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The PPP System: Korean Case

Dr. Hojun LEE
(hojunlee@kdi.re.kr)

Director of PPP Division

Public and Private Infrastructure
Investment Management Center (PIMAC)

Part-01

Overview of Korea PPP System



Legal Framework for PPP

- Since the formal PPP program was first introduced with the enactment of the PPP Act in 1994, the act has gone through several revisions.

Enactment
Aug. 1994

『The Private Capital Inducement Promotion Act』

Revision
Jan. 1999

『The Act on Private Participation in Infrastructure 』

- Unsolicited proposals, Minimum Revenue Guarantee

Amendment
Jan. 2005

『The Act on Private Participation in Infrastructure 』

- Diversified Facility Types (35 -> 44)
- Introduction of BTL Scheme

- Unsolicited proposals and MRG in 1999
- BTL in 2005 : promoted its use in educational facilities, military residences, environmental facilities, etc.
- Dispute Resolution committee in 2011

Legal Framework for PPP

Legal Framework of the PPP System

■ Hierarchy of legal and administrative framework of PPP System

- PPP Act
 - PPP Act Enforcement Decrees
 - ❖ Annual PPP Basic Plan
 - ✓ PPP Implementation Guidelines

■ The Legal Status of the PPP Act

- The PPP Act and the PPP Act Enforcement Decrees are the principal components of the legal framework of PPP
 - Eligible Infrastructure types, Procurement Types, Procurement Process, the roles of the Public and Private parties, etc
- **The PPP Act is a special Act that precedes other Acts**
 - Exempts PPP projects from strict regulation in national property management
 - Allows a SPC to play a role of competent authority

The PPP Basic Plan and PRC

PPP Basic Plan

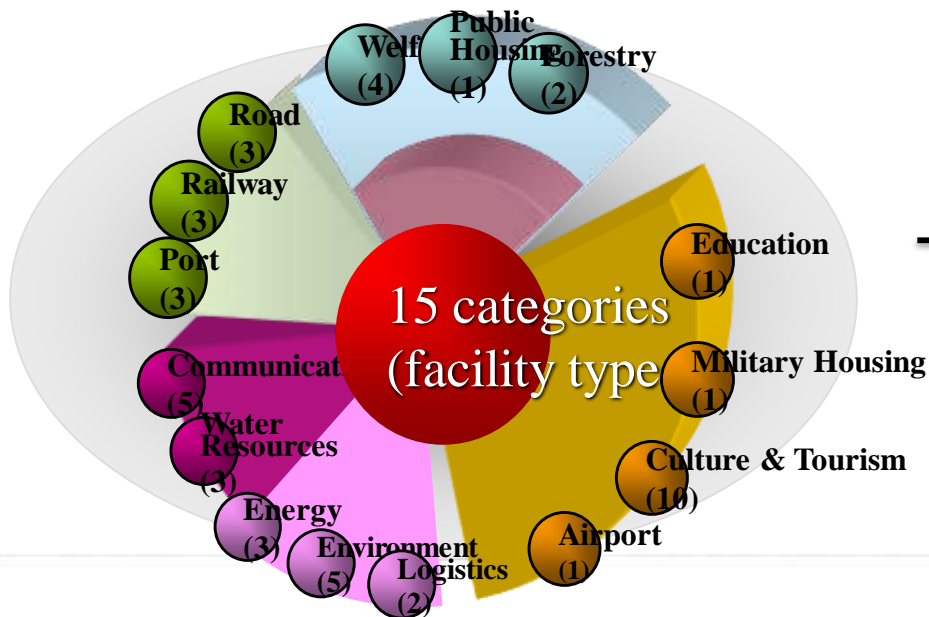
- **The PPP Act directs the MOSF and PIMAC to issue the PPP Basic Plan.**
 - *The PPP Basic Plan can be updated and adjusted more often reflecting relevant changes, market conditions and the government needs.*
- **The Basic Plan provides:**
 - PPP policy directions
 - Details in PPP project implementation procedure
 - Documentation direction

Project Review Committee

- **Chaired by the minister of strategy and finance, convenes whenever needed to make important decisions on PPP policies and major projects. It consists of members from procuring ministries and private sector experts.**
 - When deemed necessary, the PRC is able to postpone or block part of the expenditures for PPP projects

Eligible Facilities in the PPP Act

- **Korea government adopted the positive stipulation for eligible facilities, implying facilities that aren't stipulated in the act can't be implemented.**
 - Related with the strong government support or incentives for PPP projects.
 - Reflection of consideration of the PPP Act's legal status; The PPP Act is a special act that precedes other acts.



