Taiwan High Speed Rail Project
PPP Case Study, Chinese Taipei

I. Project Description/ASSESSMENT

a. Background/Objectives

In view of the steadily deteriorating state of transportation service quality in Taiwan's western corridor and gradual saturation of capacity, the Executive Yuan designated the Institute of Transportation, MOTC and Provincial Government to perform the "Taiwan Western Corridor High Speed Rail Feasibility Study" in 1987, and finally approved the Taiwan High Speed Rail Project (hereafter referred to as HSR project) in 1992.

b. Rationale for selecting PPP

The HSR project adopted the "build-operate-transfer" (BOT) model because it was significant in two important ways: easing the government's fiscal burden, and also boosting business efficiency. In Taiwan, the dramatic increase in social welfare spending and routine expenditures since 1990 has affected the government's ability to fund transportation infrastructure projects. As a consequence, in the face of a shortage of funds, the government is found in necessary to shift from the past model wherein all transportation development funding is provided from the government budget toward the BOT model of self-financing project development, which has already been in use overseas for many years.

c. Scope

The planned HSR route would extend from Taipei in the north to Kaohsiung in the south, have a total length of approximately 345 km with 12 stations and 6 maintenance bases. The total work could be divided into three parts:

(a) Implemented by government: planning, basic design, land acquisition, construction of underground civil work in Taipei section (Nangang-Banqiao).

(b) Minimum investment (must be made by the private sector): E&M core system, track work, maintenance depots, stations, test-run section, station area development, operation and maintenance.

(c) Optional investment (the private sector can choose whether to make or leave it to the government): Civil work.

d. Stakeholders

In 1997, the private sector was invited to put forward proposals to design, finance, construct and operate the Taiwan High Speed Railway (THSR) using the BOT model. And in September 1997, the Government selected the Taiwan High Speed Rail Consortium as the best applicant to be awarded the concession.

Taiwan High Speed Rail Corporation (THSRC) was registered as a company in May 1998, and signed the Construction and Operation Concession Agreement
(C&OA) with the MOTC on 23 July 1998.

The composition of shareholders are as follows:

<table>
<thead>
<tr>
<th>Type of Shareholders</th>
<th>Shareholding (In hundreds of millions of shares)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 leading Taiwan companies</td>
<td>29.4</td>
<td>27.93%</td>
</tr>
<tr>
<td>Government agencies and Government-owned agencies</td>
<td>12.5</td>
<td>11.87%</td>
</tr>
<tr>
<td>Foreign institutions and natural individuals</td>
<td>3.6</td>
<td>3.45%</td>
</tr>
<tr>
<td>Other corporate Investors and Individuals</td>
<td>59.8</td>
<td>56.75%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>105.3</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

II. Structure of the Project

a. PPP Scheme

The HSR project uses the BOT model, which the concession company (THSRC) makes the largest investments (refer to part (b) and (c) of section I. c. Scope). The government is responsible for the supervision and administration of the project, and takes the basic work such as basic design, planning and land acquisition (refer to part (a) of section I. c. Scope). The BOT concession period is 35 years for the operation and 50 years for the station area development.

b. Risk allocation

<table>
<thead>
<tr>
<th>Risk Type</th>
<th>Risk Period</th>
<th>Primary Risk Bearer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land acquisition</td>
<td>Throughout concession period</td>
<td>Government</td>
</tr>
<tr>
<td>Project route and station</td>
<td>Throughout concession period</td>
<td>Government</td>
</tr>
<tr>
<td>Explicit design criteria</td>
<td>Throughout concession period</td>
<td>Government</td>
</tr>
<tr>
<td>Explicit Government’s work, assistance and promise.</td>
<td>Throughout concession period</td>
<td>Government</td>
</tr>
<tr>
<td>The work assigned to the private (such as engineering and station area development)</td>
<td>Throughout concession period</td>
<td>Private operator</td>
</tr>
<tr>
<td>Explicit rule of fare adjusting mechanism</td>
<td>Throughout concession period</td>
<td>Government and Private operator</td>
</tr>
<tr>
<td>Explicit statement of solution if Force majeure</td>
<td>Throughout concession period</td>
<td>Government and Private operator</td>
</tr>
<tr>
<td>Revenue (no guarantee HSR ridership nor revenue)</td>
<td>Throughout concession period</td>
<td>Private operator</td>
</tr>
</tbody>
</table>
c. Describe any special features of the project structured included to make it an attractive business opportunity.

