Research on Private Sector Participation in Water Supply Services

Executive Summary

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Abbreviation（PSP Project Type）

Abbreviation	Explanation
BLT	Build Lease Transfer
BOO	Build Own Operate
BOT	Build Operate Transfer
BOOT	Build Own Operate Transfer
BTL	Build Transfer Lease
BTO	Build Transfer Operate
DBFOT	Design Build Finance Operate Transfer
DBL	Design Build Lease
DBO	Design Build Operate
RTO	Rehabilitate Transfer Operate
ROT	Rehabilitate Operate Transfer

Terminology

Term	Explanation
Performance Based Contract (PBC)	Performance Based Contract (PBC) is a type of O&M Contracts, based on which the payment for private enterprises is made depending on accomplishment level of the performance. Usually, a certain amount of payment is deducted from the originally agreed amount if the predetermined performance is not achieved.
Private Sector Participation (PSP)	Private Sector Participation (PSP) is a form of providing water supply services, using knowledge, information, technologies, and financial source of the private sector. The concept is winder than PPP in the sense that PSP includes “Corporatization” and “Private Utility” which are not based on a contract between public and private sectors.
Public Private Partnership (PPP)	Public Private Partnership (PPP) is a form for providing a public asset or services under the responsibility of a public authority using knowledge, information, technologies, and financial source of the private sector. Usually, it is undertaken based on a contact between public and private sectors.
Value For Money (VFM)	VFM is the concept to provide the highest value of outcome or public service as a compensation of public investment. It can be measured through reduction of public fiscal stimulus or improvement of public services. In reality, application of PSP is often assessed by financial impacts through comparison between traditional public delivery scenario and private participated scenario.
Viability Gap Funding (VGF)	Viability Gap Funding is a government’s financial support to a private enterprise which undertakes a PPP project. It aims to improve financial viability of a project, attract private enterprises and accelerate infrastructure development in the country.
Unsolicited Project	Unsolicited Project is the one which is proposed and implemented by a private enterprise but does not exist in the development plan of the public sector. In contrast, project planned by public sector is called “Solicited Project”.

Chapter 1 Research Outline

1.1 Background and Objective

Water resources are indispensable not only for sustaining human life but also supporting economic activities and maintaining ecosystems. Nevertheless, it has been reported that 663 million people around the world do not have access to sanitary drinking water sources, and 2.9 billion people are affected by water scarcity due to rapid population growth, urbanization and economic development. Greater access to safe water continues to be seen as an important issue in supporting developing countries, as it is declared under the Sustainable Development Goals (SDGs) adopted in 2015, which aims to realize the situation where "access to water and sanitation for all" shall be ensured by 2030.

Given the considerable need for infrastructure development and a lack of public financial sources, Private Sector Participation (PSP) is becoming more important agenda in developing countries. In light of such a movement, the Japanese Government published the "Japan Revitalization Strategy" and "Partnership for Quality Infrastructure: Investment for Asia's Future" in 2013 and 2015, respectively, and has made a firm commitment of contributing to infrastructure development in developing countries by leveraging Japan' financing, technologies and know-how.

Opportunities for PSP or utilization of private resources in water supply services in developing countries have been continuously on the rise. However, there have been cases which resulted in insufficient quality of water supply services to beneficiaries due to insufficient regulatory framework, a lack of financial resources or inadequate management of contracts with private enterprises.

Given such a background, this research aims to (1) grasp general trend of PSP in water supply services, (2) collect information and analyze the factors of successes and failures of PSP, (3) develop framework and checklist for grasping PSP development status, and (4) identify items to be considered when planning and implementing project(s) in the related field.

1.2 Target Countries

The target countries of this research include 18 countries where there are high prospects of JICA's assistance: Cambodia, Indonesia, Laos, Myanmar, Philippines, Thailand, Vietnam, Bangladesh, India, Nepal, Pakistan, Sri Lanka, East Timor, Kenya, Nigeria, South Africa, Brazil and Paraguay. Among these 18 countries, field studies were conducted in 6 countries: Philippines, Indonesia, Vietnam, Laos, Cambodia and Thailand.

1.3 “ Overarching Paradigm” for PSP in Water Supply Services

Water supply is vital services to establish public health and access to safe water is also a basic human right that must be guaranteed by public authorities. PSP in water supply services should be considered with adequate understanding on the importance of following five aspects. In this research, these are called as “Overarching Paradigm” for PSP in water supply services and commonly adopted for all study items.

(1) Safety

Securing water safety is important to establish public health, which is the purpose of the water supply services. When considering PSP in water supply service, concerns regarding deterioration of safety would likely arise due to inadequate investment caused by the profit-driven activities, which need to be dispelled. Regulations and monitoring systems for the private sector operation are required to ensure safe water supply.

(2) Equitability

It is important to ensure “universal access” which means everyone has equal access to water. Since private enterprises’ behavior is based on economic principles, it is necessary to consider risks that they supply water only to highly profitable areas, prioritize high-income beneficiaries, and stop water supply to low-income people. Considering the characteristic that water supply tends to be monopolized in region and is the vital infrastructure supporting people's lives, it is important to conduct appropriate regulatory supervisions in order to ensure universal access to the people. While admitting a reasonable level of profit, it is also necessary to ensure and/or improve provision of water services to the areas and people of low-income.

(3) Affordability

While water infrastructure development requires large amounts of funding, water tariffs should be set and maintained at affordable rates for any residents to secure equal access. In addition, it is necessary to avoid the situations where private enterprises set unreasonably high water tariff which exceed the affordable level for citizens. On the contrary, if the tariff is forced to set at unreasonably low level, which is not sufficient for a private enterprise to realize cost recovery, it will become difficult to continue water supply service in the long term. Water tariffs should be set and updated appropriately by considering both affordability of the beneficiaries, as well as financial viability of private enterprise.

(4) Sustainability

PSP inherently has a risk that the service will be discontinued to factors such as private enterprise's business withdraws and bankruptcy. As water is indispensable for people, sustainable water supply services should be provided by the sustainable management of water supply operators. When utilizing PSP, the public sector needs to manage the risks occurring such as withdrawal and bankruptcy.

(5) Transparency

Because of its public nature, sufficient transparency should be ensured in the selection of private enterprises, contract conclusion and implementation of PSP. However, there have been a considerable number of cases where PSP are carried out without clear selection and contract process which often failed to provide adequate water supply. It indispensable to select private enterprises with appropriate capacity under a transparent and fair process.

Chapter 2 Framework and Checklist for Grasping PSP Development Status

2.1 Framework for Grasping PSP Development Status

2.1.1 Basic Modalities of PSP

Forms of PSP in water supply services can be classified into the following six modalities, depending on the business scope of a private enterprise.

Basic modalities of PSP in water supply services
・Operation and Maintenance (O&M) Contract ・Management Contract ・Bulk Water Supply ・Utility Concession ・Corporatization ・Private Utility

Characteristics and expected benefits of each modality are shown in the following table.

Table 2-1 Characteristics and Expected Benefits of PSP

Modality	Characteristics	Expected Benefits
O&M Contract	There is broad variety of items in the contract and may include relatively routine work such as meter reading, tariff collection and customer relations as well as works requiring certain expertise such as water quality inspection, facility design and maintenance. Many public authorities apply O&M Contract for private sector partnership because it is relatively easy to introduce for public authorities without specific knowledge and experience of PSP. In cases of PBCs, capacity for performance evaluations and contract management is required.	• Leveraging technologies of private sector in operations that require special technologies such as design, inspection and Non Revenue Water (NRW) reduction • Reduction of labor costs and streamlining of routine work such as tariff collection
Management Contract	Management Contract entrusts a part or all of the management of water supply services to the private sector, whereas the implementing entity of the water supply service remains a public authorities. The scope and responsibilities of work vary on an individual case basis. This type of contract is relatively common in Europe and Africa but is rarely adopted in Asia.	• Strengthening financial soundness of public water supply utilities • Improvement of business performance and work efficiency by introducing knowledge and experience of private sector
Bulk Water Supply	Private sector produces and sells water to water supply servicers. This is the most typical case of PSP in water supply services. There are a variety of modalities such as BOO, BOT, BOOT, BTL and DBO, and risk allocation also varies depending on the scheme.	• Improvement of efficiency by outsourcing the design, construction, operation and maintenance in bulk • Reduction of finance burden of the public authorities in new investment • Mitigation of water tariff increase
Utility Concession	Public authorities such as city governments give concessions (business rights) to the private enterprise exclusively and the private enterprise runs the water supply service. Reduction of public expenses and improvement of the service quality are expected, but appropriate governance with adequate monitoring by the public authorities through the contract is important.	• Reduction of financial burden for public authorities in new investment • Supplementary function in the absence of sufficient human resources, technologies and knowledge in public authorities
Corporatization	Typically, corporatization is to separate the existing water utility from the public authority by issuing stocks and selling them to the private sector. In particular, corporatization is increasing in Vietnam. Corporatization aims at reducing public expenditures, strengthening financial structure and raising new investment funds by issuing stocks and selling to the market. It may require revision of water tariffs to balance income and expenditures independently.	• Strengthening business performance of the existing water utility • Establishing independent revenue; establishing cost recovery structure of water company • Fund raising through stock market listing and/or issuing receivables
Private Utility	The water supply service is operated as a wholly private business in this category and is typically utilized in Cambodia. The scope of the regulatory role by public authorities is limited compared to Utility Concessions since they are not involved, however the role of regulatory supervision by public utility is still important. There may be a broad range of entities involved in the project including large-scale private enterprises and residents' associations. The scale of the business may also vary depending on each case.	• Achieving policy goals such as SDGs • Expansion of supply area and improvement of the quality of water supply service

Source: The Study Team

Capacities which are required for public officers in charge differ by modality as shown below:

- “O&M Contract” and “Management Contract” require capacity for ordering and acceptance of work and monitoring, even though special capacity for procurement are not necessarily required.
- “Bulk Water Supply” requires certain capacity such as technical capacity for managing design and construction, financial capacity for managing fund raising, and legal capacity to properly reflect demand fluctuations on payment amounts.
- “Utility Concession” requires considerable capacity such as capacity to deal with finance including project financing and repayment plans to prevent business collapse, legal capacity to set and revise water tariff levels, and advanced capacity to adequately regulate private enterprises.
- “Corporatization” requires financial capacity for equity investment and management capacity for participating in management.
- “Private Utility” does not require financial and legal capacity for public authorities since the business operations are entrusted to the private sector. However, public authorities should adequately monitor and regulate the private enterprises.

The table in the next page summarizes the conditions and capacities that are required for public authorities, such as ministries, local governments, and public water utilities. The required capacities are classified as follows.

- "Technology" on design and construction
- "Finance" on business income and expenditure etc.
- "Contract" on preparation and interpretation of contract
- "Management” on water supply operator
- "Regulations" on supervising and monitoring private enterprises

Table 2-2 Required Conditions and Capacities for PSP

Category of PSP	Conditions required for public authorities	Required Capacities				
		Technology	Finance	Contract	Management	Regulation
O&M Contract	・ Public authorities have minimum knowledge and technology to understand the outcome of consignment. ・ Particularly in respect to PBC, implementing country has culture to keep compliance with signed contract and the public authorities have technologies and knowledge to appropriately evaluate private enterprise's performance. (Note that it is treated as an exception in the field on the right.)	△	△	△	—	△
Management Contract	・ The top management of the public authorities recognizes there is a need for management improvement. ・ Public authorities have legal knowledge and capacity to evaluate private enterprise's performance and reflect it in payment amounts. ・ Public authorities have knowledge, technology, experiences, institutions and regulations to appropriately control the private enterprise.	△	△	○	△	△
Bulk Water Supply	・ The implementing country has culture to keep compliance with signed contract. ・ Legal framework for adequately setting and revising the purchase price is present. ・ Public authorities have knowledge, experience and institutions to adequately monitor and regulate the private enterprise.	○	○	○	△	○
Utility Concession	・ Legal framework is present to set and revise the water tariff at the level that private operator can raise sufficient profit. ・ Public authorities have advanced knowledge, experience and institutions to adequately monitor and regulate the private enterprise. ・ Public authorities accurately understand the status of the management of water supply services and the status of the facility which is going to be managed by the private company.	○	◎	◎	○	◎
Corporatization	・ The water utility has a certain level of profitability. ・ The water utility has sufficient management capacity to do water supply service independently. ・ Underwriters of the shares exist when corporatized.	—	○	—	○	△
Private Utility	*Measures to be taken by public authorities for proper implementation. ・ Understanding of basic information of the private enterprises through licensing. ・ Coordination to avoid duplication with public service. ・ Clarification and confirmation of qualification requirements for the private operator. ・ Monitoring of the service by the private operator such as the water quality. ・ Avoiding adverse impact on residents by the withdrawal of the private operator.	△	—	—	△	◎

Legend 1 ◎: Required (high level), ○: Required (medium level), △: Required (low level), —: Not applicable

Legend 2 Technology: The capacity relating to design, construction, O&M and quality control, etc.
Finance: The capacity relating to tariff revision procedure and financing, etc.
Contract: The capacity relating to preparing and concluding contracts and their control, etc.
Management: The capacity relating to operation of private operators and financial condition, etc.
Regulation: The capacity relating to licensing private enterprises, monitoring and guidance, etc.

Note: The above is a general description and the degree may vary depending on each case.
Source: The Study Team

2.1.2 Pros and Cons of PSP

Generally, it is recognized that that the benefit or advantages of adopting PSP are (1) early provision of water supply service, (2) improving quality of water supply service, (3) securing initial investment funds and deferment of public expenditures, and (4) improving management efficiency of water supply service.

While PSP is expected to provide such advantages, disadvantages may also arise in the absence of proper regulatory supervision by public authorities. The advantages and disadvantages of PSP, based on some actual examples, are summarized below.

