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UNDERSTANDING URBAN GOVERNANCE IN THE CONTEXT OF PUBLIC-PRIVATE PARTNERSHIPS: A Case Study of Solid- Waste Management in *Rayong Municipality*, Thailand

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Abstract: Local government practices in Thailand have become more networking or governance-oriented since the promulgation of the Constitution of 1997 and the Decentralization Plan and Process Act of 1999. Several local governments have applied modern concepts of New Public Management (NPM) in order to perform their tasks. Public-Private Partnership is, therefore, regarded as a mode of governance for the sake of successful public service delivery. This article aims to describe and analyze local governance in political economy perspective. The case study of Rayong Municipality is selected to present the factors that drove the emergence of public-private partnership and how local government coalitions cooperate in public service delivery, especially the case of solid-waste management. The waste problem in Rayong Municipality had risen considerably due to the rapid increase in population, a trend that may continue in the future. The causes of the problem are many; lack of proper disposal units, limited budget, personnel and landfill areas. This problem has a negative impact on the quality of life in the municipality and therefore this is best dealt with collectively. The project that has been implemented is the waste recycling scheme, garbage banking in schools and communities. The Waste-to-Fertiliser and Energy project makes the Integrated Waste Management Approach complete with the cooperation from other government agencies and NGOs and the involvement of the private sector as PPP.

Keywords: *Governance, Public-Private-Partnerships, Thailand*

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Introduction

Rapid economic growth and the absence of a balanced development strategy in Thailand has resulted in a marked disparity between urban and rural areas, as well as giving rise to the primacy of a few major urban centres as economic action zones. The urbanization process enables most urban cities the opportunity to tackle the problem of public service delivery as, in keeping with the concept of subsidiarity, local government is best placed due to its proximity to local communities to manage and deliver urban services. However, due to issues of cost containment and resource depletion (and some would say technocratic capacity), the delivery of public services necessitates cooperation between governmental agencies and other non governmental organizations drawn from the private and third sectors (e.g. voluntary or charity organizations). Within these evolving structures of local governance, it is increasingly argued by urban theorists that business groups play a crucial role in contributing to the coordination of local government service delivery aimed at improving local socio-economic conditions. As Stoker and Mossberger (1994: 196) note

It is clear that the need for some form of public-private cooperation exists in all advanced capitalist societies. Growing competition between cities for investment, and the role of business interests in local decision-making have increasingly shaped the urban terrain.

This article is, therefore, aimed at describing and analyzing local governance in political economy perspective. It tries to identify and describe some phenomenon of cooperation in Thai local governance that has occurred during the recent decentralization movement since 1999. In particular, it aims to investigate the proposition that local governance in Thailand has substantial capacities to utilize 'local government coalitions' concept from Urban Regime Theory. The case study will focus mainly on the application of public-private partnership as a mode of governance that helps local governments achieve their tasks in public service delivery more effectively and efficiently. The article is organized into four sections. In the first section, the theoretical and methodological issues are explained. The second section describes the background of Rayong city in terms of socio-economic development, municipal administration and business sector. The third section illustrates the case of solid waste management from using a Community-Based Development Approach to applying an Integrated Waste Management Approach. The paper concludes with a discussion of the implications of the case study for our understanding of the emergence of Public-Private Partnerships (PPP) as a mode of governance for the sake of successful public service delivery.

1. *A National Conversation*

From Urban Regime Theory to Public-Private Partnerships (PPP)

Urban regime theory centres on the role or importance of local governing coalitions in shaping patterns of urban development. Those 'governing coalitions' identify the partnerships between public and private institutions through which power in the city is exercised (Elkin, 1987). Urban regime theory highlights relations and arrangements of both parties cooperating to achieve urban policy goals. Since the New Public Management (NPM) trend has caused a shifting role of government to 'governance' in most advanced capitalist countries, this new form of governance occurs through 'multi-layered', 'self-organizing', 'inter-organizational' networks (Rhodes, 1996). Because of its emphasis on the way governmental and non-governmental actors work across boundaries, urban regime theory seems to be compatible with explaining the relationships and behavior in urban governance of all neo-liberal democratic societies. As urban regime theory shares the common ground with 'neo-pluralists' – neither ignore the open-ended competitive bargaining characteristic of some pluralist visions of politics nor reject the single focus of direction and control –, the account's strength points to a middle path mode of a coordinating network which is significantly needed in the 'New Governance'.