Revision of the Act in 2009 :

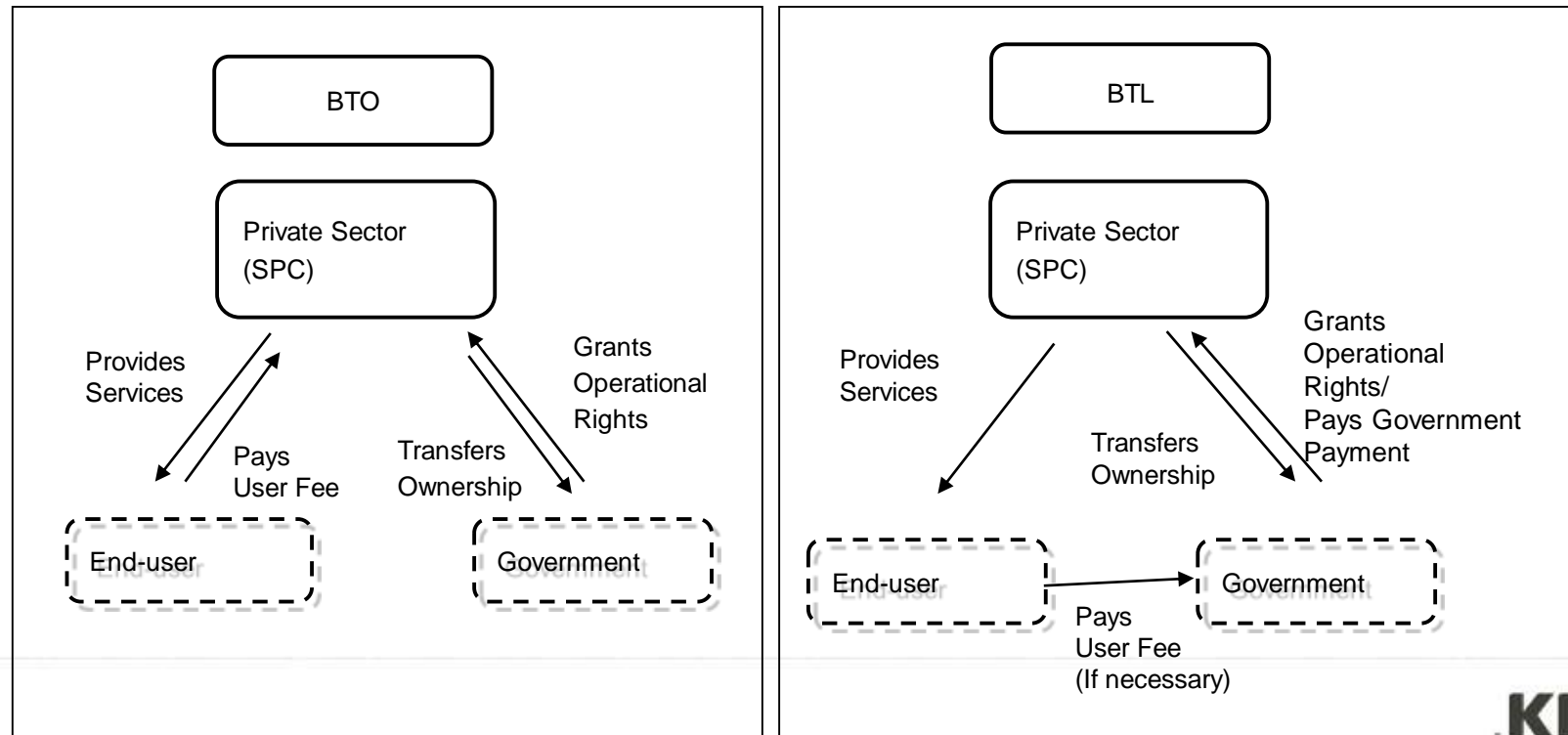
Eligible infrastructure facility types, which have been stipulated by the Act, can also be stipulated by the Enforcement Decree.