(1) Early provision of water supply service

[Advantages]

It is expected that the facility construction or the water supply service will be started faster through PSP than the case public authorities do. It is also expected that the policy goal such as safe water access will be accelerated.

[Disadvantages]

Facility development by the private sector may be delayed or abandoned due to financial shortages, optimistic estimates of project costs or delay in land acquisition. In such cases, achievement of the policy goal as well as early start of operation.

The followings are the actual examples of such negative consequences of using PSP.

- Concession in the Philippines: Private enterprise (Maynilad) once withdraw from the project due to unprofitability of the business at the financial crisis.
- Bulk Water Supply in Baguio in the Philippines: Contract was terminated due to the plan to make contaminated areas a water source and a lawsuit has taken place.
- Bulk Water Supply in Thu Duc in Vietnam: Private enterprise has withdrawn because they could not reach agreement on the contract conditions.

(2) Improving quality of water supply service

[Advantages]

O&M Contract provides technical services which public authorities do not have, especially in the area of design, inspection and NRW reduction. Management Contracts and Corporatization are expected to enhance overall quality of the water supply service through the introduction of Key Performance Indicators (KPIs) such as customers' satisfaction. Appropriate setting of service level and monitoring in Bulk Water Supply and Utility Concession allow stable water

supply of stable quantity and quality. This could also contribute to the quality improvement of the public service to residents. Private Utility is expected to expand water service to the areas which currently do not have sufficient water supply service.

[Disadvantages]

In general, private enterprises are interested in participating in water supply services aiming at generating earnings, and there is a possibility that incentives for cost minimization sacrifice service quality. For example, if public authorities do not conduct monitoring properly, inappropriate reductions of chemicals, labor costs or cost-cutting in construction work may occur resulting from the private sector's pursuit of profits. This may cause problems such that water quality is lower than required, water tariff is too high, or water service is suspended as the tariff is unpaid.

The followings are the actual examples of such negative consequences of using PSP.

- Water supply service in Karawang, Indonesia: Governance is not functioning well due to inappropriate contracts.
- Water supply service in Hai Phong, Vietnam: Prompt response was not possible because the office of the private enterprise was not located in the vicinity.
- Bulk Water Supply in Champasak Province in Laos: Inadequate water quality management due to insufficient monitoring.
- Bulk Water Supply in Tirupur, India: Water supply capacity was decreased due to changes in the prerequisites of the project plan.

(3) Securing initial investment funds and deferment of public expenditures

[Advantages]

Bulk Water Supply is expected to defer public expenditures over the project period where the local government does not bear upfront investment costs and the payment for the facility is included in the purchase price of water substantially. In case of Utility Concession and the Private Utility, water supply service is operated without public expenditure since the business in principle is undertaken by the private operator on a cost recovery basis.

[Disadvantages]

In Bulk Water Supply project, construction costs borne by private enterprise will be actually deferred payment for public authorities over the period of O&M. The amount paid by the public authority to the private enterprise is set at the contract and it is generally linked to a predetermined index such as the consumer price index of the country concerned and adjusted accordingly. Therefore, if the initial fee and the index related to the price adjustment are set

favorable to private enterprises, there is a possibility that the payment amount to the private enterprise becomes higher than the water tariff collected from the beneficiaries by the water utilities.

The followings are the actual examples of such negative consequences of using PSP.

- Bulk Water Supply in Thai Tap Water in Thailand: Increase in public burden due to the gap between payment amount to private enterprise and water tariff collected from the beneficiary)
- Bulk Water Supply in Luang Prabang Province in Laos: Potential risk of increase in public burden.

(4) Improving management efficiency of water supply service

[Advantages]

O&M Contract with private enterprise will enable public water utility to save labor expenses etc., through utilizing private resources. Management Contract and Corporatization will improve the financial structure and rationalize the management of the water supply service. In addition, in the case of Bulk Water Supply, PSP enables public water utility to concentrate its human resources in water distribution, customer service, management of the entire water supply operations, etc., and improve the efficiency of operations.

[Disadvantages]

PSP may conversely increase costs due to financing costs, earnings and taxes of private enterprises. Additionally, public financial burden may increase with risks arising due to inappropriate risk allocation between public and private, and tasks of monitoring and control. For example, there is a possibility that the payment amount to the private enterprises is higher than water tariffs collected from beneficiaries. It is also possible that the public authorities may have to make additional payment caused by inadequate construction of facilities by the private enterprise.

The followings are the actual examples of such negative consequences of using PSP.

- Bulk water supply in Baguio, the Philippines: Contract was terminated due to excessive requests for revising purchase price by the private enterprise.
- Bulk Water supply service in Champasak Province in Laos: Public financial burden was caused by the project fund shortage during the construction period.

2.1.3 Criteria for Analyzing the Success and Failure Factors of PSP

Bearing in mind that judgment of success and failure of a project can different depending on the viewpoints of stakeholders, the following table summarizes the judgment criteria of success and failure of PSP in water supply services from the perspectives of private sector and public sector. The criteria is set based on the "Overarching Paradigm" mentioned in Section 1.3 of this report.

Table 2-3 Criteria for the Evaluation of Success and Failure of PSP

Criteria	Success/failure from private enterprises' viewpoint (Private sector perspective)	Success/failure as the development outcome (Public sector perspective)
Safety	Does water quality meet terms and conditions in the contact and has sufficient income been generated?	Is safe water supplied to beneficiaries and has public health improved?
Equitability	Are the terms and conditions in the contract met with supplying water to the designated area and has sufficient income been generated?	Is the water supply service appropriately provided in the targeted area? Are there any particular problems in equitability?
Affordability	Is the water tariff set at the level that can secure sufficient profitability based on the cost recovery principle? Is it amendable?	Is the water tariff set at the affordable level as a public service with regard to the income standard of the beneficiaries?
Sustainability	Does the project sufficiently meet profit targets while covering investment costs?	Are stable and continuous water supply services provided? Is there any withdrawal of the operator or suspension of the services?
Transparency	Is it possible to finance from financial institutions etc. in favorable conditions by securing or enhancing the transparency of management?	Was the selection process of the private enterprise transparent enough? PSP enhanced transparency of the public administration?

Source: The Study Team

In general, the judgment criteria of private enterprises are basically focused on profit maximization [1]. On the other hand, perspectives of public authorities are various and complicated. It is important to understand that benefits for public/private are not necessarily headed to the same direction as typically appeared in the water tariff level. Private enterprises have an incentive to raise the tariff for securing profit, but the public authorities try to set it as low as possible. In light of difference of these perspectives, public authorities need to adequately monitor and control the private enterprises. Without appropriate monitoring and control by the public authorities, PSP may possibly cause various problems contrary to the expected benefits.

[1] It should be noted that there are certain cases that do not aim at pursuing profit such as the water supply service by residents' association.

2.2 Checklist for Grasping PSP Development Status

2.2.1 Objectives

(1) Objectives of the checklist

There can be 3 kinds of objectives to use the checklist to grasp PSP development status in a country: Sector Survey, Project Formulation, and Capacity Development. The following table shows relation between the objectives and functions of the checklist.

Table 2-4 Objectives of Checklist to Grasp PSP Development Status

Objectives		Functions
A	Sector Survey	To understand the context of PSP and factors that affect donor's cooperation projects when collecting basic information on the water sector and the targeted water utility for cooperation in the research on basic information, detailed planning (technical cooperation project), and preparatory survey (financial cooperation).
B	Project Formulation	To understand in detail the situation of the PSP in the designated country when PSP itself is the targeted research area such as projects that PSP is expected, project formulation or preparatory survey for Japanese Grant for Public-Private Partnership Project, and cooperation scheme of Small and Medium-sized Enterprises (SMEs).
C	Capacity Development	To consider the cooperation scope through understanding the capacity gap of the government or the targeted utility when preparing for the cooperation to fill the capacity gap, such as technical cooperation projects for capacity development of PSP.

Source: The Study Team

(2) Steps to grasp PSP development status

There are 3 steps to grasp PSP development status as described in the following table.

Table 2-5 Steps to Grasp PSP Development Status

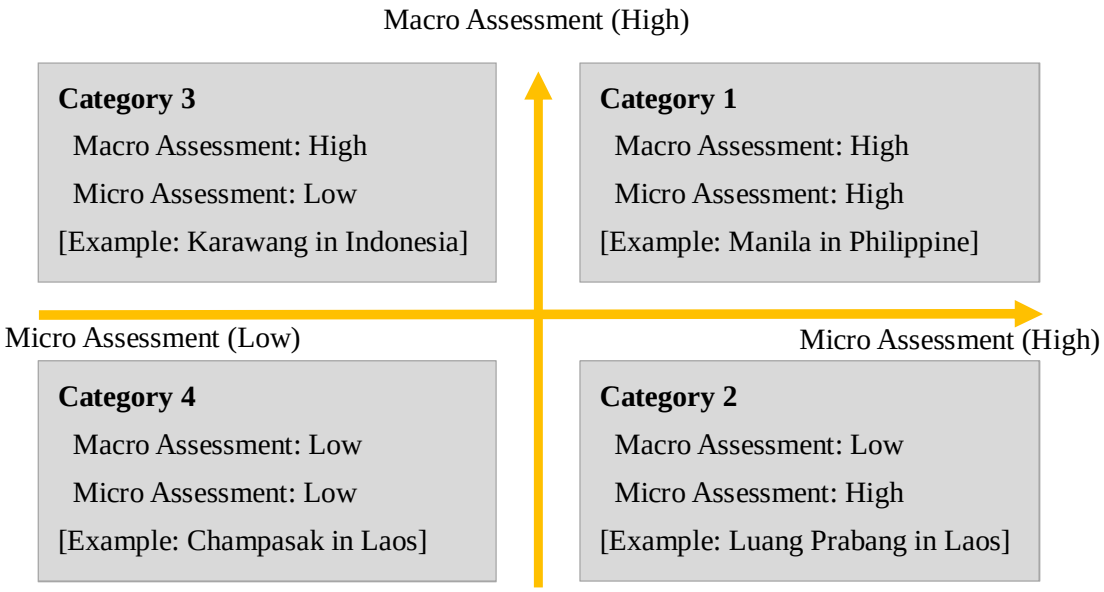
Step		Contents
Step 1	Preliminary Capacity Assessment and Setting Basic Approach	Quick assessment shall be implemented in accordance with the items of "1st priority" in the "capacity assessment sheet" shown in Appendix 2. Based on the result of the quick assessment, basic approach to individual country and public utility is considered.
Step 2	Establishing study items and implementation of the study	Upon establishment of a basic approach, a concrete study items of Terms of Reference (TOR) shall be established for meeting individual objectives of the studies shown in Table 2-4.
Step 3	Detailed check based on the established TOR	The present conditions of PSP and capacity of individual country, local government and water utility shall be confirmed.

Source: The Study Team

2.2.2 Methodology of Capacity Gap Analysis

(1) Step 1: Preliminary Capacity Assessment and Setting Basic Approach

In this step, capacity gap analysis are carried out in reference to "Capacity Assessment Sheet" in Appendix 2. The Macro Assessment and Micro Assessment are to be conducted and the results can be categorized as the following figure.



Source: The Study Team

Figure 2-1 Classification of the Result of the Capacity Assessment

Macro Axis is to evaluate the capacity related to policies, institutions, and organizations concerning PSP in water supply services of the country. On the other hands, Micro Axis is to evaluate the capacity of individual water utility. Based on the assessment of the two axis, the project should be classified into either of 4 categories, and basic approach for PSP shall be determined depending on the category.

Basic approaches in each category are described in the following table.

Table 2-6 Basic Approaches for Each Category

Item	Basic Approach
Category 1 Macro: High Micro: High	・ Supporting the formation of individual projects is the main assistance rather than capacity building support. ・ It is important to grasp bottlenecks and improvement areas in the existing legal system from an institutional aspect. It is also necessary to consider measures to solve problems immediately and efficiently. ・ For water utility, it is important to grasp the purpose and impact of PSP in relevant projects. As a result of capacity assessment, if there is a room for capacity improvement, the capacity building of the relevant part shall be supported. ・ In particular, if there is a present case of PSP, analyze its success and failure factors and reflect factors into future projects.
Category 2 Macro: Low Micro: High	・ If there are any gaps or deficiencies from an institutional aspect, concrete measures to close the gaps or deficiency shall be examined. It is important to understand considerable time may be required to improve institutional aspects. ・ For water utility, it is important to grasp the purpose and impact of PSP, and gaps in capacity shall be concretely confirmed. ・ Even though the evaluation on the macro aspect is low, PSP in the modalities of O&M Contract and Bulk Water Supply etc. may be applicable if micro-capacity is considerably high. ・ In particular, if there is on-going case of PSP, its success and failure factors shall be analyzed. These factors shall be reflected in future projects.
Category 3 Macro: High Micro: Low	・ Confirm the background, purpose and motivation of PSP and consider capacity building of water utility in the micro-aspect introducing management contract etc. in addition to assistance by donor. ・ If there are any gaps or deficiencies from an institutional aspect, concrete measures to close the gaps or deficiency shall be examined. It is important to understand considerable time may be required to improve institutional aspects. ・ Based on judgments for introduction of PSP in the project, capacity development for the water utility shall be implemented as necessary. In addition, measures to complement the capacity of water utility in micro-aspect such as contract preparation and utilization of advisers for public procurement shall be considered.
Category 4 Macro: Low Micro: Low	・ Firstly, any gaps or deficiencies in institutional aspect shall be assessed. For water utility, it is important to implement capacity assessment for identifying the gaps in capacity. Based on the results of the assessment, approach to strengthen the capacity of regulatory supervision in water sector and water utility in the technical and management aspects shall be examined. It is important to understand that considerable time may be required to improve institutional aspects and capacity building. ・ Based on above approach, strengthening capacity for PSP shall be considered. ・ Based on the judgments for use of PSP in the project, capacity development for the water utility shall be implemented as necessary.

