of the principle

- **[Article 6] Risk Taking** (“Concessionaire must perform with his/her own risk and cost ...)
- **[Article 23] Insurance** (“Concessionaire must be insured ...)



Elaboration (2004)

Specification of the types of risks

- **[Article 6] Risk Taking** : ① List of special provisions for concessionaire to be non-obligated ② List of insurances for concessionaire to be required to purchase
- **[Article 48] Rules of risk sharing** : ① Clarification of the types of risks that the concessionaire assumes ② Concessionaire/Government, Insurance, division of risks through negotiation

PPP Risk Sharing and Risk Management in Korea

❖ Perspective of Concessionaire > Risk and return for concessionaire : Case Study

Early Stage (1995)

- Government must compensate the proper amount of the project by consultation.
- Government covers senior debt.



Elaboration (2004)

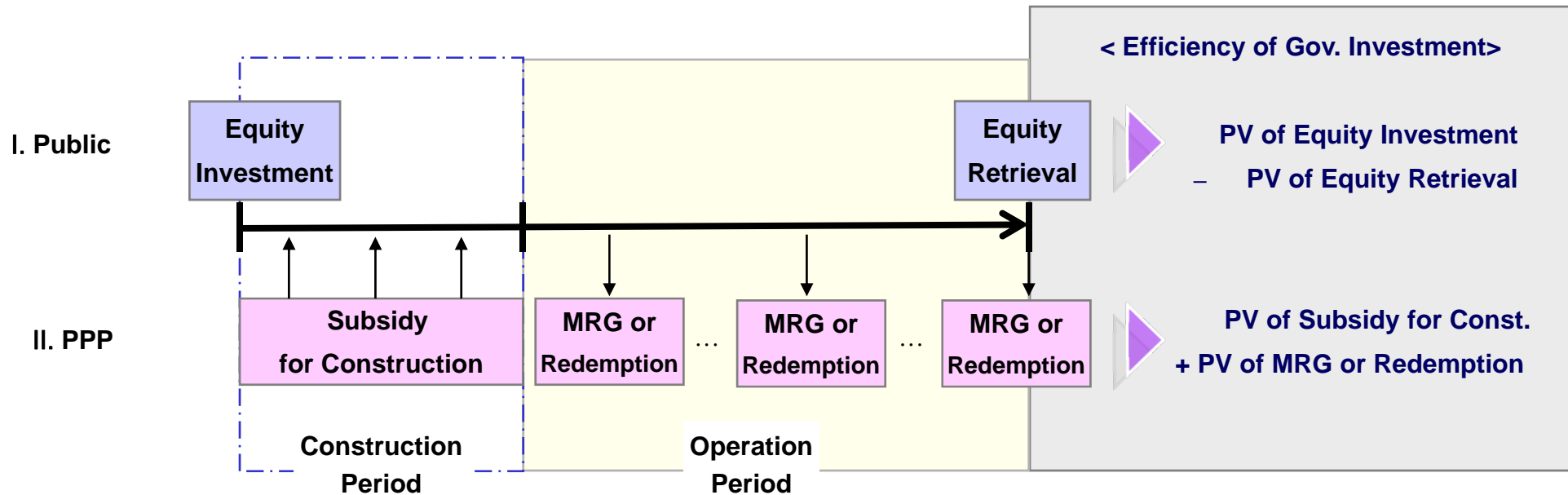
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Default by Government	Incorporated private investment amount $\times [1 + \text{current IRR (B)}]$	Weighted average of 1) the sum of the depreciated value of the amount on the left & 2) present value of the project for the remaining operating period
Non-political force majeure	Incurred private investment amount $\times [1 + \text{Standard debt interest rate (A)}]$	Same as above
Political force majeure	Incorporated private investment amount $\times [1 + (A+B/2)]$	Same as above

PPP Risk Sharing and Risk Management in Korea

❖ Perspective of Government > Government Financed vs. Private Investment : Methodology

▪ Cash flows of Gov. subsidy for Gov. financed project and private investment project

- **Public** : (1) Equity invest (at the beginning of the project), (2) Retrieval of the principal (at the end of the project)
- **PPP** : (1) Construction Subsidy during the construction period, (2) MRG or Redemption of excess revenue during the operation period



PPP Risk Sharing and Risk Management in Korea

❖ Perspective of Government > Government Financed vs. Private Investment

- **Important Assumption:**

Equity Investment for public roads is retrieved after 30yrs regardless of traffic volume.