Both BTO and BTL types are Common

■ Both the concession-type (BTO) and the service purchase-type (BTL) projects are implemented in Korea

- Concession-type (BTO) is popular in developing countries, while service purchase-type(BTL)are common in developed countries

Comparison of BTO and BTL Schemes



Both BTO and BTL types are Common

PPP Projects by Procurement Scheme (As of Jan. 2014)

Unit: One hundred million KRW

Procurement Scheme		Number of Project		Total Project Cost		Average Project Cost
			%		%	
Concession-type	BTO	202	31.42%	679,549	1.25%	3,364
	BOO	7	1.09%	12,318	29.08%	1,760
	BOT	4	0.62%	6,580	0.67%	1,645
	Subtotal	213	33.13%	698,447	31.00%	6,769
service purchase-type	BTL	430	66.87%	286,401	69.00%	666
Total		643	100.00%	984,849	100.00%	1,532

Project Initiation

- ❑ **Both the government and a private company can initiate a PPP project**
- ❑ **Solicited Projects**
 - A solicited project is that the competent authority identifies a project for private investment and announces a RFP
 - Competent authorities develop a potential project after considering related plans and demands for the facility. They then weight the procurement options in order to determine whether the PPP procurement is more efficient than the conventional procurement
- ❑ **Unsolicited Projects**
 - For an unsolicited project, a private company (project proponent) submits a project proposal, and then the competent authority examines and evaluates the contents and value for money of the private proposal, and designates it as a PPP project

Unsolicited projects' Vitalization

- **Acceptance of the unsolicited proposals was one of key measures for inducing the private investment.**
 - The proportion of unsolicited projects compared to solicited projects is high, which is rare for developed countries. (Most developed countries do not accept the unsolicited proposals)

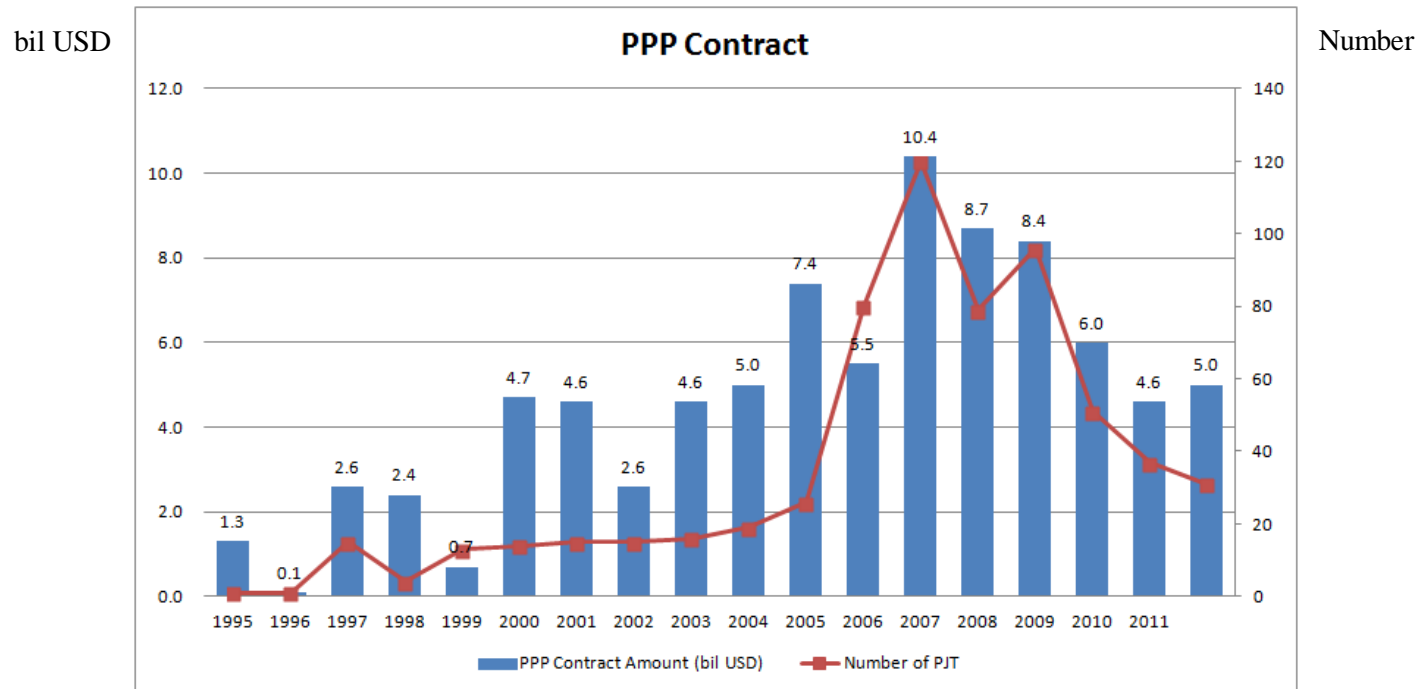
Number of Solicited and Unsolicited PPP projects (As of Jan. 2014)