Source: The Study Team

(2) Step 2: Establishing Study Items and Implementation of the Study

Upon establishment of a basic approach, concrete study items and Terms of Reference (TOR) shall be prepared, depending on the objectives.

- Sector Surveys: The study shall be focused on the environment for private sectors participation and current situations of water sector.
- Project Formulation: The study shall be focused on confirmation or analysis of the current status of individual water utilities and confirmation of the relevance to the policy of assistance by donor.
- Capacity Development: The main focus of the study shall be the relevance to the policy of assistance. The following table summarizes the study items per objectives. This study items of TOR shall be used to conduct actual surveys and compile the results.

The study items by objectives are summarized in the following table:

Table 2-7 Study Items to Grasp PSP Development Status by Objectives

Sector	Study Item	Description	Objectives		
			A Sector Survey	B Project Formu-lation	C Capacity Develop-ment
Environment on PSP	Policy and legal aspects	・Policy in enhancing PSP ・System for PSP (incl. support measures) and issues ・Macro-economic environment and financial condition	○	○	○
	PPP enhancement organization	・Existence of PPP enhancement organization ・Existence of guidelines and manuals for line ministries and local governments ・Existence of guidelines and manuals of PPP especially for water sector	○	○	○
	Record of PSP	・Record of PSP and analysis ・Record and forms of PSP in water sector ・Evaluation and analysis of the existing PSP	○	○	○
Current Status of Water Supply Sector	Governance	・Fundamental and relevant legal framework in water supply sector ・Administrative framework in water supply sector or water supply services ・Rules on setting or revising tariff	○	○	◎
	Financial Condition	・Accounting system in water supply sector ・Confirmation of documents which states financial conditions of water utility	○	○	◎
	Master Plan and Project Pipeline	・Review of master plan on water supply sector ・Acquisition and analysis of project pipeline for water supply services ・Acquisition and analysis of project pipeline for PPP project in water supply sector	○	○	○

Sector	Study Item	Description	Objectives		
			A Sector Survey	B Project Formu-lation	C Capacity Develop-ment
Current Status and Analysis on Individual Water utility	Governance	・Fundamental policy and plan of local government and/or water utility ・Institutional analysis of local government and/or water utility	(○)	◎	◎
	Record of PSP	・Confirmation of policy on PSP in the local government and/or water utility ・Analysis of past PSP in the local government and/or water utility	(○)	◎	○
	Tariff System	・Confirmation of the tariff structure and the present standard	(○)	○	◎
	Financial Base	・Analysis of financial statements	(○)	○	◎
	Facility Construction	・Confirmation of the present conditions and issues relating to construction of facilities	(○)	○	○
	Maintenance Aspect	・Confirmation of the present conditions and issues relating to maintenance of facilities	(○)	○	○
	Service Level	・Confirmation of the present conditions and issues relating to service level (customer's relations)	(○)	○	○
Relevance to policy of assistance	Commitment of the Head	・Confirmation of policy on PSP in the local government and/or water utility ・Procurement method (solicited or unsolicited, etc.)	○	◎	◎
	Private sector promotion organization	・Existence of PPP promotion organization and its role in the local government and/or water utility	○	○	○
	Depth of examination	・Degree of preparedness as PPP project (F/S, revision, etc.) ・Commitment of the head of the local government and priority ・Consultation by the central government or relevant institutions	―	◎	○
	Scope of the Works	・Appropriateness of the project scheme ・Appropriateness in risk share between public and private ・Appropriate standard for profit	―	◎	○
	Land Acquisition	・Condition of land acquisition	―	○	―
	Financing	・Budget allocation and present condition ・Governmental support in finance such as Viability Gap Funding (VGF), guarantees, etc.	―	◎	○

Legend: ◎ : Study should focus on this subject, ○ : Study required, ― : Not applicable
Note: Parenthesis indicates that if the water utility to be surveyed is specified.
Source: The Study Team

(3) Step 3: Detailed Check Based on the Established TOR

The results of the assessment in step 2 shall be checked in accordance with each objectives of PSP shown in Table 2-4, and the present conditions of PSP and capacity of the public authorities

shall be grasped.

- Sector Study focuses on confirmation of institution, organization and record of PSP.
- Project Formulation for PSP focuses on the items applicable for individual project.
- Capacity Development related to PSP focuses on the confirmation of the counterparts' experience and system in use for PSP, and identification of issues relating to PSP.

The table 2-8 describes check items which shall be focused depending on objectives.

Table 2-8 Check Point in Capacity Gap Analysis

Layer	CA Item*	Check Item	Objectives (Refer to Table 2-4)		
			A Sector Survey	B Project Formula-tion	C Capacity Develop-ment
Layer 1: Environment on Private Sector Participation	MA-1: Policy and Legal Framework	・Governmental policy on progressive private sector use ・Legal framework on enhancing private sector use ・Governmental support system including governmental finance, guarantee, VGF, etc.	◎	○	○
	MA-2: PPP enhancement organization	・PPP enhancement organization at national level ・ Responsibility and role of PPP enhancement organization ・Guidelines and guidance for private sector use at local government and municipal level	◎	○	○
	MA-3: Record of PSP	・Confirmation on record of PSP (not limited to water sector) ・Confirmation on record of PSP in water sector ・Trend of application of private sector use in recent years	◎	○	○
Layer 2: Governance in Water Sector	MA-4: Governance in Water Sector	・Administrative organization (supervisory organization) for water supply sector at national level ・Water supply law ・Establishment of the following items (Item 1 and 2) 1. System for PSP specialized in water sector, 2. Guidelines and/or manuals for forms of PPP, risk share, procurement, etc.) ・Policy or sector strategy on PSP ・ Periodic monitoring system in water supply sector (such as annual water quality monitoring, financing condition, etc.) ・ Educational organization such as training center or technology development center	◎	◎	◎
	MA-5: Financial Condition	・Accounting system in water sector ・User Pays Principle (Financial statement, annual report, concept of depreciation, etc.)	◎	○	◎
Layer 3: Capacity of Individual Water utility	MI-1: Governance	・Record of PSP	—	○	◎
	MI-2: Financial Condition	・P/L and B/S ・Past tariff revision (if the water supply public sector is authorized to revise the tariff) ・Transparency in tariff revision procedure	○	○	○
	MI-3: Facility Construction	・Statistics and annual report ・Mid-term and long-term plan (or program)	○	○	○
	MI-4: Facility Maintenance	—	—	○	○
	MI-5: Service Level	・Complaints on tariff from beneficiaries ・Improvement of water supply coverage area and water supply time compared to 5 years ago ・Water quality inspection by third party	○	○	◎

Legend: ◎ : Study should focus on this subject, ○ : Study required, — : Not applicable

Source: The Study Team

2.3 Array of Assistance Scheme（ODA and PSP）

It is conceivable to construct a system for enhancing the capacity of public sectors and organizations, and to establish a system and support for encouraging private enterprises to enter the water supply services as donor's assistance measures in water sector under PSP. The following describes the fundamental concepts of each method.

(1) Array of Assistance Scheme for Capacity Development

The assistance focuses on capacity development for promotion of PSP of the water sector and/or public authorities as shown in the table below.

Table 2-9 Array of Assistance Scheme for Capacity Development

Contents	CA Item	Concrete contents for assistance
Capacity Development of Organization	MA-1 MA-2	・ Assistance in establishment or revision of PSP and PPP relating laws. ・ Assistance in establishment of policy, basic plan, strategy etc. related to PSP. ・ Establishment of financial assistance mechanism by the government through long term loan, VGF, governmental guarantee, etc. ・ Capacity building of PPP enhancement organization such as PPP Center. ・ Program Loan for improvement of PSP environment.
Enhancement of Financing Mechanism	MA-1	・ Utilization of two step loan for development financial institutions. ・ Establishment of a system to provide a supplement to investment in developing countries for infrastructure development project (Equity Back Finance). ・ Project formulation (Project Development Facility, PDF) of PSP, Establishment of fund (Viability Gap Funding, VGF) and related institution for utilization of government subsidies, and support for those operation (including financing).
Capacity Development for Central Government Supervising Water Sector	MA-4 MA-5	・ Assistance in preparation of governmental decrees, sector strategy, guidelines, Standard Operation Procedure etc. in water sector. ・ Assistance in preparation and operation of guidelines and manuals for appropriate supervision of PSP in water sector. ・ Establishment and operation support of technical support system related to regulatory supervision function by central government (national level institution). ・ Enhancement of monitoring capacity or establishment and operation of monitoring support system for local governments (water utility) by central government (institution). ・ Capacity building for officials at regulatory supervision organs (central government and local government level) in the water supply services.
Capacity Development for Local Government and Water utility	MI-1 MI-2 MI-3 MI-4 MI-5	・ Assistance in preparation of governmental decrees, guidelines, Standard Operation Procedure, etc. ・ Capacity development for local governments and Water utilities (Preliminary capacity review for selection of private operators and licenses issuance, enhancement of monitoring capacity, support of establishment for facilities, equipment, construction ledger etc., support for preparation of public procurement etc., training of staff

Contents	CA Item	Concrete contents for assistance
		who have knowledge on PSP (Including management of contracts related to PSP), enhancement of management capacity, etc.).
Financial Strengthening of Water utility	MI-2 MI-5	・ Establishment of relevant regulations, systems and institutional structure that contributes to the efficient operation of water utility through technical advisory and technical cooperation projects and support revision of appropriate water tariff. ・ Capacity development related to management of water supply services (financial plan, management plan, renewal investment plan, preparation of water vision and strategy papers, establishment of collection system of financial and management data, understanding the financial conditions through calculation of performance indicators (PIs) etc., enhancement of financial management capacity, countermeasure for non-revenue water and improvement of tariff collection rate, improvement of water supply management by water pressure management etc., enhancement of self-monitoring capacity, support to management).
Preparation of Master Plan in Water Supply Sector	MI-3 MI-4	・ Preparation of master plan in water sector at national or local level including preparation of appropriate PSP policy.

Source: The Study Team

(2) Assistance for Enhancing PSP into Water Supply Services

PSP in the water supply services ultimately depends on judgment and efforts on the part of private enterprises. However, it is also important that JICA provide necessary assistance for private enterprises which are interested in PSP in developing countries. The following table summarizes the challenges that private sector generally faces in developing countries and supporting schemes through ODA.

Table 2-10 Assistance for Enhancing PSP in Water Supply Services

Phase	Challenges	Outline	Supporting Scheme in ODA
Project formulation phase	Lack of Fund for preparation of project	ž Difficulty in planning considering private sector's condition due to lack of funds and/or experience in PPP infrastructure project	**1) F/S and Project Design（Preparatory survey）** Preparing F/S and project design through participation of investors interested in the sector for the preparatory survey. **2) Dialogue with the Recipient Country (Preparatory survey)** Dialogue for appropriate project formulation and cost/risk share through preparatory survey. **3) Others** In addition to the above, supplementary support for formation of projects through technical adviser in the developing country and technical cooperation projects are also assumed.
	Profitability	ž Low interest and long term funding is indispensable due to low standard of tariff income and necessity for recover within short period ž Difficult to secure profitability at the beginning of the project due to low tariff level	**1) Low Interest and Long Term Overseas Investment（Overseas Investment）** Supporting the project through Overseas Investment program (low interest and long term). **2) Supporting the Gap in Fund (Grant Aid Project / Loan Project / Overseas Investment), Application of VGF（Loan Project）** Support to minimize the financial gap (such as low tariff standards, etc.) through VGF grant aid project, VGF loan project and overseas investment. **3) Others** In addition to the above, it is also assumed that measures to improve non-revenue water and tariff collection rate, management improvement by water pressure management etc. through utilization of technical cooperation projects.
	Financing	ž Financing with commercial funds alone is not sufficient to sustain infrastructure development in developing countries.	**1)Japanese Grant for Public- Private Partnership Project（Grant Aid Project）** Providing funds required for construction of facilities, equipment and other services required for infrastructure project. **2)Others** In addition to the above, it is assumed that consideration of financing through co-financing with other donors, implementation of technical cooperation projects for the purpose of securing financial soundness in local governments and water utility and improving financing capacity.
Project implementation phase	Risk of Currency Exchange	ž There are currency risks since income is derived in the local currency and the project period is relatively long	**1)Overseas investment in local currency（Overseas Investment)** Assisting the investors through overseas investment in local currency. **2)Others** In addition to the above, utilization of two step loan could be also assumed.
	Risk related to breach of contract	ž Risk that the recipient country does not follow obligations for	**1)Ability to negotiate with the recipient country (Technical Cooperation/Dispatch of Expert)** Assistance to reduce risks through negotiation with the recipient country with cooperative partnership

Phase	Challenges	Outline	Supporting Scheme in ODA
		payment ž Failure to fulfill contract due to budget shortage of local government and water utility	based on technical cooperation, ODA loan, etc., on issues relating to non-compliance to contract by the recipient country. **2)Contingent credit enhancement facility for PPP infrastructure development** Even if an offtake agreement is signed, payment could be delayed due to the risk that cannot be controlled by the private sector, so a ODA loan agreement is made in advance preparing for contingency: payment difficulties due to off-takers' monetary shortage. **3)Others** In addition to the above, implementation of technical cooperation projects aimed at ensuring regulatory supervision capacity and financial soundness of local governments and water utility and enhancement of financial soundness are also assumed.
	Insufficient Budget for surrounding infra-structure development	ž Risk on completion of construction of infrastructure development (such as pipeline network) due to insufficient budgets of the recipient country	**1)Application of Loan for Surrounding Infrastructure Development (Japan's Loan Project)** Supporting construction of the surrounding infrastructure development which shall be borne by the recipient country. **2)Others** In addition to the above, assistance utilizing ODA loan for the portion of the government's burden in the separation model of equipment and material portion and work portion.
Others	Management and financing capacity of water utilities	ž Risk on long term bulk water purchase or payment by the water utility ž Risks on raising the tariff standard for political reasons	**Improvement of Management and Financing Capacity of Water Utility (Technical Cooperation/Dispatch of Expert)** Improvement of tariff system and non-revenue water, assistance to management and financing of water utility.

