

Chapter 5

The Role of the Private Sector

5.1 The Comparative Study of Investment Types between the State and the Private Sector

In considering the suitable type of investment, it has been found that each type of investment has different strengths and weaknesses. The investment by the State had been the type used in the early stages of mega projects and public utilities projects while Public Private Partnership (PPP) has been conducted for a long time overseas. PPP has still been considered new in Thailand. In fact, PPP is a crucial tool in promoting economic growth and achievement of the State's social development objectives.

As a tool of investment, PPP can cover a varieties of investment types and participation from the State and the private sector in the acquisition process, the construction operation and the Project management after the completion of the Project construction.

The Consultants have conducted the Feasibility Study and Limitations of the PPP investment and three types of investment have been analysed:

1) The State is responsible for the construction of the Infrastructure including Signaling and Telecom System, while SRT is responsible for investment on the train fleet and for being the Project Operator including maintenance throughout the Project life

2) SRT is responsible for the construction of the Infrastructure while the Private sector is responsible for Signaling and Telecom System, the train fleet, maintenance and being the Project Operator. SRT will collect revenues from the operation and passenger and freight trains and pay the private investor in a form of wage payment.

3) SRT is responsible for the construction of the Infrastructure while the Private sector is responsible for Track System, Signaling and Telecom System, the train fleet, maintenance and being the Project Operator while SRT receives concession rights compensations or tracks use compensations from the private investor. The 3 types of investment are shown in **Table 5.1-1** and the Hypothesis for the Analysis is shown in **Table 5.1-2**

Table 5.1-1 Investment Guidelines for the Project

Type	Infrastructure	Track System	Signaling & Telecom System	Power Supply	Train Fleet	Operation & Maintenance	Revenues
1	State	State	State	State	SRT	SRT	SRT
2	SRT	SRT	Private	Private	Private	Private	SRT
3	SRT	SRT	Private	Private	Private	Private	Private

Source ¹ SRT pays operation fees to the Private investor

² SRT receives concession rights compensations from the private investor

In so doing, the financial returns from the investment for the private investor is set at a minimal of 7.27% obtained from $WACC_{(private)}$ and in case of cash flow shortage, the State must provide support funding or pay the private investor as train operation fees so the financial returns will be 7.27% or higher. This will prove attractive to the in private investor.

Table 5.1-2
Hypothesis and Financial Indicators in the Analysis of Investment Types

No.	Details	Hypothesis	Notes
1.	Inflation Rate 1.1 Construction Cost 1.2 Revenues 1.3 Year of Cost Appraisal	2.5 %/year 2.5 %/year 2015	Office of Public debts Management
2.	Revenues 2.1 Passengers Fares - 1st Class car - 2nd Class car - 3rd Class car 2.2 Passengers Fees 2.3 Freight transport fees	0.86 baht/person/km. 0.42 baht/person/km. 0.18 baht/person/km. 53.48 % of the Revenues including passenger fares and fees 1.83 baht/ton/km.	SRT
3.	Assets Use Life 3.1 Civil works 3.2 Signaling &Telecom system 3.3 Track system 3.4 Train fleet	40 years 32 years 30 years 33 years	
4.	The Analysis Timeframe 4.1 The Project Analysis 4.2 Land rights management 4.3 Construction 4.4 Project Operation	30 years+construction period 1 year 3 year 30 year	Office of Public debts Management
5.	Starting year of construction	2018	
6.	Starting year of operation	2021	
7.	Reduction rate	5%	Office of Public debts Management
8.	Interest rate 8.1 Domestic Loans (the State) 8.2 Commercial banks (Private)	3.30%/ 15 years of payback 7.13%/15 years of payback	The Thai Bond Market Association Bank of Thailand
9.	D/E Ratio 9.1 The State 9.2 Private	3:1 2.5:1	
10.	Tax 10.1 Corporate Income tax 10.2 Returns to Ministry of Finance	20% /2013-2044 from Net Profit 35% from Net Profit	

5.2 Assessment of the Financial Indicators of the Analysis of the Investment Types

- NPV for SRT and Private Investor: Current NPV is an indicator reflecting the difference between the current revenue or the Project profit and investment value of the Project investment. From the comparative study, any type of investment with higher NPV is considered a better investment type.
- FIRR of SRT and Private Investor: FIRR is an indicator reflecting the financial returns in percentage value turning the current NPV or the Project profit to be equivalent to NPV of the Project. From the comparative study of different types of investment, any type of investment with higher FIRR is considered a better investment type.