Unit: One hundred million KRW

Project Type		Number of Project		Total Project cost		Average Project cost
			%		%	
Concession-type	Solicited	101	47.42%	298,091	42.68%	2,951
	Unsolicited	112	52.58%	400,357	57.32%	3,575
	Sub Total	213	100.00%	698,447	100.00%	3,279
BTL	Solicited	430		286,401		666
Total		643		984,849		1,532

PPP – Track Record

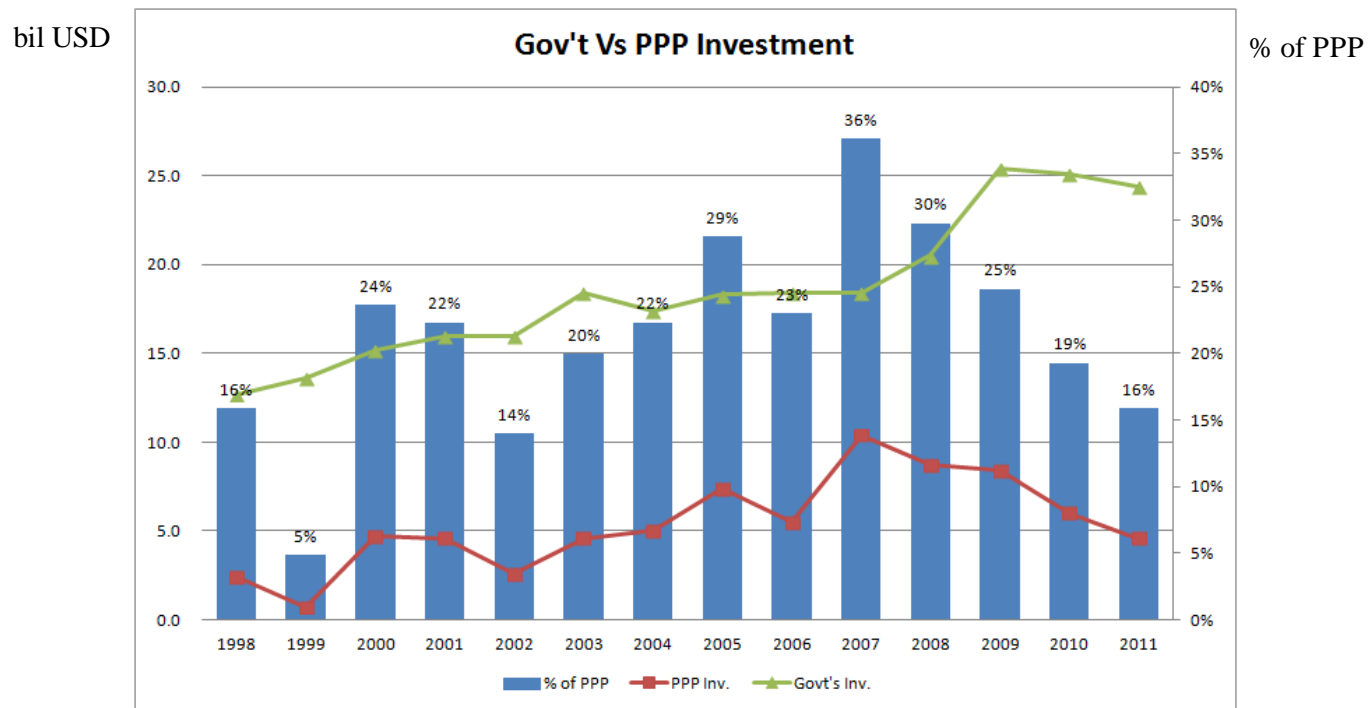
- **The infrastructure investments through PPP dramatically increased from 1999 to 2007, since then the trend has been stabilized**
 - BTL scheme was introduced in 2005, MRG was abolished in 2006, and financial crisis occurred in 2008



