IATSS Research 36 (2013) 88–97

Contents lists available at SciVerse ScienceDirect

IATSS Research

A systematic framework for infrastructure development through public private partnerships

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ARTICLE INFO

Article history:
Received 13 June 2012
Received in revised form 30 October 2012
Accepted 2 November 2012

Keywords:
Concession
Financial regulation
Infrastructure
Public private partnership
Privatization
Source selection

ABSTRACT

Public–private partnerships (PPPs) play an important role in bringing private sector competition to public monopolies in infrastructure development and service provision and in merging the resources of both public and private sectors to better serve the public needs. However, in worldwide practices, there are mixed results, substantial controversy, criticism and conflict over PPPs. This paper proposes a systematic framework for the delivery of public works and services through PPPs in general. Justified by public procurement principles, aimed at a public–private win–win solution, and based on worldwide best industrial practices and lessons from unsuccessful projects, this framework integrates the four broadly divided stages that repeat over time: (1) design of a workable concession, (2) competitive concessionaire selection, (3) financial regulation, and (4) periodic reconcession and rebidding. The four-stage framework takes into account the requirements of public services, realignment of responsibility and reward among multiple participants in PPPs, the monopolistic rights of the concessionaire, and the wide range of risks and uncertainties in the long concession period. Varying competition elements are incorporated in each of the four stages for continuous performance improvement in the delivery of public works and services. The design of the right concession forms the base on which other stages are implemented in addition to planning the project and allocating risks for enhanced efficiency. The financial regulation allows the government to address changing conditions and to regulate the concession for efficient operation with due discretion, whereas the competitive concessionaire selection and periodic reconcession and rebidding play critical roles in achieving innovation, efficiency and cost effectiveness through direct competition rather than government discretionary intervention.

1. Introduction

There is a huge demand on public infrastructure and services worldwide whereas the government budget of any country is always limited. In addition, the public sector often lacks the technologies, skills and expertise required for efficient infrastructure development. Furthermore, civil servants often have less incentive to invest wisely than private project managers [1]. Facing these problems, governments worldwide are exploring innovative means for improved infrastructure development, and consequently different types of public–private partnerships (PPPs) have been practiced. PPPs are contractual relationships governing a long-term public sector acquisition and private sector provision of public works and services [2]. PPP projects have the following common characteristics [3]: (1) a private partner provides the design, construction, financing and operation of the infrastructure, in return for payments either from the users of the infrastructure or from the public client itself; (2) public and private partners share risks and jointly manage them through better utilization of resources and improved project control; and (3) PPP projects are usually based on a long-term contract to encourage innovations and low life cycle costs.

PPPs play an important role in bringing private sector competition to public monopolies in infrastructure development and service provision, and in merging the resources of both public and private sectors to better serve the public needs that otherwise would not be met. A great number of infrastructure projects have been successfully developed through PPPs with significantly increased value and substantial cost savings [4]. For example, it is reported that U.S. state and local governments have routinely experienced 10–40% cost savings and improvements in service quality and asset management through PPPs [5]. On the other hand, many privatized projects suffered disastrous consequences because of construction cost/duration overruns, changing market demand, depreciation of local currencies and/or reduction in tolls/tariffs by utilities. Some of them had been postponed or abandoned by the sponsors, and others had to be bailed out by host governments [6–8].

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Peer review under responsibility of International Association of Traffic and Safety Sciences.

Production and hosting by Elsevier

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http://dx.doi.org/10.1016/j.iatssr.2012.11.001

Accompanying the mixed results mentioned above, substantial controversy, criticism and conflict exist over PPPs. The division in thinking over PPPs is as wide as the world itself. Opponents argue that (1) the profit-making objective of the private sector motivates them to seek cost savings at the expense of quality services, and therefore, is antithetical to the public's well-being; and (2) the involvement of private sector in public services results in loss of jobs of public employees and consequently a counterproductive relationship with unions of public employees [9]. In contrast, proponents contend that the profit motive of the private sector does not necessarily comprise service quality or reduce public jobs. Instead, improved level of service via cost effective solutions are possible as the private sector can become more accountable to the public through well-designed PPPs, which provide the public sector sufficient control over the works and services being provided by the private sector while allowing the management skills, technologies and financial resources of the private sector to come into play. The National Council for Public–Private Partnerships (NCPPP) of the United States provides successful PPP examples in transportation, urban development, schools, water/wastewater and other infrastructure sectors to support these contentions [5].

The worldwide interest in PPPs, problems encountered in many countries and the substantial controversy over PPPs call for an improved methodology for improved infrastructure and service delivery through PPPs. The writers have thus conducted research corresponding to this call. This research results in a better understanding of PPPs and the development of a framework that integrates different stages in the delivery of public works and services and systematically addresses the key issues in each stage in order to achieve continuous efficiency improvement. This framework is based on worldwide best industrial practices and lesions from unsuccessful projects, aimed at public–private win–win outcomes, and justified by public procurement principles. Details of the research outputs are provided in the following sections.