Source: The Study Team

Chapter 3 Key Factors to be considered for PSP in Water Supply Services

PSP is one measure for improving water services and reducing financial burdens of public authorities. Effectiveness and impact in terms of "Overarching Paradigm", namely, Safety, Equitability, Affordability, Sustainability and Transparency should be carefully considered in PSP projects.

Although reasons of utilizing PSP may vary in each case, PSP should not be considered only for the purpose of short-sighted reduction of financial burden of public authorities. When considering the introduction of PSP, the relationship between measures and objectives should be clarified well. In other words, it is important to clarify the measures by utilizing PSP, such as technology, knowledge and experience, business management skills, risk management skills and financial skills etc., and also the objectives why PSP shall be utilized, such as policy targets, improvement of water services, and reduction of financial burden etc.

The following are key factors to be considered when planning and implementing PSP in water supply services.

Key Factors to be Considered PSP in Water Supply Services
■ Basic Recognition
(1) PSP as a Measure to Achieve Objectives
■ Objectives and Diversity of PSP by Countries
(2) Background and Objectives of PSP; Motivations and Reasons
(3) Diversity of Modalities of PSP
■Capacity of Water Regulatory and Supervisory Organs
(4) Stakeholder Analysis
(5) Supervision of Private Enterprises by Public authorities
(6) Capacity Development of Public authorities Servants
■ Water Tariff and Financial Soundness of Water Utilities
(7) Water Tariff Setting and Revision Rules
(8) Financial Soundness of Existing Water Utilities
■Planning and Procurement Management
(9) Adequate Implementation of PSP Feasibility Studies etc.
(10) Ensuring Transparency and Continuity of Services
(11) Evaluation of PSP by Various Stakeholders
■ Others
(12) Meanings and Definitions of Terms
(13) Interpretation of Data

(1) PSP as a Measure to Achieve Objectives

It has been confirmed there have been both successful and unsuccessful cases observed in PSP in water supply service. PSP is one of the measures to reducing public expenditures and improving water supply services, thus PSP itself is neither good nor bad and should not be regarded as the overall objective. The form and type of PSP shall be determined after fully understanding the current situations of respective governments and counterparts.

(2) Background and Objectives of PSP; Motivations and Reasons

It was found that in most cases the PSP was introduced due to financial difficulties of local governments or water utilities, and obligations to the SDGs in certain instances. PSP in some cases, including BTL in Vietnam, concessions in Indonesia and the Philippines, and a management contract in Kenya, was achieved as a condition of technical/financial cooperation by international organizations such as the World Bank, not based on the initiatives of developing countries themselves. When considering the introduction of PSP, the background and objectives should be sufficiently understood.

(3) Diversity of Modalities of PSP

PSP in water supply services greatly varies in the six countries, where conducted field surveys were conducted, in terms of PPP regulations and institutions development, governance skills and political and policy background. In particular, it was confirmed that “Private Utilities” as mentioned in clause 2-1 with no involvement of public authorities have increased in South East Asian countries where it is an urgent matter to establish the system of regulatory supervision. PSP is also increasing not only in large cities but also in local areas.

Moreover, in this research project, it was confirmed that the scale and form of PSP are considerably diverse. For example, there are large-scale projects in which major domestic and foreign companies participate in the metropolitan area, and small-scale projects in which local community association organize voluntarily in regional areas.

Risk characteristics are also varied, and the projects to be implemented by large enterprises in urban areas are large, but also susceptible to political risks and other factors. On the contrary the projects in local areas are small in size, but well managed in terms of political risk. Regarding modalities of PSP as well, there is the modality of O&M Contract which is relatively easy to introduce, and also the modality of Utility Concession where business risks are relatively high, and require the adequate capacity of planning services, concluding contracts and monitoring etc. are required for the regulatory and supervisory organs. Thus, the actual situation of PSP in developing countries is diverse, and it should be avoided to grasp PSP from a single aspect.

Based on the actual situation of such diverse PSP, when understanding the water supply services in a specific country, it is important to try to grasp the regulatory system, background and the current status of PSP by reviewing past cases. Based on this knowledge, PSP or the alternative measures that are most suitable for a particular project should be considered, with improving the business environment if necessary.

(4) Stakeholder Analysis

Water supply services have various stakeholders of public authorities such as central government, local governments, municipalities, and public water utilities etc. In this research project, it was revealed that the roles, authorities and responsibilities of public authorities are often not sufficiently clear and differ by country. In addition, it was confirmed that evaluation of services and benefits for public authorities could differ from each organ. Moreover, the capacities required by each organ also varies depending on their roles. Examples of those roles, authorities and responsibilities and projects are shown in Appendix 1. When considering assistance to water supply services, it is important to grasp and analyze these basic relationships and facts of stakeholders.

(5) Regulatory Supervision of Private Enterprises by Public authorities

While effective utilization of PSP should be recommended, on the other hand, it is important that the regulatory supervision for water supply services functions properly and the quality of water supply services is systemically secured. It is important to build a regulatory supervision system effectively functioning as a whole country by focusing on the protection of the rights and interests of residents who are actually receiving water services, rather than focusing on those of local governments and private enterprises. Based on this recognition, the functional requirements that the regulatory supervision system should have are summarized as follows, in order to properly utilize the PSP.

- Basic regulatory supervision system on water supply services in the country concerned has been established and properly operated (including development of standards and guidelines for PSP and license in water supply services)
- National regulatory and supervisory institution(s) which monitor and supervise in terms of technical aspects etc. at national level concerned has been established and properly operated.
- Procedures for proper selection of private enterprises and appropriate issuance of licenses in advance for confirmation that private enterprise has sufficient related capacity and achievement have been established in individual project.
- Reviewing mechanism to confirm the contents of the project and the validity of the contract

from the technical viewpoint etc. based on the surrounding laws and regulations, not only between the parties to the contract but also by third parties, have been established in individual project.

- Monitoring and evaluating mechanism of business performance and financial sustainability of private enterprise, and exercising mechanism to take appropriate measures such as recommendation and guidance for improvement of existing business, cancellation of contract and license etc. in case there is a problem have been established.

If such regulatory supervision mechanism is not well established, the success or failure of the project will be subject to the personal or accidental factors of public authorities and private enterprise, resulting in a suspension of water service quality. In order to avoid such failure, it is important to strengthen capacity of regulatory and supervisory organs.

Moreover, it will become difficult to establish such a regulatory supervision system after the number of private enterprise increases, thus it is important to regulate private enterprise from the earliest stage of PSP.

(6) Capacity Development of Public authorities Servants

When instituting PSP, it is important that the servants of central government, local governments and public water utilities have necessary knowledge and information regarding PSP. Specifically, capacity to establish regulatory supervision system for PSP and to review and monitor private enterprise is important. Moreover, regarding individual project, capacity to design appropriate business schemes, to formulate related contracts with appropriate risk allocation between the public and private sectors, and to monitor and control projects are important. In addition to project implementation, it is recommendable that not only supporting each project but also assessing the capacities of organizations and servants related to local governments and water utilities as well as capacity development if necessary.

(7) Water Tariff Setting and Revision Rules

PSP in the water supply services is likely to be affected by government policy as all governments are responsible for establishing public health and safety through the water supply and ensuring universal access to water supply service. It was confirmed through this research project that appropriately setting or revision of water tariffs or consignment fees is necessary for accelerating PSP. Water tariffs at the time of the first contract should be sufficient enough to cover costs to ensure revenue for the private enterprises and should be appropriately revised during the project period in response to inflation and cost fluctuations, including labor and electricity prices. On the other hand, public authorities need to obtain understanding and consent

from politicians and the public in addition to confirming that water tariffs are affordable and revisions rules are appropriate. One important component that holds the key to the success of PSP is how these two aspects are balanced and appropriately reflected in agreements concluded between the public and private sectors.

(8) Financial Soundness of Existing Water Utilities

In this research project, it was confirmed that many water utilities such as public water utilities are experiencing financial difficulties. Under these circumstances, public authorities are motivated to involve the private sector in water supply services because it is difficult to make new capital investments by their own finance. Regardless of the positive or negative aspects of PSP, there is a major problem in which water utilities are not fiscally sound and are therefore unable to make new investments. To solve these fundamental problems, it is recommendable that a variety of cooperation projects shall be considered as a package for institutional and financial improvements rather than using only PSP as an easy solution. With regard to PSP as one option, it would be also important to consider support public authorities through capacity development as a prerequisite for such participation.

(9) Adequate Implementation of Feasibility Studies etc.

The Study Team has confirmed through the field surveys under this research project that water supply services are successful when feasibility studies are diligently carried out. It was also confirmed that the scope of the feasibility studies included not only technical aspects but also business schemes, financing and risk allocation. It could be said that there is a tendency in developing countries to accept unsolicited projects proposed by private enterprises. However, as observed in the example of Tangerang in Indonesia, processes carefully the reviewing proposed contents lead to overall project cost reductions as well as improving transparency of contracts. Thus, it is important to confirm before project implementation that a feasibility study has been diligently conducted and to consider support to enhance the contents if necessary.

Regarding O&M Contract etc., that normally individual feasibility study is not implemented, preliminary examination on the scope of works, conditions of contract and the monitoring procedures is important. For example, there is a huge volume of underground structures including pipelines. It is often difficult to grasp the actual conditions of underground structures. Accordingly, it is also difficult to define the scope of works by private enterprise and concrete outcome. Therefore, in formulating such projects, it is important to thoroughly examine the purpose of the work, the standards of achievement, the procedure of carrying out the work, and the method of reviewing and monitoring by public authority.

(10) Ensuring Transparency and Continuity of Services

PSP in water sector except for private utility is carried out basically as a project to provide public services. Therefore, transparency needs to be ensured in a series of processes such as selection of private enterprise and implementation of projects. However, in this research project, it was confirmed that unclear procedures occurred in many cases in terms of selecting private enterprise, granting license, distribution of cost burden etc. In addition, there are projects in which there are no provisions on withdrawal of private enterprise or penalties, so private enterprise can withdraw from business without permission. This situation is also problematic from the viewpoint of continuity of services.

Above concerns over transparency and continuity are commonly seen especially in the unsolicited projects. In particular, almost all of the water supply services in Laos and Vietnam have been implemented as unsolicited projects without undergoing a public procurement competitor process. The process of concluding contracts of these projects lacks transparency and there is a risk that private enterprises may raise water tariffs or simply withdraw from the project at their convenience. Competitiveness can be instilled in unsolicited projects through the "Swiss Challenge" system whereby third parties can submit counter proposals against the unsolicited project proposal. However, such systems do not exist or are not functioning effectively in the countries where field surveys were conducted under this research project, and proposers of unsolicited projects obtain business rights without implementation of a competitive procurement process. Based on these findings, the Study Team recommend that systems and rules are instituted so that the public sector can monitor and regulate PSP in water sector especially unsolicited projects in terms of ensuring transparency and continuity of services.

(11) Evaluation of PSP by Various Stakeholders

Water supply services often involve various stakeholders with different perspectives, such as central government, local governments, public water utilities, private enterprises and water consumers. PPPs are regarded as a "triple win" because they are advocated as benefitting the public, private and service beneficiaries, but this is an ideal outcome that is hardly achieved. For instance, the privatization of water supply service in Manila is generally known as a successful case, but it was confirmed that not everyone regards it as successful model, as represented by the criticism of water tariff increases in Manila. In particular, when evaluating projects with private sector participation, it is important to clarify the viewpoint of who is evaluating the project.

(12) Meanings and Definitions of Terms

Terms used in the field of PSP such as PPP, BOT, Concession, Affermarge, and VGF may have

different meanings and definitions depending on the country or individual. For example, the concept of the term “PPP” has not been determined and the term itself is not sufficiently known among people in charge of implementing water supply services in Laos. In Vietnam, the term “BT” has special implications of granting development rights to the private sector. Thus, in practice, it is important to clarify the meaning and definitions of key terms when communicating with respective governments and counterparts.

(13) Interpretation of Data

While it is beneficial to utilize commonly available statistics such as Global Water Intelligence (GWI[2]), the information is not necessarily officially published by the government of the respective country, and it is possible that the information does not represent the actual situation of the country. Therefore, for basic information and analysis, it is important to collect information in that country and verify it when necessary. It is also important to confirm the trends and contents of PSP, rather than only looking at the sum totals of statistical data. For example, Provincial Waterworks Agency (PWA), one of the largest water utilities in Thailand, has clearly stated that PPPs will not be implemented in the water supply sector in the future, even though some cases do exist according to statistics.

[2] GWI is a global company with high-value business information for the water industry. It publishes market intelligence reports on data and understanding of specific water sector markets or regions of the world.

Appendix 1: Country Case Studies

1. The Philippines

1.1 Regulations and institutions on PPP

In the Philippines, the legal system for facilitating PSP has been continuously promoted since the establishment of first BOT law in Asia in 1991. Currently, the amended BOT law in 1994 (R.A. 7718) and its implementing rules formulated in 2006 is the legal basis of the PPP projects. Since then, concession of public water supply such as Manila metropolitan area has been promoted.

However, as the BOT projects were declining in the latter half of the 2000s, the Aquino administration announced the promotion of PPP projects in 2010. The BOT Center under the Department of Trade and Industry (DTI) was transformed into the PPP Center under the National Economic and Development Authority (NEDA) and its functions were expanded. The Philippines government has prepared multiple guidelines for promoting PPP projects though there are no guidelines dedicated to water supply services. The government has also prepared support tools such as PPP Strategic Support Fund and investment incentives. In the draft of the new PPP law which was submitted to the Parliament in 2016, establishment of the government guarantee fund to guarantee the contingent liabilities in the business contract is stipulated, and the announcement of the details is awaited.