In order to provide sufficient incentives for private investment, the Legislative Yuan passed “The Statute for Encouragement of Private Participation in Transportation Infrastructure” which contains innovative terms concerning land acquisition and use, financing, and tax incentives in December 1994.

III. Process Analysis

a. Feasibility

The Institute of transportation, MOTC selected a consultant team to jointly undertake the "Taiwan Western Corridor High Speed Rail Feasibility Study" in 1989. The report on HSR proposal completed in February 1990 concluded: "The project is feasible and should be implemented as a first priority".

b. Procurement

The Executive Yuan subsequently approved the establishment of the "MOTC High Speed Rail Project Preparatory Office" in June 1990 (the preparatory office was renamed the "Bureau of Taiwan High Speed Rail, MOTC" in January 1997) to bear responsibility for planning and implementation of the HSR project.

The HSR project was approved by Executive Yuan in June 1992 with the funding provided from the government budget. But in July 1993, Legislative Yuan cancelled HSR project budget and requested continued development as a BOT project.

On 29 October 1996, the BOHSR formally announced a call for private organizations interested in participating in HSR construction and operation. Two private organizations submitted applications before the cutoff date (15 January 1997). After two stages of review, negotiations and overall selection, the MOTC and THSRC signed the Construction and Operation Concession Agreement on 23 July 1998.

c. Development/Delivery

THSRC broke ground on the HSR project on 1 March 2000 and held ceremony to mark start of test-run on 27 January 2005. After the test before operation by the MOTC, the HSR was ratified to operation in December 2006 and finally opened to operate on 5 January 2007.

d. Current Status and key implementation issues

Up to May 2014, the THSR have carried more than 269 million passengers (average 130 thousand passengers per day in 2014), and the punctuality reaches 99.4%. It provides 5-6 trains in one direction per hour on peak hours, and has shorten the travel time from Taipei to Kaohsiung to 90 minutes to realize the one-day-society in Taiwan’s western corridor.
Financing Information

a. Project cost

According to the project Taiwan High Speed Rail Consortium submitted in 2007, the construction cost is estimated to be NT$407.6 billion (not including NT$105.7 billion that must be performed by the MOTC), which was based on the planning and the designing data provided by BOHSR, MOTC and foreign experience.

In the end of 2013, the total cost of operating asset owned by THSRC is NT$454.5 billion.

b. Sources of financing

The construction cost of high speed railway is raised by capital stock investment and debt financing. Total capital stock is NT$105.3 billion and the debt is NT$364.2 billion as of the end of December 2013.

c. Concession period, Self-Financing Ratio, Project IRR, NPV, and DE Ratio

Based on the 2007 project, the duration of the concession agreement for the HSR, including the construction period and operating period, is 35 years from the contract date. Self-Financing Ratio was calculated at 68.9%. The project internal rate of return was 13.89%. The project NPV at a discount rate of 10% was NT$139 billion. Debt to equity ratio was 2.9%.