(*) All the figures are contract basis and thus real investment balance may be different

PPP – Contribution to Government Budget

- **PPP has alleviated the government's burden on infrastructure investment from 5% to 36% per year (Average: 21% per year)**
 - The promotion of PPP has helped ease constraints on the government's financial resources, enabling it to secure resources for sectors other than SOC



(*) All the figures are contract basis and thus real investment balance may be different

Part-02

PPP Projects in Korea



Infrastructure investment stock through PPP

Facility Types		Number of Project	%	Total investment	%
BTO	Road	56	28.14%	38,618	59.86%
	Train	9	4.52%	13,307	20.63%
	Port	17	8.54%	6,284	9.74%
	Environment	71	35.68%	4,999	7.75%
	Airport	14	7.04%	767	1.19%
	Parking Lots	26	13.07%	316	0.49%
	IT	1	0.50%	100	0.16%
	Culture	4	2.01%	100	0.16%
	University Facilities	1	0.50%	20	0.03%
	Sub-total	199	100.00%	64,511	100.00%
BTL	Education	194	45.75%	8,071	29.97%
	Environment	92	21.70%	6,687	24.83%
	Military	71	16.75%	5,575	20.71%
	Train	4	0.94%	4,030	14.97%
	University Facilities	15	3.54%	943	3.50%
	Culture	25	5.90%	851	3.16%
	IT	4	0.94%	239	0.89%
	Health / Social Welfare	10	2.36%	234	0.87%
	Mixed use	4	0.94%	184	0.68%
	Science center	5	1.18%	112	0.41%
	Sub-total	424	100.00%	26,925	100.00%

(As of December 2013)

PPP Projects in Korea - Infrastructure

□ BTL Railway Project



- Project: The double tracked project of Jeonra Line between Iksan and Sinri
- Currently in operation
- Scale: construction of the double track railways between Iksan and Sinri(34km), including the new construction of 5 railway stations
- Total investment cost: \$600.5m
- Construction subsidy from public sector: \$35.1m
- Private sector investment: \$565.4m
- Government Payment: consisting of facility lease fee and operation cost
- Lease: \$47m, operation: \$3.7m annually for 20yrs

PPP Projects in Korea - Infrastructure

□ BTO Road Project

서수원~평택 노선도



- Project: Toll collecting highway project from West Suwon to Pyeongtaek
- Currently in operation
- Scale: 38.5km Highway including 3 junctions, 7 interchanges, 86 bridges, 1 tunnel
- Total investment cost: \$1,115.4m
- Construction subsidy from public sector: \$309.9m
- Private sector investment: \$805.5m
- User Fee(toll): \$3.1(2012.12)
- Concession Period: 30yrs
- Minimum Revenue Guarantee
 - ✓ Guarantee Period: 15yrs
 - ✓ Requirement: above 50% of the traffic volume
 - ✓ Condition: initial 5yrs 80%, next 5yrs 70%, the rest 5yrs 60%