1.2 Regulations and institutions on water supply service

Provincial Water Utilities Act of 1973 is the basis of the current local water supply system in the Philippines. This act established units in charge of water supply service called as the Water District (WD) in each city. Presidential Decree No. 198 in 2004 has clarified the priority of loans in the water supply sector. It also reforms the structure and the role of Local Water Utilities Administration (LWUA) as supporting and supervisory body of WD.

At the national level, based on the NEDA's development plan, the National Water Resource Board (NWRB) plans and regulates national water resources. NWRB also authorizes water tariffs, PSP in the water supply services and issuance of licenses. WD is supervised by LWUA which is established under the Ministry of Finance whereas, the Metropolitan Waterworks and Sewerage System (MWSS) supervises water services in the Manila metropolitan area.

Besides, the Department of Trade and Industry (DTI) grant permission to private enterprises to operate private water supply business. Water tariff to be received by private enterprises is calculated based on the Procurement Act and is subject to NWRB's approval. Upon revision of tariff, private enterprises are required to conduct public hearings and consider the opinions of

stakeholders.

1.3 Cases of PSP in water supply services

(1) Concession in Manila metropolitan area

Under the strong leadership by the President Ramos, the metropolitan Manila was divided into east and west zones and the water supply service has been operated by concession from August 1997. Concession contract of the east zone was concluded with local conglomerate Ayala group and Manila Water whose investors include a water supply private enterprises in the UK. It is observed the water supply in the east zone is relatively steadily operated. On the other hand, the west zone contract is operated by a company called Maynilad which was originally consisted of a local conglomerate Lopez group, and French enterprise Benpres and Lyonnaise des Eaux. Since 90% of the liabilities were allocated to the west zone at the beginning of the contract, Maynilad went bankrupt once at the Asian Financial Crisis and resulted in withdrawal of the consortium. Yet, after retender and selection of new sponsors, recently, water service coverage has been expanded and adequately satisfies the required level of water quality and quantity. Thus, in general, both east and west zones of the concessions are regarded as successful projects.

On the other hand, water tariff in the Manila metropolitan area have been raised 5 to 6 times in the past. Therefore, it is also sometimes described that concession projects in Manila are in failure.

Nevertheless, according to the parties concerning the projects, the revision process is sufficiently transparent as well as affordability is fully considered as a 40% discount is applied to low income groups.

The success factors of this case include that; terms and conditions of the contract are sufficiently clear and the parties respected followed the contract (securing transparency). Additionally capacity of the public authorities and private enterprises are sufficient enough to discuss on water tariff and monitoring with adhering to the contract.

(2) Subic water concession

Subic water concession is a 25 year concession contract with currently 47,000 houses of water supply service which covers the area of Subic Bay Freeport zone and adjacent to Olongapo city. Biwater (UK) was selected as the private operator in April 1997 and Subic Water and Sewerage Co., Inc. was established with public and private equity investment. However, the financial situation of Subic Water and Sewerage Co., Inc. had deteriorated temporarily because water tariffs had not been revised due to political reasons.

In 2000, Subic Bay Water Regulatory Board (SBWRB) was established as an independent

organization. As a result of transferring the right to approve water tariffs to the SBWRB, water tariff has been appropriately adjusted based on the actual operation costs. This led Subic Water and Sewerage Co., Inc. in a sound financial position, and therefore, contributed to stable and sustainable operation of water supply.

The success factors of this case are that; independent system of water tariff revision has enabled compatibility of sustainability of the business and affordability of the tariffs, understanding of beneficiaries on tariff revisions has been obtained by ensuring transparency through disclosure of financial information to the public, and monitoring of water supply services was conducted according to KPIs that are set every year.

(3) Bulk water supply in Baguio water district

The original tender of Bulk Water Supply Project in Baguio Water District (BWD) was held in 1997 and Biwater (UK) was selected the candidate operator. However, Biwater afterward requested to revise water tariffs at the time of contract conclusion and, consequently, BWD decided not to enter the contract. As a result, a 5 year Bulk Water Supply contract was concluded with the other bidder, "CGE-Aboitz". Shortly afterwards, the peso collapsed due to the Asian currency crisis and CGE-Aboitz requested the BWD to raise the fixed price of P9.8/m^3. The contract at that time did not include price adjustment mechanisms thus the contract was terminated as the private sector's default.

In 2003, BWD opened another tender for the same project and selected a company called Benguet. BWD and Benguet once entered the contract. However, Benguet submitted a plan to BWD to use the Itgon area as a water source where the company developed for mining activity and the surrounding environment is heavily polluted. The private sector also requested an extraordinarily high price adjustment (P55.37/m^3) on the originally proposed cost in their tender as the costs of additional water purification. Consequently, BWD terminated the contract with Benguet.

Failure factors of this case are that concluded contracts could not deal with unexpected changes in the economic environment, guidelines for PSP were not adequately prepared and water source safety was not ensured at the time of bidding, resulting in insufficient water capacity as a water utility.

2. Indonesia

2.1 Regulations and institutions on PPP

In Indonesia, legal system on PPP has been promoted since the mid-2000s. In 2015, Presidential Regulation Number 38 Year 2015 was established and PSP in water supply service is officially approved under this regulation. Indonesia also has projects involving PSP under each sector law. In fact, PSP in water supply service so far has been conducted under the sectorial laws.

Indonesia has a mechanism to centrally manage and guarantee the performance of the contract by the Government Contracting Agency (GCA) in PPP infrastructure business and provide guarantees in the event of nonperformance caused on the public side through the Indonesia Infrastructure Guarantee Fund (IIGF) which was established with 100% equity of the Ministry of Finance in 2012. In 2012, the VGF scheme was established under Ministry of Finance Regulation Number 223/2012, which is a mechanism to provide financial support for the construction costs of projects with low profitability and difficulty to form a PPP infrastructure project.

2.2 Cases of PSP in water supply services

Law No.17/2004 on Water Resources had been the basis of PSP in the water supply services in Indonesia, but the monopoly on water source for the bottled water company which used spring water as the water source was judged to be unconstitutional in February 2015, and the law on water resources was repealed and replaced by the previous Law No. 11/1974 on water management. Government regulation No.122/2015 on Drinking Water Supply System was established for supporting the previous law and the regulation stipulates that implementation of water supply service should be the responsibility of the public sector. Therefore, it will be difficult to implement a concession project which entrusts the whole operation of the water supply service to the private sector.

In Indonesia, Perusahaan Daerah Air Minum (PDAM), a local water utility, operates water supply service under the municipal government after decentralization in 1999. Construction of the water supply facilities are implemented by the Department of Public Utilities (DPU) with coordination with PDAM and Regional body for planning and development (BAPPEDA) in each local government. When water production and bulk water supply covers more than one municipality, a public service organization, called BLU, can be established and tariff can be adjusted and determined by BLU.

In the central government, water supply service is under the jurisdiction of the Directorate General of Human Settlements of the Ministry of Public Works, which is responsible for the

institutions and guidelines on water supply services. Badan Pendukung Pengembangan Sistem Penyediaan Air Minum (BPP SPAM), which is a department established under the Ministry of Public Works, monitors water tariffs and provide legal, financial, and technical advisory to PDAM if requested by PDAM. Water resource development is managed under the Directorate General of Water Resources of the Ministry of Public Works. Water quality of drinking water is the responsibility of the Ministry of Health. Water tariff levels are determined according to the technical guidelines and procedures for setting water tariffs (No.23/2006) of the Ministry of Internal Affairs and are approved by the head of the municipal government under supervision of the provincial governor.

2.3 Cases of PSP in water supply services

(1) Concession in Jakarta metropolitan area

Jakarta water supply concession project was commenced after the World Bank provided loan to Pam Jaya in 1991. This project divided Jakarta into east and west zones. PT. PAM Lyonnaise Jaya (PALYJA) and PT. Aetra Air Jakarta (Aetra) were selected as concessionaire for west and east zones, respectively.

It is often quoted that the project is one of the representative failure concession project in water supply services. In the project water tariff paid by residents are maintained in an escrow account and Pam Jaya shares the amounts with the private operators. However, according to the private operators, there is a shortage of their income from the escrow account. Although the water charge, which the private sector receive from the escrow account, shall be gradually increased in accordance with the investment on facility construction and its depreciation, the water tariff, the residents pay to the escrow account as reward for using water, has not been raised since 2009. As Pam Jaya has the right to prioritize distribution from the escrow account, private enterprises cannot receive the tariffs and investment in water supply facilities has been inadequate.

Besides, water charge received by the private enterprise were not based on the consumption volumes but on volumes the private operator produces. Therefore, the more private enterprises produce water regardless the demand by beneficiaries the more private enterprise receives water charge income. This results an increase in liabilities for Pam Jaya (and, thus, DKI Jakarta) to the private enterprises.

Consequently, under this project, required levels of water quality and water pressure have not been continuously met due to the lack of necessary investment. Pam Jaya has imposed penalties, which have not actually been paid because the penalties are partially offset by liabilities.

It can be summarized the problems of this case are as follows; Transparency was not secured in selection of concessionaire; transparent governance mechanisms were not put in place for

setting water tariff and water charge, setting targets on water access rates, monitoring compliance with agreement, and mediation on disputes with the enterprises; and water tariffs were too low because of the political judgment as costs were not appropriately reflected, which resulted in inadequate investment.

(2) Bulk water supply in Tangerang city

Tangerang city has adopted BOT and ROT for Bulk Water Supply. The project was initiated as an unsolicited project through a proposal from a private enterprise. PDAM Tangerang, a local water utility, has retained technical, financial and legal advisers to carefully examine not accepting the proposal from the private enterprise unconditionally. On the contrary, PDAM thoroughly examined the private enterprise's proposal from technical, financial and legal points of views by hiring consultants.

These preparations led to significant reductions in cost compared to the initial proposal by the private enterprise as well as precise technical specifications were prepared in advance. This project resulted in the improvement of water quality and water pressure level and the expansion of the water supply area. NRW was also reduced from 21% to 6% by application of the latest SCADA technology.

The Ministry of Public Works in Indonesia is presenting this project as the most successful PPP case. The success factor of this project is that it was implemented after a public authority sufficiently examined the private proposal from technical, financial and legal perspectives with sufficient transparency.

(3) Concession in Karawang water supply service

In the Cikampak area in Karawang city, water supply service is under a 25 year concession from 1999 to 2025 based on a contract entered with a private operator. However, the service quality in terms of water quality, volume, pressure and continuity of water service is terribly poor. This resulted in the water supply population decreased from 4,000 before commencement of the project to 1,700. Those residents who have terminated the water supply contract obtain water from the wells.

In this project, the local government, whose knowledge and experience on water supply service is poor, directly appointed a private enterprise without a competitive bidding process and local PDAM was not involved in this process at all. PDAM staffs cannot give instruction and guidance on improvements to the private enterprises since they are not parties entered in the contract although PDAM fully aware of the deteriorated financial situation, inadequate water quality and quantity, and many complaints from the residents. The contract does not include a

penalty clause so there were no means to encourage improvement by the private operator, too. Therefore, the private enterprises can continuously operate business without any obstacles from public side.

The failure factors of this project were; insufficient transparency in the bidding process; unclear allocation of roles between the public and private, in particular unclear regulations and monitoring structures in the contract; and insufficient capacity of the water utility regarding business operation and PSP.

3. Vietnam

3.1 Regulations and institutions on PPP

PPP projects had been operated under BOT law (Decree No.108) and PPP decision (Decision No.71) in 2009. These regulations were replaced by the new PPP law (Decree No.15/ND-CP) enforced from 2015. Under the low, for promoting PPP project, contracting agency, which is most likely the people's committee or public water utility, applies for implementation of a project to the Ministry of Planning and Investment (MPI). Upon the ministry's approval, PPP project can be implemented through project registration, bidding, and selection of operator and conclusion of contract.

GWI mentions there are 13 PPP projects in Vietnam. The Study Team identifies that these projects are all unsolicited projects that were implemented before the establishment of Decree No.15 through the field survey. Bidding processes and contract terms of these unsolicited projects often remain quite unclear in Vietnam.

In Vietnam, the central government is promoting privatization of the state-owned companies. In particular, there have been increasing cases of "Equitization" of water utilities, which means selling shares to private enterprises after corporatization.

3.2 Regulations and institutions on water supply service

Basic regulation of the water supply sector in Vietnam is Decree No.117/2007/ND-CP on Clean Water Production, Supply and Consumption and its implementation guideline is Circular No.01/2008. The Ministry of Construction is the ministry in charge of water supply services including establishing water supply law.

In Vietnam, water supply service has been often conducted by the water utility under People's Committee. Recently, some water corporations are in the process of "Equitization" that converts the water utility into a company with more than 3 shareholders. Some of the water corporations have already become fully private enterprises after the People's Committee sold all its shares. The primary objectives of Equitization is to ensure financing. However, there are some criticisms that Equitization may lead to unclear share of responsibility in water services upon increased number of unknown stakeholders.

Water tariff mechanisms in Vietnam are regulated by Decree No.117/2007ND-CP. This decree stipulates water tariffs should be set to enable "cost recovery". It also stipulates that the people's committee define an allowable range of water tariffs within the allowable range determined in the Circular issued by the Minister of Finance.

3.3 Cases of PSP in water supply services

(1) BOT water supply service in Binh An in Ho Chi Minh City (HCMC)

This project is to provide drinking water to HCMC through construction of an intake facility with 115,000 m^3/d at the Dong Nai River, 3.2 km main pipelines, water purification plant with the capacity of 100,000m^3/d, and a total of 6.5 km distribution water pipe network. This is a BOT project scheme which includes construction of a water treatment facility and O&M over 20 years until 2018. The bidding process was conducted with the support by International Finance Corporation (IFC) and the Malaysian water service company, Salcon, was selected as operator.