While the public institutions of the state were the main decision actors under old government, new governance actors include public, private, and voluntary sectors. As Osborne and Gaebler (1992: 24) observe, governance is essentially about "the process by which we collectively solve our problems and meet our society's need, government is the instrument we use". Within this process, the role of government itself has changed from 'rowing' to 'steering' (ibid) or 'enabling' rather than 'providing' (Clarke and Stewart, 1988; Brooke, 1989). Therefore, to meet public service needs, the public sector should reduce the role of command and control bureaucracy. It should facilitate and coordinate public projects with the private and third sectors. In fact, local governance paves the way for public and private actors or institutions to coalesce in response to a particular urban issue. These complex frameworks of governing drawn from the public and private sectors are called 'regimes' and they constitute a new mode of governance. Hence, if we want to study the process of local government-business partnership in urban arrangements, urban regime theory is the appropriate grounded theory for understanding public-private partnerships as one of several new modes of local governance.

Why Public-Private Partnerships (PPP) have emerged

The principle issue being studied is whether Public-Private Partnerships (PPP) in an urban area can emerge to provide better public service delivery. PPPs have become a useful instrument for enhancing the capability of political institutions, primarily at the local government level (Pierre, 1998). Such partnerships could be seen as an

interdependence of political and private resources. This is because cities find themselves lacking the financial resources to fund important projects mostly in economic development. In the UK 'PPP' is 'a cornerstone of the developing *stakeholder society*' and 'an essential tool to implement significant social policies, such as the regeneration of urban areas' (Falconer and Ross 1998, cited in Osborne, S. P., 2000: 1). In Thailand, although the concept of PPP has been concretely used for improving public service delivery since the 1970s, the implementation is applied with limitation to only national level, particularly in Bangkok Metropolitan. Local government practices in Thailand had long been known for having a centralized system of administration. However, rapid urbanization brought about major changes in local government including the provision of public services on a large scale and the formation of political machines. There were basically three main changes in the political economy that made Public-Private Partnerships possible in Thai local governance.

The first was the move of local government into public service provision, a move that had begun in 1933. Before 1933, Thailand still had no local administration system, so all public services in the local area were provided by regional government which obtained command from the central government. When local administration was officially organized in the form of sanitary (*Sukhapiban*) in 1933, local governments began to provide police and fire services, regulate local road construction and monitor street cleaning and garbage collection. To finance such activities, local governments had to depend mostly on budget allocated from central government. But when there were increasing numbers of local authorities, central government developed revenue streams from four major sources, (1) locally collected revenues (taxes, fees, charges, permits, fines, etc.), (2) local revenues collected by central government agencies (VAT, excises, vehicle, land registration, and etc.), (3) revenue sharing, and (4) grants. Of these, grants and local taxes collected by central agencies constitute more than 70%, while locally collected portion is 11-12%. Apart from taxes, local authorities were allowed to have revenues from other sources such as returns on local properties and investments. Because property values and thus the size of the tax base were dependent on the desirability of the city as a place to live and invest, the ability of local governments to offer services and to gain citizen support became linked to economic growth. Therefore, as local elites were being interested into political and economic categories, they were also being drawn back together.

Second, with the expansion of the scope and scale of government, political leadership became more time-consuming. Full-time politicians then appeared from local business elites. This is because most influential actors in local community are wealthy merchants and businessmen. They are well-known among local residents and always have leadership charisma. These people need to have power to supplement and protect their own business interests. Local business elites, thus, competed for elective office and served in government as a career. Nevertheless, although the ability to manage

the city becomes an important factor in local elections, local elites who have more influence are likely to win as patronage system still dominates Thai political culture.

Finally, with the rise of urbanization process, problems in local governance have become deeper and more complex. This coincides with more burdens and responsibilities tied according to decentralization policy. Wider economic and labour market changes have helped mobilize local public and private sectors into actions which have occurred independently of government's direct and indirect prompting. Local authorities have simply had to react to changing economic circumstances and the knock-on effects they have had on local labour markets and the demand for public services. However, due to resource deficiency, local government has encouraged the business community to become more involved in programmes of economic and social development.

Local government practices in Thailand have become more networking or governance-oriented since the promulgation of the Constitution of 1997 and the Decentralization Plan and Process Act of 1999. According to the Decentralization Plan and Process Act of 1999, Thai government has to devolve some authorities, core functions, and budget to local government units nationwide by the year 2010¹. This new obligation makes local governments more responsible and accountable for providing public services. In fact, most of local governments encounter various difficulties from both local complex problems and new derived responsibilities. While some need cooperation from other local government units and non-governmental agencies, the majority of them are still conservative – only handling their tasks with their own limited resources.