PPP Projects in Korea – Health Sector

□ Senior Homes

- Project: New construction of Hwasun senior home
- Currently in operation
- Scale: 5th storey hospital with 192 sickbeds
- Total investment cost: \$15.6m
- Private sector investment: \$15.6m
- Concession Period: 20yrs
- Government Payment: consisting of facility lease fee and operation cost paid by central and local government
- Lease: \$1.45m, operation: \$0.5m annually for 20yrs



PPP Projects in Korea – Health Sector

□ Public Hospital

- Project: Modernization of Gongju public medical center
- Present status: Public announcement
- Scale: Total area of 31,409m²
 - ✓ Hospital: 26,615m² with 4th storey building, 300 sickbeds
 - ✓ Underground parking lot: 4,794m²
- Total investment cost: \$70m
- Construction initiation: 2014.04.01
- Operation under BTL scheme period: 2016.03 ~ 2036.02(20yrs)



PPP Projects in Korea – Education

□ School Project

- Project: Elementary and secondary schools new construction project
- Present status: in operation phase
- Scale: Two elementary schools, one secondary school
 - ✓ A elementary school: 27 classrooms
 - ✓ B elementary school: 39 classrooms
 - ✓ C secondary school: 31 classrooms
- Total investment cost: \$61.62m
- Private sector investment: \$61.62m
- Concession Period: 20yrs
- Government Payment: consisting of facility lease fee and operation cost paid by local government
- Lease: \$2.2m, operation: \$0.8m annually



PPP Projects in Korea – Education

□ National University Dormitory Construction

- Project: New construction of national university dormitories in Gyeongnam Province
- Present status: in operation phase
- Scale: Two dormitories
 - ✓ A university: accommodating more than 1,694 people
 - ✓ B university: accommodating more than 740 people
- Total investment cost: \$43.1m
- Private sector investment: \$43.1m
- Concession Period: 20yrs
- Government Payment: consisting of facility lease fee and operation cost paid by central and local government
- Lease: \$3.6m, operation: \$2.5m annually



PPP Projects in Korea – Social Development

□ Sewerage Project

- Project: Jincheon Sewage treatment facilities
- Present status: in operation phase
- Scale: Sewage treatment facilities and ancillary facilities
- Total investment cost: \$22.8m
- Private sector investment: \$22.8m
- Concession Period: 20yrs
- Government Payment: consisting of facility lease fee and operation cost paid by central and local government
- Lease: \$1.8m, operation: \$0.3m annually
- Pilot Projects for sewage treatment facilities under BTL scheme



PPP Projects in Korea – Social Development

❑ Waste Recycling Project under BTO Scheme

- Project: Landfill gas recycling project
- Present status: in operation phase
- Scale: 50MW energy generating facilities, power transmission facilities
- Total investment cost: \$95m
- Private sector investment: \$95m
- Concession Period: 11yrs
- Minimum Revenue Guarantee
 - ✓ Guarantee Period: 11yrs
 - ✓ Requirement: excluded when the ratio of the actual value/estimated value is less than 10%
 - ✓ Condition: excessive profit-sharing is applied
- User Fee
 - ✓ SMP + 5 cents/kWh
 - ✓ PPA(Power Purchase Agreement) with KEPCO (Korea



매립가스포집 및 이송



매립가스 관리센터

Part-03

New Types of PPP: Renewable Energy(RE) Sector



PPP System and RE developement in Korea

- **With 20 years' experiences in PPP project initiation and management, Korea has succeeded in establishing the institutional setting for a mature PPP market.**
 - Solid foundation of legal and institutional system
 - Elaborated analytical tool and implementation guidelines
 - Fair and transparent procurement system
 - Intensive competition in PPP market
- **However, the PPP system is still facing some challenges that need to be resolved to increase national welfare by diversifying energy resources and in particular to cope with climate change**
 - The PPP system should continue to be improved in the direction of coping UNFCCC and Kyoto Protocol for the green growth

Definition of Renewable Energy

■ According to the Act on the Promotion of the Development, Use, and Diffusion of Alternative Energy