The main feature of this project appears on the mode of payment. The payment under this project is made in the US dollars. Therefore, public side takes foreign exchange risks to facilitate private company participation in the bidding despite the circumstance that Vietnam government's foreign reserves are low.

Additionally, IFC's strong support to the project is also the key factor. Initially, the project was financed by a Malaysian financial institution that subsequently withdrew during the Asian currency crisis. IFC made a loan of $25 million after the construction period and contributed implementation of sustainable and stable water supply services.

The successful factors were that financial support from IFC during the financial crisis has enabled stable and sustainable business operation and the private company could avoid some exchange risks with the payment in dollars. Also, The Study Team can analyze the success factors are that the risk allocation was relatively easy as this project was BOT green field construction project and the private operator had sufficient capacity regarding water supply services.

(2) Thu Duc Water BOO Corporation

This project was initiated with an aim to construct a 300,000m^3/d water purification plant and operate for 25 years under BOT scheme by Lyonnaise Vietnam Water Company Ltd. (LVWC) established by Suez Lyonnaise des Eaux (French) and Pilecon Engineering Bhd (Malaysian). Although an investment license was granted in 1997, LVWC withdraw from the project in 2003 after the failure of coordination between the public side and the private enterprise. According to Thu Duc Water BOO Corporation, Suez withdrew due to insufficient F/S and vague forecast on operation whereas Suez claimed the withdrawal attributed to currency exchange risks.

In October 2003, the people's committee conducted a re-tender process under the BOO scheme in which four consortia applied. The winner was a local consortium consisting mainly of Ho Chi Minh City Infrastructure Investment Joint Stock Company. The consortium founded Thu Duc Water BOO Corporation with capital of VND500 billion as the operating company in 2004.

Original investors were Ho Chi Minh City Investment Fund for Urban Development which was Local Development Investment Fund in HCMC and its umbrella companies, but Manila Water subsequently acquired a 49% stake.

The project is a bulk water supply project. The private enterprise provide produced water to Saigon Water Corporation (SAWACO) with the total project cost of VND 1,450 billion and the contracting period of 25 years. The unit price is VND 2,242/m^3 which can be raised 5% every 2 years by the contract. Construction was commenced in 2005 and the water purification plant began operation in May 2009. The construction of the plan was conducted by Hyundai Corporation (South Korea) which was selected by the competitive bidding process.

Despite many challenges, it is said the project has been stably operated by the private enterprises In Vietnam, low tariff standard often becomes killer contents of PPP project in water supply sector. However, because the water tariff in HCMC is generally based on the principle of cost recovery, the private enterprise can receive appropriated standard of income for their operation and further investment on facilities. Water prices paid to private enterprises according to the bulk water supplied is based on cost. Appropriate price setting is the key success factor of the sustainability of this project.

(3) DBL pilot water supply project in Minh Duc in Hai Phong

This project is a DBL (Design-Build-Lease) project to construct 1,500 m^3/d water purification plant with a financial support from Finnish government through the World Bank. The total project cost is VND 17.4 billion and the operation period is for 10 years from 2007 to 2017. According to Hai Phong city, this is a successful project in terms of increase in volume of water production from 558,000 m^3/y in 2008 to 660,000 m^3/y in 2016, and reduction of leakage rates from 19.6% in 2008 to 14.4% in 2016. This project has also been introduced as a successful project by the World Bank.

Though this project was successful, Hai Phong city determined to re-municipalise water supply service upon termination of the contract. The city explained it is due to shortage of experience in water supply operations by the private enterprise and weak coordination between the private enterprises and the local government.

4. Laos

4.1 Regulations and institutions on PPP

Laos does not have PPP related regulations, guidelines or supporting facilities. The Ministry of Planning and Investment mentioned that a PPP Decree is under preparation with support from the Asian Development Bank (ADB).

Water Supply Law regulates the procedure of the business such that when a private enterprise conducts PPP business, approval from DPWT is required if the capacity of the purification plant is more than 20,000 m^3/d. Implementation of PPP projects ultimately requires the Prime Minister's permission.

4.2 Regulations and institutions on water supply service

Water law was established in 2009 in Laos. This law aims to strengthen the legislation for improving the public service by consolidating the water supply-related laws and regulations. Water law regulates water supply for developing water supply system in urban areas.

The Ministry of Public Works and Transport (MPWT) is the responsible authority of the water supply sector in Laos, and water supply service is conducted by individual water utilities established in 17 provinces and Vientiane prefecture. The Water Supply Division (WSD), Department of Housing and Urban Planning (DHUP) of MPWT formulates the plans and programs for urban water supply, secures funds, designs and constructs urban water supply facilities, formulates guidelines for O&M and gives technical support for water utilities in each province.

The Water Supply Regulatory Committee (WSRC) under MPWT supervises and regulates public and private water supply service operators. The Water Supply Regulatory Office (WASRO) is the secretariat of WSRC. WASRO prepares draft regulatory plans and guidelines, and evaluates performance of water utilities. The Ministry of Health is in charge of the water quality standards and the development of rural water supply sectors.

Water tariff setting and approval depends on each province. Water tariff of the Vientiane water utility is determined by the National Parliament whereas water tariffs of other provinces are determined by the respective governor. Water tariffs are frequent revised in each city. PSP in Laos is characterized by unsolicited proposals. In many cases, private enterprises make proposals to local governments. Concession contracts are concluded between the local government and private enterprise. Bulk water supply contracts are subsequently concluded between the public water utility and private enterprise. Therefore, the water utility is not the contracting party of the concession contract and there is a possibility that problems may occur in relation to monitoring, regulation, improvement instructions and penalties. Supervision and

regulation of private enterprises may also not be feasible due to insufficient capacity of the water utility in water supply service operations and PSP.

4.3 Cases of PSP in water supply services

(1) Bulk water supply in Luang Prabang province

This is a bulk water supply project for the Luang Prabang province water utility involving a water purification plant with a capacity of 12,000 m^3/d. The facility currently produces 6,000 m^3/d to the water corporation. Future expansion is also expected and water purification capacity will ultimately become 50,000 m^3/d. This is an unsolicited project proposed by Asia Nampapa Luang Prabang Limited (Asia Nampapa). A bulk water supply contract was concluded between Asia Nampapa and Luang Prabang provincial government with a project period of 35 years from 2013 with an option to extend the project 10 years. The project was proposed solely by one company Asia Nampapa thus no competitive bidding process was implemented. Bulk water supply price is determined according to a formula that factors in inflation and exchange rate fluctuations. Therefore, this project has potential risks that water tariff income the public water utility receives from the residents may be lower than the water price paid to Asia Nampapa.

(2) Bulk water supply service in Champasak province

This is a bulk water supply service project to provide 7,000 m^3/d to public water utility using a water purification plant with a capacity of 15,000 m^3/d. Concession contract of this project was concluded in 2009 between Paksong Gravity Water Co. Ltd., a Lao private enterprise, and Champasak provincial government with a project period of 25 years. The method of the selection process of the operator was direct appointment between Paksong Gravity and the provincial government without implementation of public tender.

Paksong Gravity mentioned that the public water utility did not comply with the purchase guarantee of the water volume and the actual price paid by the public water utility is a half of the amount of the agreed price in the contract. Whereas according to Paksong Gravity, there were frequent demands by the public water utility outside the contract such as reduction of NRW. From the point of the public authority, the private enterprise did not satisfy requirements, such as water quality standards.

The backgrounds of these problems are that contracts were incomplete in terms of obligations and disclaimer of the private enterprise, penalty, and contract termination; contracting party is a provincial government that does not have sufficient capacity of water supply service operations; and the public water utility is not the contracting party and thus does not have a right to provide improvement guidance.

5. Cambodia

5.1 Regulations and institutions on PPP

Law on concession in Cambodia was enforced in 2007. However, the development of the legal environments PPP had not progressed as the formulation of the guidelines by the Ministry of Economy and Finance with assistance of ADB did not show significant progress. Therefore, PPP guidelines have been still under preparation and framework of PPP in Cambodia such as allocation of risk share between public and private sectors are still obscure.

Nevertheless, in February 2016, Policy Paper on Public-Private Partnerships for Public Investment Project Management 2016-2020 was published in anticipation of becoming a newly industrializing nation.

5.2 Regulations and institutions on water supply service

The Ministry of Industry and Handicraft (MIH) is the authority in charge of water supply service in Cambodia whereas rural water supply service is operated by the Ministry of Rural Development.

Basic water law has not been enacted in Cambodia and, therefore, there is no concrete rules in operation of water supply services. However, the Study Team identified some privately-operated water supply service in this research project. The legal basis for these private services have not been clarified to date, but in 2014, MIH announced a regulation called "Prakas (meaning "Regulation" in Cambodia) on Procedure for Issuing, Revising, Suspending and Revoking Permit of Water Supply Services". Under this regulation, such rules including water tariff setting, obligations to acquire residents consent, and monitoring water quality during a project period were established. Prior to Prakas, the maximum period for allowing private water service was limited in 3 years. However, Prakas allows to grant license to private sectors for the maximum operation period of 20 years with a requirement of renewing operational certificates every 5 years. This contributes to more favorable investment environment for PSP to private sector.

5.3 Cases of PSP in water supply services

(1) Water supply service in Moc Compor

It is a private water supply service project in Kandal Province. A Cambodian private enterprise called PRL was grated license and commenced construction in 2007. PRL has commenced on operation since 2009 and currently the company also operate the water supply business in Takeo and Prey Veng Provinces. This project is a representative case in small cities in Cambodia that private enterprises acquire licenses and operate water supply service in local

bases. In this project, the source of water is the Mekong River and the capacity of the water purification plant is 3,500 m^3/d which provides water to approximately 3,700 of households.

Though there are some room for improvement of the project including leakages reduction and introduction of depreciation expenses in accounting system, the project is considered to be operated appropriate in terms of water quality management, water tariff collection, financial and customer management. Water tariffs are set based on regulations by MIH and mid-term business plans are also formulated and submitted to MIH. An evaluation of the project indicates that appropriate business management is being conducted through the water tariffs based on regulations and monitoring by the public authorities. In addition, efforts such as capacity development on the public side have been carried out through monitoring and standardization of the process for examination in granting license.

(2) Bulk water supply project in Sihanoukville city

This project is a bulk water supply service in which Anco, a Cambodian private company, supplies 17,000m^3/d (19,000m^3/d in dry season) to the Sihanoukville water bureau. This project is characterized by the absence of contracts between private enterprise and public authority. It is said that Anco started to supply water to the Sihanoukville water bureau under the instruction of the MIH. However, the exact process how Anco was selected as the water supply operator has not been clarified so far.

This is a case where the public and private sides are working cooperatively on the project despite having no contractual relationship. Both sides are trying to secure safe, accessible, affordable and sustainable water supplies. However, the project scheme itself remains in doubt as there are risks that the private enterprise withdrawal may have a significant effect on sustainability of the project. In addition, a monopoly of the water source is likely to occur and water tariff revision may be controlled at the private enterprise's discretion. It is necessary to pay attention to the effects and evaluations of this project in the future and to how the water tariff will be revised through what consultation. Further, capacity building of the Sihanoukville water bureau is said to be necessary to improve the current situation.

6. Thailand

6.1 Regulations and institutions on PPP

In Thailand, The Private Investments in State Undertakings Act B.E. 2556 in 2013 is a new PPP law that permits private investment to the public works of more than 1 billion baht as PPP. Although this law does not identify the targeted sector, The Study Team can assume the water supply sector is also in the scope. This new PPP law replaced a former PPP law of 1992 which also assumes project implementation with private investment by giving rights and assets owned by the government. The new PPP law is more active in attracting private investment compared to the former law. The targeted sectors are categorized into "Opt-Out" sectors in which PPP applications are given consideration and "Opt-In" sectors in which PPP applications are promoted. "Opt-Out" sectors cover mostly transport and telecommunications whereas water sector is categorized as "Opt-In" sector.

According to SEPO which is the regulatory body of PPP, guidelines of implementing process and risk allocation are being formulated for each sector and some of them have been completed. Guidelines for VFM have been under preparation and it is said the guidelines will be published in the near future. In Thailand, the Project Development Fund is available to support feasibility studies and transaction advisers in the bidding process though there are no supporting facilities in the implementation phase of the project.

Although water supply sector is one of the targeted sectors in the new PPP law, the current project pipeline, which consists of 66 projects, does not include a single water supply project. The Study Team has also confirmed in the field survey that water supply services of PSP are not expected to be on the list in the future.

6.2 Regulations and institutions on water supply service

Water law does not exist in Thailand but water supply services are regarded as locally autonomous and regulated by the Ministry of Interior. Water supply services are provided by the Metropolitan Waterworks Authority (MWA) which is a government-funded corporation, Provincial Waterworks Authority (PWA), and the local government. The means of water supply is determined by the village, which is the minimum unit of a municipality, in which 73,000 exist in Thailand.

The Ministry of Natural Resources and Environment provides licenses to private enterprises when purifying and supplying water to third parties. Water volume, water quality, water price are items that are checked when licensing. Raw water is regulated by the Royal Irrigation Department under the Ministry of Agriculture and Cooperatives.

Water tariff setting under the MWA and PWA requires approval from the Cabinet. The

principal of full cost exists though there are no specific guidelines. MWA law and PWA law stipulate that financial support from the government is possible when MWA and PWA have financial shortages.

When local governments are the water supply operator, the project will be managed using special account. Water tariffs are entrusted to regional decisions and are not regulated by the government.