I. Incheon International Airport Expressway

		Actual Revenue / Forecasted Revenue						
		50%	60%	66.25%	70%	80%	90%	100%
PV (Gov. Subsidy)	Public	565 (billion KRW)						
	PPP	1,232	821	565	411	0	-67	-168
Difference		667	256	0	-154	-565	-632	-733



II. Cheonan-Nonsan Expressway

		Actual Revenue / Estimated Revenue							
		50%	70%	75.20%	82%	100%	102%	103%	110%
PV (Gov. Subsidy)	Public	5,937							
	PPP	13,116	7,418	5,937	3,999	2,381	2,906	-766	-416
Difference		7,179	1,480	0	-1,939	-3,556	-3,031	-6,703	-6,353

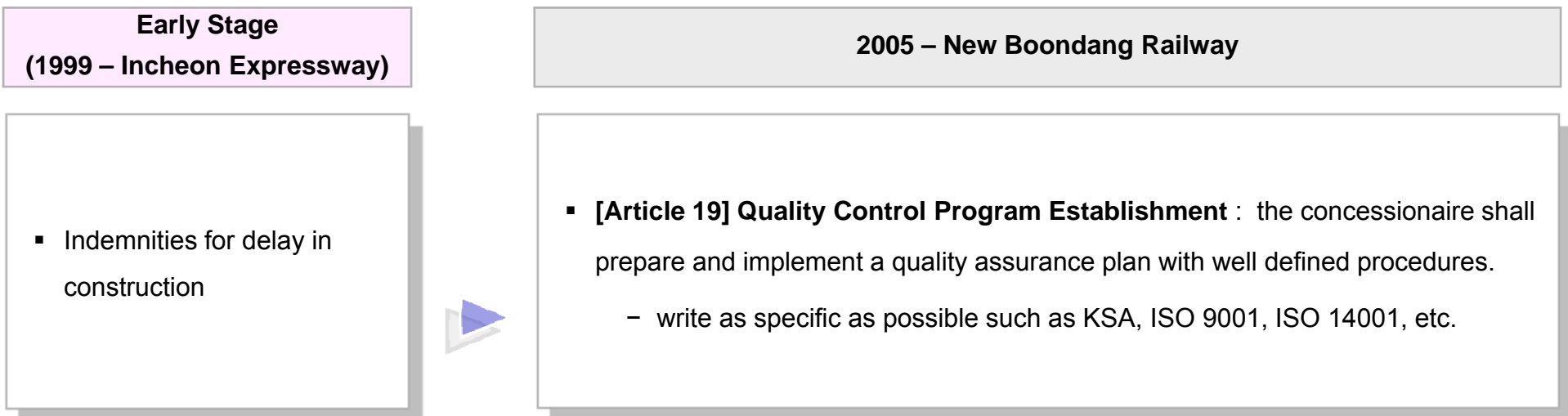


PPP Risk Sharing and Risk Management in Korea

❖ Perspective of Government > Risks for Government

	Annual Plan for Private Participation in Infrastructure
Quality Control	<ul style="list-style-type: none">▪ Specification of indemnities for delay in construction (1994)▪ Specification of the rights of the authority to control the quality of projects including construction and operation (2003)
MRG	<ul style="list-style-type: none">▪ Guarantee period and coverage for MRG have decreased over time.

❖ Perspective of Government > Risks for Government : Case Study



❖ Conclusions

1

- **Government has been successful in risk sharing and risk management by lifting regulations, and by granting financial support and incentives.**

2

- **The improved efficiency of PPP projects in Korea have been also reflected in concession agreements. Overall, concession agreements have developed in the direction of better protecting the interests of users and reducing the uncertainty for private participants as well as for the government.**

3

- **As a result, PPP environment in Korea has become more efficient over time.**

Thank You!!