- “Renewable Energy” means energy resources converted from renewable energy sources, such as the sun, water, geothermal heat, precipitation, and bio-organisms:
 - Solar energy;
 - Wind power;
 - Water power;
 - Energy from the ocean;
 - Geothermal energy;
 - Bio energy converted from biological resources
 - **Energy from waste treatment**
 - Sources of Energy stated by Presidential Decree, other than petroleum, coal, nuclear power, or natural gas;

Government Support for RE Development (3)

■ RE Plant Government Subsidy

Resource Recovery Facility		Subsidy Rate (%)
Resource Recovery Facility	1) Incineration facility	30~50
	2) Incineration Heat Recovery facility	30~50
	3) RDF Manufacturing facility	30~50
	4) Landfill Gas Utilization Facility	Fixed Amount
	5) Organic Waste Resource Bio-gasification Facility	
	• Food Waste Bio-gasification facility	30
	• Food Waste Leachate Bio-gasification facility	30
	• Food Waste (Including Food Waste Leachate) and Live Stock Excreta and Other Wastes Bio-gasification Facility	70
	• Resource Recovery Facility Center (Including broadband facilities)	30

Current Status of PPP Renewable Energy (1)

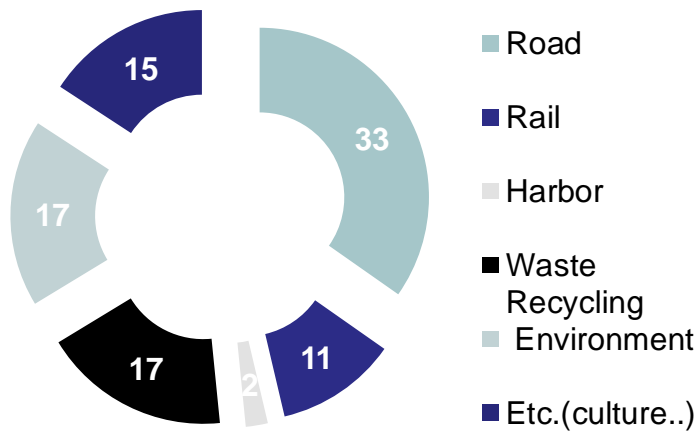
- **Currently in Korea RE PPP projects are limited to the waste-to-energy projects**
- In cases of previous waste disposal facilities, the focus is on interim disposal and terminal disposal
 - The previous facilities only made usage of residual heat of incineration facility, fertilizer and feedstuff of organic waste and other by-products
- Waste recycling facility projects have been implemented since 2007
 - Waste recycling facility project is to recycle energy of waste by disposing organic waste including food wastes to produce bio-energy or to generate electricity by incinerating household waste
 - Details of the Projects are as below
 - ❖ Manufacturing Refuse Derived Fuel (RDF) as well as generating electricity
 - ❖ Converting food waste and livestock excreta into energy (bio-gas production)
 - ❖ Fueling sewage sludge

Current status of PPP Renewable Energy (2)

- **At the end of 2012, Value for Money Test for 18 projects were completed**
 - Manufacturing RDF and generating electricity – 10 projects
 - Converting organic waste to energy – 4 projects
 - Complex project, etc. – 4 projects
- **Sector Classification for the Projects reviewed within recent five years (2008-12)**
 - Out of 95 reviewed projects, 44 were roads and rails, 17 were environmental
 - Out of the environmental projects, 17 were waste recycling energy projects

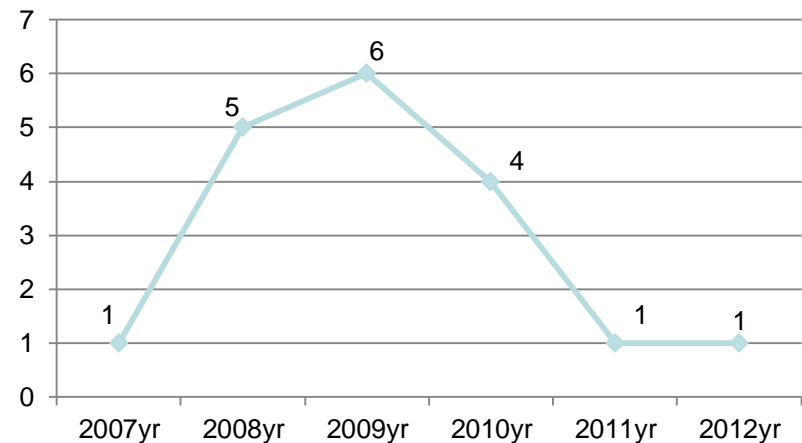
Current status of PPP Renewable Energy (3)