2. Framework for a systematic approach

2.1. Four-stage systematic framework

A systematic approach is taken in the proposed framework for infrastructure development through PPPs in general. Basically, the proposed framework (please see Fig. 1) integrates four broadly divided stages in the infrastructure and service delivery process, including (1) design of a workable concession, (2) competitive concessionaire selection, (3) financial regulation of the selected concessionaire during the concession period, and (4) periodic reconcession and rebidding to allow changes and adjustments of the concession, and new entry for the concession. This general framework is proposed on the realization that although there are many aspects that are project, sector, and/or country-specific, the concept, process and key principles in infrastructure and service delivery through PPPs are essentially identical, which is supported by the World Bank and the Inter-American Development Bank [1].

A validation process had been conducted to justify the proposed framework and evaluate its potential application in the industry. In this regard, opinions of experts and practitioners in PPPs from Canada, China and United Kingdom had been solicited. Sixteen professionals participated in this validation process. In general, most of them agreed that this framework was well-developed and that it included key issues

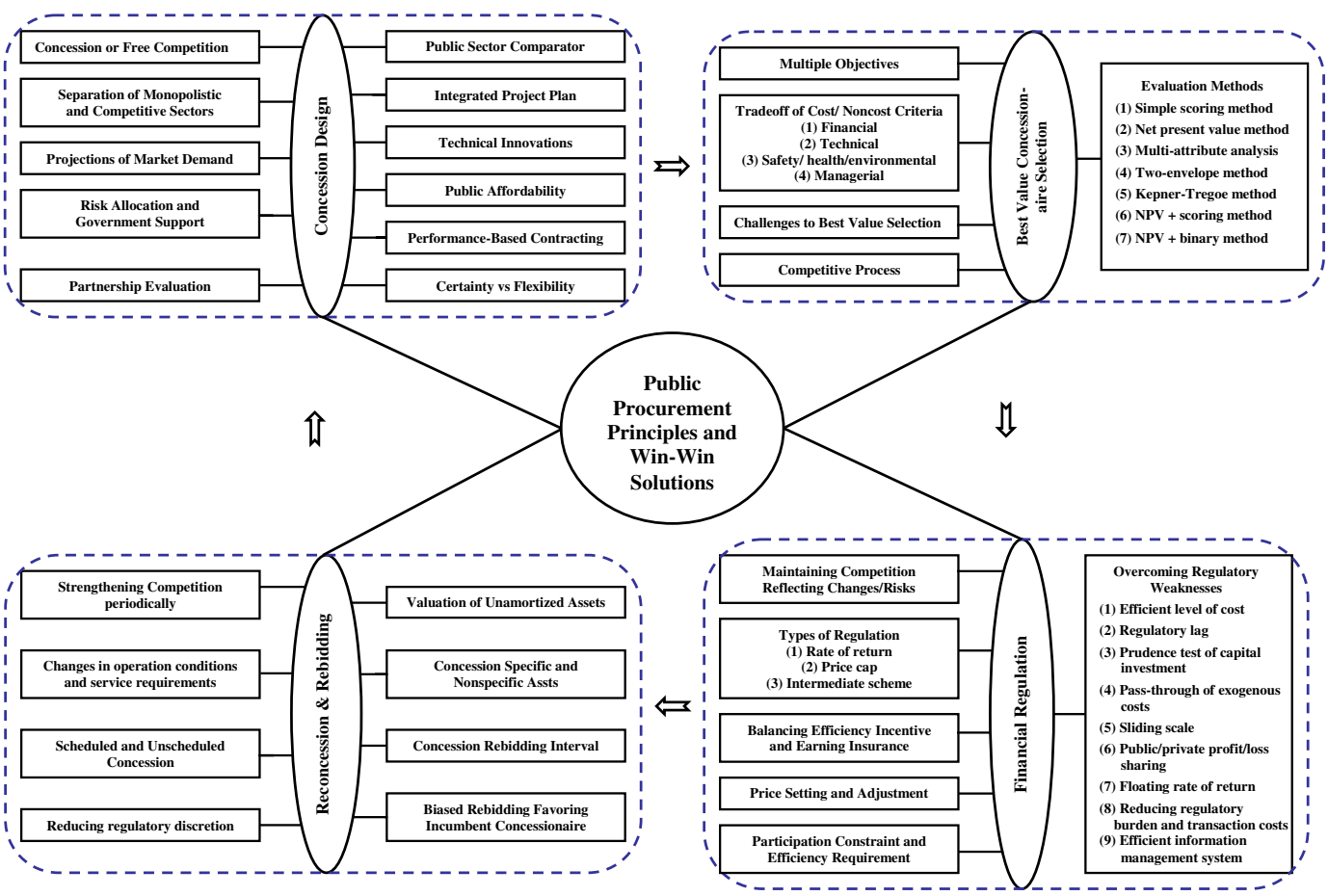

Fig. 1. Four-stage systematic framework for PPPs in infrastructure development.