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## Toward effective multi-sector partnership: A case of municipal solid waste management service provision in Bangkok, Thailand

Pitchayanin Sukholthaman <sup>a, b, \*</sup>, Kunio Shirahada <sup>b</sup>, Alice Sharp <sup>c</sup>

<sup>a</sup> School of Management Technology, Sirindhorn International Institute of Technology, Thammasat University, Bangkok Campus, Pathum Thani 12000, Thailand

<sup>b</sup> School of Knowledge Science, Japan Advanced Institute of Science and Technology, 1-1 Asahidai, Nomi City, Ishikawa 923-1211, Japan

<sup>c</sup> School of Bio-Chemical Engineering and Technology, Sirindhorn International Institute of Technology, Thammasat University, Rangsit Campus, Pathum Thani 12121, Thailand

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### ABSTRACT

An increasing amount of municipal solid waste needs an effective waste management system to provide reliable service, but in reality this has failed to respond to the demand. Partnership is considered as a potential solution that can increase waste management service performance. A public-private-community partnership was studied as a potential way to alleviate the impacts of ineffective waste management. Based on the tripartite service concept, the roles and relationships between service providers and service recipients were identified by incorporating analyzed results obtained from questionnaires, interviews, and site visits. Bangkok was selected as a representative urban city in a developing country that has experienced problems caused by ineffective waste management. The results showed that 87.2 percent of respondents thought that everyone should be responsible for and be part of waste management. A public-private-community partnership was a vital factor in a successful waste management system and also had high possibility to be implemented. In the partnership, essential roles were identified for each stakeholder sector including service recipients, intermediaries, and service providers. Based on the tripartite service concept, a modified conceptual model was proposed.

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### Introduction

The increasing generation of municipal solid waste (MSW) is one of the serious problems particularly for urban areas in developing countries. It has become problematic as its level of seriousness is driven by the high growth of population, urbanization, and economic development (Afroz, 2011). The effectiveness of providing a municipal

solid waste management (MSWM) service is an essential factor making cities sustainably livable and far removed from the consequences of MSW problems (UN-HABITAT, 2010). MSWM is a basic service that should be effectively provided to everyone to reach quality of life (Ahmed & Ali, 2004). Like other urban cities, Bangkok—the most populous and also capital city of Thailand—was selected as a case study representing problems caused by the ineffective provision of MSWM service.

MSWM is dynamic along its process and involves multi-sector stakeholders in the system. This study adopted the tripartite service concept by emphasizing the collaboration

\* Corresponding author.

E-mail address: [psnunu@gmail.com](mailto:psnunu@gmail.com) (P. Sukholthaman).

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of service providers and service recipients to improve the values of the ecosystem (Shirahada & Fisk, 2011). The study incorporated the concept of tripartite collaboration in a form of partnership to improve the ineffective situation of Bangkok MSWM.

The public-private partnership has increasingly been applied in MSWM service provision in urban areas to improve ineffective situations. This study involved related stakeholders from both the private and public sectors. Therefore, the objectives of this study were: 1) to show how a public-private-community partnership (PPCP) can improve ineffective MSWM and 2) to identify the roles and relationships of stakeholders who are essential in making MSWM effective.

## Literature Review

### Overview of MSWM

Provision of MSWM service does not go at the same pace as the increasing amount of waste generated. Many cities in the developing world cannot meet the need of MSWM although investing a large proportion of their budget on MSWM. The World Bank (2011) reports that urban cities in the developing world spend more than half of their allocated budget on MSWM; yet still the service coverage is less than 50 percent of total area. As a result of ineffective MSWM, risks to public health, societal well-being, and adverse impacts on the environment are likely increasing in these urban cities. It is, therefore, imperative to find a potential MSWM service provision regime that keeps cities livable and increases the quality of life of the residents.

### Context of Bangkok MSWM

In Thailand, MSW includes waste generated from community activities, from residential households, commercial and business establishments, fresh markets, institutional facilities, and construction and demolition activities, but excludes industrial waste. Bangkok has the largest amount of waste in Thailand, in terms of population quantity and density; there are more than 300,000 t of MSW generated monthly (DOE, 2014). The Bangkok Metropolitan Administration (BMA) and 50 district offices are responsible for city management and the well-being of residents. A kerbside collection service is provided by collecting waste from receptacles in front of houses, buildings, or designated public locations on specific dates and at designated times. The collected waste is transferred to three waste transfer stations located on Bangkok's provincial border. Then, it is transported to two landfill sites in two nearby provinces (BMA, 2014).

The MSWM service is provided to most areas of the city. However, the effectiveness of the provided service levels is unequal. An inefficient management process has caused a large amount of incurred costs. Consequently, the BMA has to use budget allocated for other development projects for MSWM (DOE, 2014). Inefficient MSWM is caused by many reasons along the management process chain. For example, the time taken in the MSW transportation process is longer

than planned because of traffic congestion. In some cases, waste collection staff spend time segregating and gathering recyclable or valuable waste for sale as another source of income.

To provide an effective MSWM service for sustainable MSWM, strong collaboration of the stakeholders is imperative. Emphasizing the potential of a public-private partnership, the community has become more important in terms of its potential performance in MSWM.

### Public-Private-Community Partnership (PPCP) and Tripartite Service Concept

Partnership has become a potential MSWM alternative to the traditional service provision made by the government. The private and public sectors are partnered to develop a plan, co-create value, and share responsibility in providing the MSWM service. Developing countries in Asia and Africa have successfully applied a partnership model in MSWM service provision (Massoud, Fadel, & Malak, 2003; Rathi, 2006; The World Bank, 2011).

PPCP is a collaboration of the related stakeholders in the MSWM processes ranging from MSW generation at source, collection, transportation, treatment and disposal, and also monitoring and mitigation. Those stakeholders are residents, communities, NGOs, private organizations, and government authorities. In other words, entities from public, private, and community sectors contribute to the efficiency and effectiveness of MSWM. In this study, participation encourages residents to participate in goal and policy setting and also to be active in MSWM activities, such as proper source separation and waste disposal. In other words, residents are stimulated to contribute in a PPCP principally by practical means.

The tripartite service concept consists of three inseparable elements: service providers, service recipients, and the ecosystem. The concept aims to enhance collaboration by engaging providers and recipients in mutual value creation without decreasing the quality of future generations' values. For the last element, service providers collaborate with recipients to improve the values of the ecosystem by creating a "voice for nature" in the service process. The ecosystem in this context means resource integrators among participants, who are service providers and recipients. In the value co-creation service process, the ecosystem joins the process through interactions between human and natural capital (Shirahada & Fisk, 2011, 2014).

## Methodology

### Data Collection

Primary data were acquired from three groups of people 1) questionnaire to residents; 2) conducting expert interviews; and 3) conducting site visits to frontline MSWM staff, scavengers, and local people at one landfill site and three waste transfer stations. The study site was in the Jatujak district of Bangkok. The study site selection was based on a number of criteria, including waste generation quantity, the population, number of households, and total land area (Bangkok Statistics Report, 2013).

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