V. Role of PPP Unit/Center

a. Chinese Taipei enacted an Act for Promotion of Private Participation in Infrastructure Projects (hereinafter PPIP Act) in 2000 and in 2013 set up a permanent PPP unit (Department for the Promotion of Private Participation, PPP Department) under the Ministry of Finance. According to the PPIP Act each PPP project is designed and implemented by authorities in charge in the central and local governments, the PPP Department of MOF is not involved in project planning and implementation, but announce relevant information of successful cases on PPP Information System, as well as provide training by sectors, learning from the best practices of benchmark cases and relevant operational guidelines for reference, such as a standard operation procedures for checking projects through their entire life-cycle, a checklist for important items, tender documents, references for the signing of contracts.

b. The PPP Department is in charge of the establishment of related PPP policies and regulations, collection and announcement of related statistics, professional training, counseling, coordination, and supervision in connection with the relevant PPP projects, and the processing of complaints. The PPP Department has adopted the following measures:

   (a) Enacting the PPIP Act, Enforcement Rules of Act for PPIP, and other relevant laws and regulations.

   (b) Establishing "PPP Information System" to monitor the progress of individual projects and announce tender information in due time.
(c) Enhancing the professional capacity of staff from both public and private sectors engaging in PPP by providing customized training courses including introduction of laws and regulations, training by sectors, learning from the best practices of benchmark cases and operational guidelines.

(d) Providing performance evaluation mechanism of implemented project by each sector including common and specific performance indicators for reference by the authority-in-charge.

(e) Providing consulting service and initial assistance for the development of PPIP projects to the authority-in-charge.

(f) Setting up the “Platform for Private Participation in Infrastructure” under the Ministry of Finance to create channels for dialogue between the public sector and potential private investors at the early stage, and coordination among public sectors.

(g) Establishing Complaint Review Board for PPP projects, and settle disputes encountered during application and evaluation stage.

c. Not applicable. Chinese Taipei’s PPP projects are implemented on a financially-independent basis. The government does not provide viability gap financing.

d. Chinese Taipei have over 1,100 PPP contracted projects, worth more than NTD 890 billion dollars (equivalent to USD 30 billion, or CNY 178 billion) in capital investment from 2000 till 2013, including hospitals, cultural creativity parks, bus terminals, and port container terminal facilities. At present, the private investment through PPP is around NTD 50 billion dollars (equivalent to USD 1.6 billion, or CNY 10 billion) per year. Chinese Taipei’s PPP projects are implemented on a financially-independent basis. The government does not provide special loans or guarantee business revenue. We have relevant professional expertise in the legal, financial and technological aspects of PPP, and have set up a list of PPP experts.

VI. Key lessons, Experiences and Observations

a. Since the HSR line traverses Taiwan’s western corridor, the project has involved a complex range of governmental and agency duties and powers. Effective coordination channels and operating mechanisms must be established in order to continue coordinate the resolution of various problems.

b. Because of the enormous costs of the HSR project, the private organization needed to raise more than NT$400 billion in funds. As a consequence, shifts in economic conditions and the financial environment may readily impede fund-raising efforts.

c. Project financing is an arrangement in which future net income served as a guaranteed source of funds for repayment of project loans. The HSR project failed to adopting project financing and used traditional debt obligation instead, so in order to strengthen the ability of financing organizations to assess BOT projects and allow financing organizations to participate at an early stage and implement project financing, financial laws and the operating environment should be reviewed and revised as necessary so as to enable financing organizations to supervise projects.
d. Since major BOT rail transportation projects involve huge investments, long recovery periods, and uncertain revenues (passenger traffic), it is recommended that legislation considering specify mechanisms guaranteeing private organizations a minimum income according to financial characteristic and risk of the project; this will facilitate the arrangement of financing and reasonable apportionment of risk.

e. The most important things to consider when promoting private participation in public infrastructure projects are the financial plan, financing and repayment plan, and assumption of risk; project review should be led by a dedicated unit assembling professional personnel with experience in BOT financing, law, and project technology.

f. The important content of the proposals, especially the letters of support from bank consortiums, should be clearly stated in the Concession Contract in order to make sure the promise made by the investor will be carried out.

g. After chosen the best applicant, government should stick to the “Bankable or Terminate” rule and do not provide additional financing guarantee unless the guarantee was approved beforehand and was written in the application note.

h. The Concession Contract should specify the management mechanism for breaching the contract (fundamental/ non-fundamental) so that the rights of the government can be appropriately safeguarded.