

# The Japanese private finance initiative and its application in the municipal solid waste management sector

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## Abstract

In Japan, the development and financing of infrastructure are traditionally dominated by the public sector. Learning from the failures of so called “third sector” projects in the 1970s and 1980s as well as based on experience from the Private Finance Initiative (PFI) in other countries, Japan introduced a PFI Promotion Law in 1999 to enhance private participation in the provision of infrastructure. This paper presents the legislative and administrative framework of the Japanese PFI model and its application in the municipal solid waste management sector by analysing two case studies of Ohdate BOO incineration plant and Narumi BTO incineration plant. Findings from the dual case study indicate that total costs can be reduced due to life-cycle integration, output specifications and capitalisation of economies of scale. However, inconsistencies between the existing fiscal system and the legislative PFI framework must be addressed to increase the benefits from the PFI procurement strategy.

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## 1. Introduction

Japan is one of the leading industrial nations in the world and possesses excellent infrastructure. While private enterprises were the driving force for the rapid economic growth after World War II, the state traditionally remained responsible for the provision of major physical infrastructures.

A tendency to incorporate the private sector into the provision of infrastructure can be traced to the emergence of the so called *third-sector* during the 1970s and 1980s. Third sector entities are enterprises based on commercial law with joint governmental and private investments to implement infrastructure projects that were formerly developed by the public sector. By the year 2000, about

6800 third-sector entities were founded in many diverse sectors such as education, fishery, tourism or city development [1]. However, third-sector developments did not fulfil the high expectations to combine public interests with private sector efficiency and many entities faced financial difficulties or bankruptcy. According to Takamasa [1], the major reasons for the third-sector failures are: (1) organizational and structural problems due to inefficient joint management by public and private stakeholders combined with poorly defined responsibilities; (2) selection of unsuitable projects that lacked economic feasibility; and (3) unfavourable changes in socio-economic environment leading to recession in the 1990s.

While the third-sector developments are widely regarded as failures, Japan on the other hand implemented various successful material privatisations of state-owned infrastructures. Most notably to mention are the privatisation of the Japanese National Railways (JNR), Nippon Telegraph and Telephone (NTT), and Japan Air Lines (JAL). However, the planned privatisation of further state-owned infrastruc-

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ture, such as national highways and national post face severe public and political resistances and proof to be more difficult.

Until today, the public sector remains the main source for financing and developing physical infrastructure projects. To fight against deflation after the collapse of the “bubble economy”, the Japanese government spent enormous amounts of money on public infrastructure projects. These investments are mainly financed by continuous large governmental deficits. As a result of continuous government spending, gross public debt rose to over 160% of GDP by the year 2004 [2].

Following international tendencies to increase private participation in the provision of infrastructure, Japan began to adopt a Private Finance Initiative (PFI) policy at the end of 1990s. Even so many ideas and policies are based on experiences from the United Kingdom and other western countries, it can be observed that the implementation of the PFI model in Japan features some unique characteristics.

## 2. Objectives and methodology

The objectives of this study are:

- (1) to examine the legislative and administrative framework and historical developments of the currently applied PFI model in Japan and
- (2) to investigate the nature of organisational and financial arrangements for PFI projects in the Japanese municipal solid waste management sector.

For achieving these objectives, a dual case study approach was chosen. This methodology is suitable due to its potential strength of identifying and understanding complex processes and interactions between various issues [3] that must be addressed within the field of PFI. Due to the research objective to understand the nature of PFI models in Japan and their application in the municipal solid waste management sector, the case study methodology uses a descriptive design.

Altogether 17 semi-structured interviews were conducted with stakeholders from public authorities, private companies, consultancy firms and academia. These stakeholders were directly involved in the development, procurement and implementation of PFI projects and therefore possessed valuable experience and background information.

Language and access to information are often the major constraints for foreigners doing research in Japan. Very few publications and project documentation on PFI in Japan are available in English language. Hence, teambuilding with Japanese scientists and the support of interpreters were necessary for data gathering. Prior to the interviews, a catalogue of major questions was sent to the interview partners for preparation. In order to improve clarity of information received, a protocol of the interview was sent in the aftermath to all participants for review.

The municipal solid waste management sector is a representative infrastructure sector for analysing the Japanese PFI framework. More than 10% of all PFI projects in Japan are from this sector and in the upcoming decades, a large number of capital intensive investments are expected in this sector. However, municipal solid waste management projects in Japan possess distinctive characteristics that must be considered for external validity of case study analysis on PFI projects.

## 3. Development of the legislative and administrative PFI framework in Japan

### 3.1. Outline of PFI Law

In 1999, the Diet in Japan enacted a “Law relating the promotion of realization of public facilities by using private funds” [4,5] aiming to provide an appropriate legislative framework and to initiate needed structural reforms to promote PFI projects. This so called “PFI Law” comprises of 23 articles and its latest, i.e. fifth revision took place in August 2005. As described in Article 1, the law applies to the provision of a wide range of public infrastructure sectors with the exception of national defence facilities.

The PFI Law contains a variety of important and unique aspects concerning the legislative and administrative framework [4,5]:

- (a) The Prime Minister shall be responsible to determine a “Policy Framework” and an “Implementation Outline” concerning various administrative and legal issues for PFI projects, such as procurement, evaluation, or monitoring (Articles 4–10).
- (b) PFI projects are timely limited to 30 years (Article 11).
- (c) If necessary, the public sector may provide public land for free or at a reduced price (Article 12).
- (d) For extremely important projects, the National Government might provide interest free loans through the Development Bank of Japan (Article 13).
- (e) National and local authorities shall work together to abolish regulations that impede the implementation of PFI projects (Article 17).
- (f) Within the Cabinet Office, a Committee for the Promotion of the Private Finance Initiative (PFI Committee) comprising of nine members shall be set up to give advice on the development of the Implementation Policy (Articles 21–22).

### 3.2. Framework based on the PFI Law

After the introduction of the PFI Law, the Prime Minister appointed nine experts from academia and private businesses to become members of the PFI Promotion Committee. After receiving deliberations from this committee, the Cabinet Office developed the Policy Frame-

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