6.3 Cases of PSP in water supply services

(1) Thai Tap Water (TTW) bulk water supply project

BOT project on water and sewage project for 25 years from 1998 in Pathum Thani Province in the north of Bangkok is the first PSP case in the water supply sector in the country.

BOO project providing bulk water to PWA in west Bangkok was also initiated through public offering and a bidding process for business rights. CH. Karnchang and Thames Water were selected and established Thai Tap Water (TTW) in 2000. After Thames water withdrew from the business, shareholders have changed considerably, including Bangkok Expressway and Mitsui Corporation who acquired 35% of shares from CH. Karnchang. This allowed Mitsui to participate in the water supply services in Thailand. In 2007, TTW acquired shares of Pathum Thani Water (PTW) who was the operator in Pathum Thani Province and TTW and PTW merged.

Recently PWA has made efforts to expand its supply area as well as improve connectivity of the existing supply area. This resulted in an increase in water volume supplied by TTW and in increase in revenue. Therefore, water supply service has been stable and TTW's business performance has been solid. PWA conducts monitoring on water volume and water quality based on benchmarks agreed between the two parties.

This project is recognized as a successful example among stakeholders. However, water tariffs of this project are revised every year in response to CPIs and payment for Bulk Water Supply paid to TTW may become higher than water tariffs PWA receives from beneficiaries. PSP was introduced due to PWA's difficult financial condition. TTW's participation successfully contributed to stable water supply service through infrastructure development in rural areas where infrastructure had been lacking until then. PWA initially faced financial difficulty, but water tariff revenue was stable with water supply service businesses in 73 provinces, including several profitable supply areas. Therefore, PWA had sufficient financial strength to absorb the potential losses occurred in situations where income is lower than revenue in the project. It can also be said PWA had enough financial capacity to operate businesses considering the situations of this project. From the private enterprise's point of view, cash collection risk is covered by PWA law which stipulates the state government will provide financial support if PWA

went bankrupt. In this project, sustainability and transparency were secured by compliance with the contract by both parties, appropriate risk allocation in the contract, and adequate monitoring conducted based on the benchmarks agreed by both parties.

Appendix 2: Capacity Assessment Sheet

Layer 1: Evaluation of PSP Environment

Evaluation Item			Priority	Question	Answer	Objectives of Question	Implication of negative responses	Required action for negative responses
MA-1. Policy and Legal Framework	1	Policy of PSP	1st	Does the current Government have proactive promotion policy for PSP?	Yes No	To confirm the integrity and predictability of the policy for PSP	There are no grounds for adoption of PSP	A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for country) - Support the basic data collection survey and the consideration of promotion measures for PSP
	2	Legal Framework of PSP	1st	Are there related law and decrees for promotion of PSP such as PPP scheme?	Yes No	To confirm the conditions required for PSP and the framework of regulation and monitoring in accordance with laws and regulations	Legal grounds for PSP project is weak and lacks transparency	A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for country) - Development of legal framework and guidelines for PSP
	3	Governmental Support for PSP	1st	Is there Government develop support system for PSP, such as policy finance, guarantee and VGF?	Yes No	If there is a support in which private enterprises raise funds, the barriers to entry for private enterprises will be lowered	It might be difficult to attract private investment	A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for country) - Development of government support structure for PSP
MA-2. PSP Enhancemnt Organization	1	Organization of PSP	1st	Is a national level organization for promotion of PSP established?	Yes No	To confirm a specialize organization of country that has the role of accumulating domestic and foreign know-how, developing PSP tools and disseminating PSP	Knowledge, information, procedure and tools for PSP are insufficient throughout the country	A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for country) - Development of organization promoting PSP
	2	Responsibility of the Organization	1st	Does the above organization have clear accountability to support of PSP in local governments/municipalities and water supply public organizations?	Yes No	To confirm an organization is accountable for PSP promotion in sub-sovereign	Structure for PSP promotion in sub-sovereign is insufficient	A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for country) - Development of structure for PSP in local governments/municipalities
	3	Guidelines for PSP	1st	Are there guidelines and/or rules for PSP prepared for local governments and water supply public organizations?	Yes No	Guidelines are necessary to realize transparent PSP without being influenced by layer 3 capacities of water supply public organization and the quality of private enterprises	Ditto	A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for country) - Development of guidelines and/or rules for PSP
MA-3. Past Record of PSP	1	Case Past of PSP	1st	Are there past cases of PSP in any sectors in the country?	Yes No	To confirm whether the related system for PSP is functioning properly and know-how is being accumulated from experiences	There is no experience and knowledge of PSP	C:Technical assistance of human resources (Target: person in charge at regulatory authority for country) - Assistance of capacity building for PSP
	2	PSP in Water Sector	1st	Are there past cases of PSP in water sector?	Yes No	To confirm whether the related system for PSP is functioning properly and knowledge is being accumulated from experiences in water sector	There is no experience and know-how of PSP in water sector	C:Technical assistance of human resources (Target: person in charge at regulatory authority for country) - Assistance of capacity building for PSP
	3	Trend of PSP	1st	Have the number of PSP projects, including water sector, been increasing recently?	Yes No	To confirm whether the related system for PSP is functioning properly and markets are established that are attractive to private enterprises	There might be disincentives for PSP in water sector	A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for country) - Support the basic survey for promotion of PSP in water sector including analysis of factors hindering PSP

Legend: A：A:Sector Survey、B：Project Formulation、C：Capacity Development　(Details of each legend shall be referred to Table 2-4 in chapter 2.)

Source: The Study Team

Layer 2: Evaluation of Water Sector Governance and Financial Soundness (1/2)

【Category of PSP】a：O&M Contract（a-1：Tariff Collection　a-2：NRW (Non Revenue Water) Reduction　a-3：Water Treatment Plant）, b：Management Contract,　c：Bulk Water Supply,　d：Utility Concession, e：Private Utility

Evaluation Item				Priority	Question	Answer	Objectives of Question		Related Category of PSP	Implication of negative responses						Required action for negative responses
							Overarching Paradigm	Check point		a-1	a-2	a-3	b	c	d / e	
General Information				1st	Who is the supervisory authority for water works? 1.Central Govornment, 2.Local Government	1 2	- To confirm the related agency for assessment of water sector (involved water utilities with Central Gov. only, or Central and Local Gov. both ?)		-	-				-		-
				1st	Has law on water works been enacted?	Yes No	- To confirm the basic law for implementation of water works		-	-				-		-
MA-4. Governance in Water Sector	1	Framework of Organizations	1)	2nd	Is it clear which organization controls financial management of water works, including public funding?	Yes No	(2)Sustainability	-To confirm that there is a basic system to conduct water supply projects from a fiscal perspective -Parameter connected to all categories of PSP because the question is related to water works	All Categories	Private enterprises can not manage financial risk of the project, and the hurdle for entry will increase for private enterprises. In addition, table management of water works, which assures sufficient levels of water quality, coverage and water tariff, might be difficult.						A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for water sector) - Basic training for establishment of structure
	2	Framework of Regulations	1)	1st	Are important points on the following issues stated in related law or guidelines? 1.Water tariff setting, 2.Supervisory process by the Government, 3.Accounting system, 4.Service Level of water works	1：Yes No 2：Yes No 3：Yes No 4：Yes No	(1)Safety (2)Equitability (3)Affordability (4)Sustainability (5)Transparency	-To confirm the development of major rules for implementation of water works -Parameter including all Overarching Paradigm -Parameter connected to all categories of PSP because the question of supervision and service level are relative to overall water works -Especially, question of water tariff and accounting are largely related to Utility Concession in which water utilities set water tariff and manage income	Especially, Utility Concession Private Utility	Without regulation and/or guidelines for supervision and water quality standards for water works, service level will decline and consequently stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.				-Same as left for supervision and water quality standards for water works -Without accounting systems and methods for setting water tariffs, privater enterprises could not set proper water tariff with full-cost recovery basis	A:Technical Assistance of institutional capacity (Target: person in charge at regulatory authority for water sector) - Development of legal framework and guidelines C:Technical Assistance of human resources (Target: person in charge at regulatory authority for water sector) - Basic training and raising awareness for PSP
			2)	2nd	Are there any penalty rules set for water supply public oragans if they fail to achieve the demand standard? 1.Law and/or Regulations 2.Contract Document of PSP for water works	1：Yes No 2：Yes No	(4)Sustainability	-To confirm the system meets demand standard for water supply public organization -Parameter connected to all categories of PSP because the question is relative to law and contract	All Categories	Without penalty rules for private enterprises in case that they fail to achieve the demand standard, there is the risk that the failed situation will not be improved and consequently stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.						
			3)	1st	Are the following regulations in place? 1.Systems of PSP specialized for water works 2.Guideline/manuals of PSP specialized for water works which include type of PSP, risk control and selection of privater enterprises etc.	1：Yes No 2：Yes No	(5)Transparency	-To confirm the structure for proper implementation of PSP project with transparency -Parameter directly connected to all categories of PSP	All Categories	Private enterprises cannot manage various risks and the hurdle for participation in the project will increase for private enterprises. Without definite process for procurement of private enterprises, improper private enterprises could be selected and consequently stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.						
	3	Policy and Supervision	1)	1st	Is there policy and/or strategy paper for water sector which indicates the promotion of PSP ?	Yes No	(4)Sustainability	-To confirm the easiness of PSP adoption -Parameter directly connected to all categories of PSP	All Categories	Without background of positive promotion for PSP, private enterprises could not get active support and approval by government and the hurdle for participation in the project will increase for the private enterprises. Consequently stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.						A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for water sector) - Formulation of policy and strategy for water sector
			2)	2nd	Does the PSP adoption system include the process in which coordination with water supply public organizations is required ?	Yes No	(5)Transparency	- To confirm the contract of PSP without involvement of water supply public organization -Parameter directly connected to all categories of PSP	All Categories	Without appropriate control for PSP project by water supply public organizations, private enterprises might execute their services beyond the scope of work for public sector. Consequently stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.						A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for water sector) - Development of concept for PSP adoption
			3)	2nd	Does each municipality have responsibility for the periodic formulation of project plans for water works ?	Yes No	(4)Sustainability	-To confirm the possibility of planned project management -Parameter connected to all categories of PSP because the question is relative to whole water works	All Categories	Without planned implementation of the project, the scope of service might be indefinite and risks taken by the private enterprises will increase. Consequently stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.						A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for water sector) - Development of the system for formulation of project planning C:Technical assistance of human resources (Target: person in charge at regulatory authority for water sector) - Capacity development for project planning
			4)	1st	Is monitoring periodically conducted more than once a year regardless water supply services are implemented by pubic or private?	Yes No	(1)Safety (4)Sustainability	-To confirm the management of safety and financial sustainability, arbitrary operation of the projects with private sector by proper monitoring -Parameter connected to all categories of PSP because the question is relative to whole water works	All Categories	Without safety water supply, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult. Without proper monitoring for financial situation, private enterprises might sell equity holdings without considering project sustainability and there is a possibility that private businesses may conduct arbitrary business activities, such as developing business only in regions with high profitability.						C:Technical assistance of human resources (Target: person in charge at regulatory authority for water sector) - Capacity development for project monitoring

Layer 2: Evaluation of Water Sector Governance and Financial Soundness (2/2)

Evaluation Item				Priority	Question	Answer	Objectives of Question		Related Category of PSP	Implication of negative responses						Required action for negative responses
							Overarching Paradigm	Check point		a-1	a-2	a-3	b	c	d / e	
MA-4. Governance in Water Sector	4	Authrization for Water works	1)	2nd	Is there a national authorization system for water works implemented by public and/or private sector?	Yes No	(4)Sustainability	-To confirm situation of water works management -Parameter connected to all categories of PSP because the question is relative to overall water works	All Categories	Without proper approval for project implementation, the risks and the hurdles for participation in the project will increase for private enterprises. Stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult due to participation of unreliable private businesses.						A: Technical assistance of institutional capacity (Target: person in charge at regulatory authority for water sector) - Development of the system for project authorization
			2)	2nd	Has the number of public oragans utilizing private sector been confirmed in the country (or state/province) ?	Yes No		-To confirm the capability of monitoring for PSP in water works -Parameter directly connected to all categories of PSP								C:Technical assistance of human resources (Target: person in charge at regulatory authority for water sector) - Capacity development for PSP management
			3)	2nd	Is the number of private water works, which managed by private sector completely, confirmed in the country (or state/province) ?	Yes No										
	5	Public Relations	1)	2nd	Is there appropriate coordination system to reflect the opinions of customers and citizens on the water works ?	Yes No	(3)Affordability (4)Sustainability	-To confirm the structure providing proper service and affordable water tariff to beneficiaries -Parameter connected to all categories of PSP because the question is relative to overall water works	All Categories	Without proper system for public relations, private enterprises might take project risks excessively and the hurdle for participation in the project will increase for privater enterprises. In addition, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult due to reduction of customers.						C:Technical assistance of human resources (Target: person in charge at regulatory authority for water sector) - Capacity development for public relations
MA-5. Financial Condition of Water Sector	1	Profit management	1)	1st	Are there objectives and common rules for accounting of water works, such as a "municipal utility account system" ?	Yes No	(3)Affordability (4)Sustainability	-To confirm accounting systems are not arbitrary and are close to international accounting standards -If accounting systems and tariff collection systems from customers are not established, the parameter is strongly connected to Bulk Water Supply and Utility Concession project managed by private financing	Especially, Utility Concession Private Utility	-				Without proper account system, -There might be certain risks for the privater enterprises such as 1) losing the contract amount for the services in BTO, 2) losing the payback for prior investment in DBO, 3) pulling out from the project, 4)buankruptcy of the firm. Thus, the hurdles for participation in the project will increase for private enterprises. -In addition, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.	Without accounting systems, -Private enterprises could not set proper water tariff with full-cost recovery basis and financial management will be insufficient. This may lead to risks of the private enterprises pulling out from the project and bankruptcy of the firm. -Consequently, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.	A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for water sector) - Development of accounting system
			2)	1st	Does the account system for water works include the concept of depreciation expense ?	Yes No		-Since the idea of depreciation expenses includes equalization of construction costs and internal reserves, future renovation resources and setting affordable water tariff for customer could be available		-					Without the ideas of depreciation expenses, -Private enterprises could not set proper water tariff considering affordability for customers because they have to manage the cost on a cash basis. -In addition, proper water tariff setting and project planning for cost recovery basis might be difficult.	A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for water sector) - Development of ideas for depreciation cost
	2	Tariff system	1)	2nd	Is there specific tariff system in which the process of water tariff settings/revision, evaluation criteria, and decision maker etc. are defined ?	Yes No	(3)Affordability	-To confirm the water tariff setting system considering both affordability to pay of customer and sustainability of the project -Parameter connected to espacially Utility Concession in which private enterprises set water tariff and manage the income	Utility Concession Private Utility	-					With unreasonaby high water tariff by private enterprises, the number of customers will decrease and stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.	A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for water sector) - Formulation of the rule and guidelines for flexible system of tariff setting in Utility Concession C:Technical assistance of human resources (Target: person in charge at regulatory authority for water sector) - Basic training and raising awareness for formulation of the rule and guidelines for flexible system of tariff setting in Utility Concession
			2)	2nd	Is it possible for private enterprises (water utilities) to set water tariff?	Yes No			Utility Concession Private Utility	-					Without discretion of private enterprises to set water tariff, -Private enterprises could not set proper water tariff with under a full-cost recovery basis -Consequently, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.	
	3	Financing	1)	2nd	Is there any case of PSP project financed by private sector ?	Yes No	(5)Transparency	-To confirm the funding environment for PSP -Parameter connected to Bulk Water Supply and Utility Concession project managed by private funding	Bulk Water Supply Utility Concession Private Utility	-	In case of the project implementation of Bulk Water Supply or Utility Concession financed by private sector such as BTO, the project may not be realized due to the lack of funding by private sector.					A:Technical assistance of institutional capacity (Target: person in charge at regulatory authority for water sector) - Development of concept for private financing