5.3 The Results of the PPP Analysis

The results of the Analysis will be shown with FIRR and NPV of both SRT and Private Investor from the joint cooperation between the State and the Private Sector for the Electrified Train Project in **Table 5.3-1** and the Diesel Train Project in **Table 5.3-2**

Table 5.3-1
The Financial Returns from PPP for the Electrified Train Project

Type	SRT		Private	
	NPV (m. baht)	FIRR (%)	NPV (m. baht)	FIRR (%)
1	-883.37	N/A*	-	-
2	-9,966.44	N/A*	1,016..24	12.00
3	-15,658.41	N/A*	3,422.48	12.00

Note: * Unable to obtain the value as the State invests on the Infrastructure, Signaling & Telecom system and Power Supply while SRT has to pay subsidy to maintain FIRR of the private investor to be higher than WACC as investment incentive.

From **Table 5.3-1**, it could be seen that Type 1 with total Infrastructure investment undertaken by the State including Signaling & telecom System and Power Supply System and SRT invests on the train fleet and life-time maintenance and runs the Project, NPV is -883.37 m. baht which is in the lower red than when SRT has to undertake the total investment. This indicates that the State should merge as a partial investor of the Infrastructure including Signaling & Telecom System so the Project can operate with efficiency.

As for the study of Type 2 with PPP when SRT collects revenues from fares and fees from passenger from passenger and freight trains and freight trains and pays operation fees to the private investor and Type 3 with the private investor collects revenues from fares and fees and SRT receives compensations from concession rights and use of tracks, it was found that for Type 2, SRT will have NPV of -9,966.44 m. baht which yields less negative value than that of Type 3. Therefore SRT should move with Type 2 in which SRT will pay operation fees to the private investor and maintaining a better NPV.

From the analysis of the three types of investment, it was found that Type 1 when the State is the sole investor of the Infrastructure is the most appropriate type of investment because of the lowest negative NPV. When considering the Results of the Financial Analysis of the Double Tracks Train Project, it was found that the Project is worthy of economic and social investment in terms of increasing Transportation System potentials and quality of life of the public.

Table 5.3-2
The Financial Returns from PPP for the Diesel Train Project

Type	SRT		Private	
	NPV (m. baht)	FIRR (%)	NPV (m. baht)	FIRR (%)
1	-3,435.03	N/A*	-	-
2	-10,806.91	N/A*	284.35	12.00
3	-15,201.75	N/A*	2,411.64	12.00

Note: * Unable to obtain the value as the State invests on the Infrastructure, Signaling & Telecom system and Power Supply while SRT has to pay subsidy to maintain FIRR of the private investor to be higher than WACC as investment incentive.

From **Table 5.3-2**, it was found that Type 1 with total Infrastructure investment undertaken by the State including Signaling & telecom System and Power Supply System and SRT invests on the train fleet and life-time maintenance and runs the Project, NPV is -3,435.03 m. baht which is in the lower red than when SRT has to undertake the total investment. This indicates that the State should merge as a partial investor of the Infrastructure including Signaling & Telecom System so the Project can operate with efficiency

As for the study of Type 2 with PPP when SRT collects revenues from fares and fees from passenger from passenger and freight trains and freight trains and pays operation fees to the private investor and Type 3 with the private investor collects revenues from fares and fees and SRT receives compensations from concession rights and use of tracks, it was found that for Type 2, SRT will have NPV of -10,806.91 m. baht which yields less negative value than that of Type 3. Therefore SRT should operate as a collector of revenues and pay operation fees to the private investor and this will yield a better NPV .

From the Analysis of the three types, it can be seen that in Type 1 when the State invests on the total Infrastructure is the most suitable form of investment as NPV has the lowest negative value compared with the other two types. And when considering the Results of the Financial Analysis of the Double Track Diesel Train Project, it was found that the Project is worthy of economic and social investment in terms of increasing Transportation System potentials and quality of life of the public.