Sector Classification by Project Types ('08 – '12)



Waste Recycling Projects ('07 – '12)

Waste Recycling Projects by Year

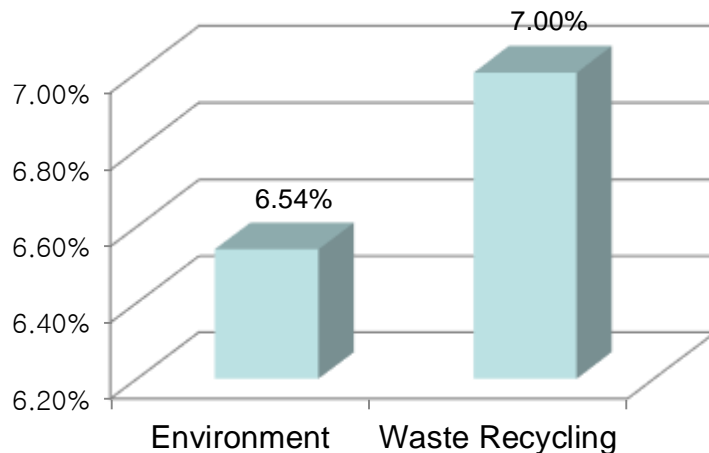


Current status of PPP Renewable Energy (4)

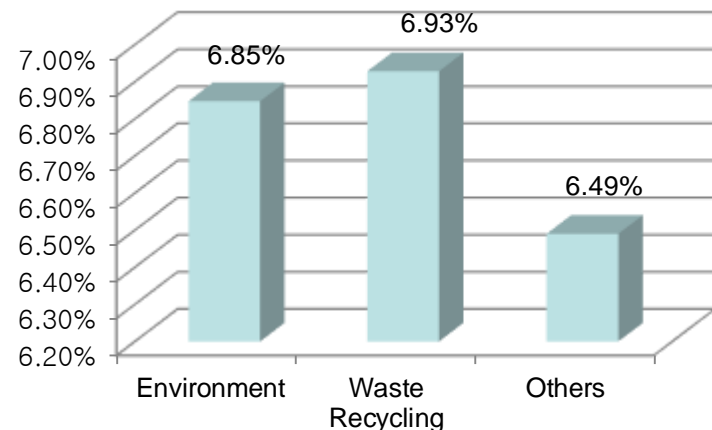
■ Comparing Rate of Return on Investment (before-tax)

- After 2005, the average environmental project rate of return on investment was 6.54%
- Average rate of return on investment for projects related to renewable energy is 7.00%
 - After 2009 the average rate of return on investment of the total projects is 6.68%

Return on Investment(IRR) Comparison Since 2005



Return on Investment(IRR) Comparison Since 2009



Challenges for PPP RE Development

■ Diversification of PPP RE projects

- The scope of PPP RE projects in Korea is limited to the waste-to-energy development projects to RE projects
 - Continuous interest from government and institutional support are required to expand the types of RE PPP projects

■ Review Capacity on the feasibility of the proposed new technology

- Technical problems cause direct influence to the production of renewable energy

■ Appropriate cost estimation of RE facilities

- For example, considering that the cost of RDF(Refuse Derived Fuel) exclusive boiler has high percentage of the total cost of RDF generating facility (in one project case 46.7%), review for the performance and appropriate cost estimation is important.

■ Improvement of commonality of RE PPP projects

- To smoothly start RE PPP projects and to make it investable in global PPP market, there is a need to promote RE PPP market's commonality
 - Need to develop standard concession agreement, Risk Metrics, Cost Estimation Method
 - Capacity Building and Exchanging about RE Technology

Thank you

Korea's Leading Think Tank