Source: The Study Team

Layer 3: Evaluation of Capacity of Individual Water Utility (1/2)

【Category of PSP】a：O&M Contract（a-1：Tariff Collection　a-2：NRW (Non Revenue Water) Reduction　a-3：Water Treatment Plant）, b：Management Contract,　c：Bulk Water Supply,　d：Utility Concession, e：Private Utility

Evaluation Item				Priority	Question	Answer	Objectives of Question		Related Category of PSP	Implication of negative responses						Required action for negative responses
							Overarching Paradigm	Check point		a-1	a-2	a-3	b	c	d / e	
General Information	1	Water Tariff		1st	How much is the unit watar tariff ? (Example: ** USD/m^3)		-To confirm the water tariff level considering affordability to pay and project sustainability		-	-						-
	2	Financial Condition		1st	What is the business profitability rate (%) excluding depreciation expense ?		-To confirm financial situation for sustainable project management		-	-						-
MI-1. Governance	1	Capability for PSP	1)	1st	Are there the procurement rules or guidelines for PSP?	Yes No	(5)Transparency	-To confirm the system for private enterprises procurement with transparency and fairness -Parameter directly connected to all categories of PSP	All Categories	-Without procurement rules for PSP, transparency of private enterprises selection and reasonable risk sharing will not be secured. -Private enterprises might take undue project risks and the hurdle for participation in the project will increase for private enterprises. -Without proper contract conditions for PSP, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.						A:Technical assistance of institutional capacity (Target: Employer of the PSP contract) - Development of rules and guidelines for PSP C:Technical assistance of human resources (Target: Employer and water utilities of the PSP contract) - Basic training and raising awareness for PSP
			2)	1st	Is a feasibility study conducted for PSP project?	Yes No		-To confirm the preparation for PSP such as consideration of risk sharing -Parameter directly connected to all categories of PSP	All Categories	-Private enterprises might take undue project risks and the hurdle for participation in the project will increase for private enterprises -Without proper contract conditions for PSP, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.						B:Technical assistance for the project (Target: Employer of the PSP contract) - Formulation of Feasibility Study
	2	Experience	1)	1st	Any there any projects of PSP ?	Yes No	(4)Sustainability	-To confirm extent of establishment and type of PSP	All Categories	-Without sufficient understanding for PSP in water works, the hurdle for participation in the project will increase for private enterprises.						C:Technical Assistance of human resources (Target: Employer and water utilities of the PSP contract) - Basic training and raising awareness for PSP
			2)	2nd	If there were past PSP-related projects, what was the content of the projects ?											
	3	Strategy	1)	2nd	Is the head of the public organ positive about PSP ?	Yes No	(4)Sustainability	-To confirm ease of adoption and foreseeability for PSP -Parameter directly connected to all categories of PSP	All Categories	-Without active promotion for PSP in water works, the hurdle for participation in the project will increase for private enterprises. -Without proper contract conditions for PSP, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult.						-
	4	Work Experience	1)	1st	Are there staffs who have experience of working or participating in training courses for procurement, contract and supervision related to PSP ?	Yes No	(4)Sustainability (5)Transparency	-To confirm staff capability of management for sustainable and transparent PSP -Parameter directly connected to all categories of PSP	All Categories	Without expert staff for management of PSP, stable and sustainable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult and the hurdle for participation in the project will increase for private enterprises						C:Technical assistance of human resources (Target: person in charge at regulatory authority for water sector) - Capacity development for PSP management
MI-2. Financial Condition	1	Customer Management	1)	2nd	Are water consumption and tariff collection ratios of customers confirmed periodically ?	Yes No	(4)Sustainability	-To confirm the proper data management for improvement of revenue -Parameter connected to all categories of PSP because the question is relative to overall water works	All Categories	Without proper data management of water consumption, stable management of water works by appropriate water tariff might be difficult and the hurdle for participation in the project will increase for private enterprises.	-				Without proper data management of water consumption, stable management of water works by appropriate water tariff might be difficult and the hurdle for participation in the project will increase for private enterprises.	C:Technical assistance of human resources (Target: Employer and water utilities of the PSP contract) - Capacity development for customer management
			2)	2nd	Is there a water utility ledger for customers ?	Yes No										
			3)	2nd	Is the information of water meter installation, such as size and replacement year, managed properly ?	Yes No										
	2	Financial Management	1)	1st	Are there profit and loss statements (P/L) and balance sheets (B/S) ?	Yes No	(4)Sustainability	-To confirm sound management by analysis of financial condition and planned implementation of the project -Parameter connected to Bulk Water Supply and Utility Concession project in which information of stock and financial flow are required	Bulk Water Supply Utility Concession	-				Wuthout P/L and B/S, profitable management of the project might be diffcult. Consequently, there might be some risks for the private enterprises 1) to lose the contract amount for the services in BTO, 2) to manage the project in deficit balance and to go black-ink buankrupt of the firm in Utility Concession. Thus, the hurdle for participation to the project will increase for the private enterprises.		C:Technical Assistance of human resources (Target: Employer and water utilities of the PSP contract) - Capacity development for accounting including concept of depreciation and financial statement etc.
	3	Finance	1)	2nd	Is there financing from government or banking facilities ?	Yes No	(4)Sustainability	-To confirm the capacity and stability of financing for sound management -Parameter directly connected to all categories of PSP	All Categories	Without expectation for funding by water supplier, stable management of water works by appropriate water tariff might be difficult and the hurdle for participation in the project will increase for private enterprises.						-
	4	Settings of Water tariff	1)	1st	Is there past result of water tariff revision in case that water suppliers can revise it ?	Yes No	(3)Affordability	-To confirm affordability to pay and flexibility of tariff setting for sustainable management -Parameter connected to Utility Concession in which private enterprises set water tariff and manage income	Utility Concession	-				Without flexibility of water tariff setting/revision, profitability of the project under a full-cost recovery basis might become an issue. Thus, the hurdle for participation in the project will increase for private enterprises.		C:Technical Assistance of human resources (Target: Employer and water utilities of the PSP contract) - Basic training for ideas of water tariff setting and raising awareness for PSP
			2)	1st	Is the procedure for setting water tariff clear?	Yes No			Utility Concession	-				Without appropriate water tariff level and definite process for tariff setting, profitability of the project under a full-cost recovery basis might become an issue. Thus, the hurdle for participation to in the project will increase for private enterprises.		
			3)	2nd	Is the water tariff set less than 4% of household income ?	Yes No			Utility Concession	-				For higher water tariff levels, equitability of the project might be insufficient. On the contrary, for lower water tariff levels, sustainable management of the project might be difficult.		

Layer 3: Evaluation of Capacity of Individual Water Utility (2/2)

Evaluation Item				Priority	Question	Answer	Objectives of Question		Related Category of PSP	Implication of negative responses						Required action for negative responses
							Overarching Paradigm	Check point		a-1	a-2	a-3	b	c	d / e	
MI-3. Facility Construction	1	Availability of Data	a	1st	Are there statistical data and annual reports for water works ?	Yes No	(4)Sustainability	-To confirm staff capability for data management, analysis and utilization -Parameter directly connected to all categories of PSP	All Categories	Without sufficient technical capability of staff and management ability for private enterprises, stable management of water works by appropriate water tariff might be difficult. Due to lack of clarity about requirements related to service level of the project, risks for private enterprises could increase and the hurdle for participation in the project will increase for private enterprises.						C:Technical assistance of human resources (Target: Employer and water utilities of the PSP contract) - Capacity development for development of statistic database
	2	Project Planning	a	2nd	Are there location maps showing service areas and major facilities, such as water sources, water treatment plants and distribution tanks ?	Yes No	(4)Sustainability		All Categories	Without sufficient technical capability of staff and management ability for private enterprises, stable management of water works by appropriate water tariff might be difficult and the hurdle for participation in the project will increase for private enterprises.						C:Technical assistance of human resources (Target: Employer and water utilities of the PSP contract) - Capacity development for management of drawings and formulation of project master plan
			b	1st	Is there a project plan for the next 5-10 years?	Yes No	(4)Sustainability (5)Transparency	-To confirm planned project management for avoiding the risks of pulling out from the project and to go buankrupt of the firms. -Parameter connected to all categories of PSP because the question is relative to overall water works	All Categories	Without strategic planning of the project considering its scale, area and service level, project management with sustainability and transparency might be difficult.						B:Technical Assistance for the project (Target: Employer and water utilities of the PSP contract) - Formulation of project master plan
MI-4. Facility Management	1	Operation and Maintenance	a	2nd	Are there drawings for the existing facilities ?	Yes No	(4)Sustainability	-To confirm data management for facilities and water quality information, etc. -Proper management of data leads to project sustainability -Parameter connected to all categories of PSP except for O&M contract of tariff collection and NRW reduction because the question is relative to facility information -Without facility information, risks for water utilities might increase in the project using existing facilities because scope of service will be changeable	All Categories except for O&M contract for Tariff Collection and NRW Reduction	-		Without proper management of the existing facilies data, it is difficult to evaluate the private enterprises's performance for the project and thus, in case of the project using the existing facilities, the hurdle for participation in the project will increase for private enterprises. Consequently, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult. On the other hand, in case of the project in which facilities will be newly constructed such as BOT, DBO and Utility Concession contract, the risks for private enterprises will be reduced.			C:Technical assistance of human resources (Target: Employer and water utilities of the PSP contract) - Capacity development for asset management of facilities - Technical cooperation for project O&M including management of drawings, distribution control, water quality, chemical consumption and rehabilitation
			b	2nd	Are there lists of major mechanical and electrical equipment ?	Yes No										
			c	2nd	Are there past records of repair and rehabilitation ?	Yes No										
			d	2nd	Is there a ledger for pipeline networks ?	Yes No		-To confirm data management for network -Proper management of data leads to project sustainability -Parameter connected to all categories of PSP except for O&M contract of tariff collection and Water Treatment Plant because the question is relative to network information -Without network information, risks for private enterprises might increase in the project using existing network because scope of service will be changeable	All Categories except for O&M contract for Tariff Collection and Water Treatment Plant	-	Without sufficient technical capability of staff and management ability for private enterprises, the hurdles for participation in the project will increase for private enterprises.	-	Without sufficient technical capability of staff and management ability for private enterprises, the hurdles for participation in the project will increase for private enterprises. Without proper management of water leakage information, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult. In addition, since water supply is checked (or pipe is laid) only on the water supply pipe, keep in mind that the range of risks differ from utility concession, which checks the distribution pipe network.	C:Technical assistance of human resources (Target: Employer and water utilities of the PSP contract) - Capacity development for asset management of network - Technical cooperation for NRW Reduction
MI-5. Service Level	1	Safety	a	1st	Is the water quality monitored periodically ?	Yes No	(1)Safety	-To confirm safety of supplied water quality -Parameter connected to all categories of PSP except for O&M contract of tariff collection and NRW reduction because the question is relative to water quality management	All Categories except for O&M contract for Tariff Collection and NRW Reduction	-		Without water safety checked by water quality test, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult due to the reduction of customers.				C:Technical assistance of human resources (Target: Employer and contractor of the PSP contract) - Capacity development for improvement of service level - Technical cooparation for setting affordable tariff table and safe/stable services
			b	2nd	Do the results of water quality analysis meet the required standards ?	Yes No										
	2	Stability	a	1st	Is baseline data, such as coverage ratio, supply hour, and water pressure, periodically checked ?	Yes No	(2)Equitability	-To confirm the fairness of water supply service -Parameter connected to all categories of PSP because the question is relative to overall water works	All Categories	Without a stable water supply, stable management of water works, which assures sufficient level of water quality, coverage and water tariff, might be difficult due to the reduction of customers.						

Source: The Study Team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