Even though there used to be a form of cooperation so-called 'Sa Ha Garn' or 'Cooperative Agent' identified in the Municipality Act of 1933, such cooperation never happens in Thailand thus far. However, after the promulgation of Royal Thai Constitution of 1997, the Decentralization Plan and Process Act of 1999 has expanded the opportunities of all kinds of Thai local government units to cooperate with one another. At present, there is little formal cooperation between local government units in Thailand

Methodology and Case study selection

This case study research necessitates the use of two principal types of data collection methods: in-depth elite interview and document analysis. Information on the city's socio-economic conditions and municipal profile, as well as its waste problems were obtained from annual municipal reports and five-year municipal development plans. Additional data were collected from multi-media sources including electronic media, newspapers, journals and websites. In-depth interviews involved the current and former

¹ The Decentralization Plan and Process of A.D. 2000 (B.C.2543). Royal Gazette 118 Special Section 4 (17 January 2001).

mayors, the deputy mayors, councillors, the municipal clerk, key municipal officers dealing with the waste issue, and some businessmen in the Chamber of Commerce Board.

This study selected solid waste issue as a case study for three reasons. First, rapid expansion of urban population and city-based economic activity makes the magnitude of solid wastes a major urban environmental problem facing most cities in Thailand. Of the total 38,170 tons per day of solid waste generation in 2000, municipal areas in Thailand produce about 11,785 tons per day and only 7 % of solid wastes are disposed of in an acceptable method of sanitary landfill (Pollution Control Department, 2003). Second, garbage collection and disposal is one of the most important services of municipal governments in Thailand. Unlike other environmental problems, including traffic regulation in municipal areas, where various governmental agencies share responsibilities, the collection and disposal of solid waste are the responsibility almost solely of municipal governments. The Municipal Government Act of 1953 mandates, as one of municipal government's primary functions, the keeping of roads, sidewalks and public places clean, including the collection and disposal of refuse. Thus, investigation of the solid-waste issue as the central governmental problem should reduce the complexity of a comparative analysis, as the role of the central government and other government agencies is limited. Finally, it is said that the solid-waste issue has been the only public service of municipal governments that provides the emergence of Public-Private Partnerships in Thailand (see table 1). This is because the cost for municipal solid waste (MSW) management is very high in terms of facility construction. Also, solid waste problem is critical issue to people's health; therefore, in order to be highly effective, it is necessary to seek technical assistance for standards of solid waste operation from private sectors.

In the past, Thailand's general solid waste management strategy had focused on bulk collection and mass disposal. In 2000, the Thai government tried to implement an "integrated waste management system" that would include waste sorting, composting and incineration. In response to growing amounts of waste, the Thai government set up national policy to 1) improve solid waste disposal and processing procedures which may be achieved through privatization of waste eliminating works 2) support and encourage proper solid waste separation 3) encourage recycling and reuse and 4) support local government to increase capacities for waste management.

Table 1: Examples of Private Sector Participation in Solid Waste Management

Local cities/ Municipalities	Roles of Private Sector
Lampang	Collection and disposal of waste
Chiang Mai	Collection of waste
Phuket	Collection of 50% of waste Service fee collection Incinerator operation
Pattaya	Collection and transfer of waste
Bangkok Metropolitan	Transfer and disposal of waste

Source: Municipal Benchmarking Study, The Thailand Environment Monitor, 2003.

Rayong Municipality is chosen to be a site for case study because it is the first city in Thailand where a pilot plant of Waste-to-Fertilizer and Energy project was established and where the integrated waste management approach has been applied. Because the city of Rayong is the centre of industry and tourism in the Eastern Seaboard Zone, most of its land is utilised for industrial development. Although many industrial factories are located outside municipal area, most of the workforce who migrates to work there resides in the municipal area, leading to high demand for land for residential development. The land of municipal area that is currently utilized for commercial and residential development counts 63 per cent of total municipal area. The registered population of Rayong municipal area in 2006 was 55,093. However, there are, in fact, approximately 50,000 latent populations added up by new immigrants. With its high rate of growth, the city is faced with challenges of natural resource depletion, pollution and high volume of waste production. To combat these issues, the local government initially adopted a Community-Based Management Approach to solid waste management. In line with the renewable energy policy of national government, Rayong Municipality has been identified as a demonstration model for integrated municipal solid waste management by demonstrating high community participation and initiative, policy empowerment, political will, leadership and support from the government agencies and NGOs and private sector involvement (Rayong city municipality, Technical Services and Planning Division, 2006).

2. City Profile

Social and Economic Development

According to the Fifth National Economic and Social Development plan (1982-1986), the Thai government had a continued plan to balance regional development of regional growth centres or 'secondary city' projects initiated by the fourth plan. This plan was

about the implementation of the 'new economic zone' on the Eastern Seaboard in order to encourage the development of new industrial sites for basic industry. In line with this, mass emigration of labour from the North-eastern region provided the major workforce in the industrial sector of Rayong city. The impact of rapid economic growth of Rayong city makes the residents have a mixed lifestyle – between rural life and urban life. In suburban areas such as 'Koh Kloy' community, part of 'Poon Chai' community, and part of 'Kon Puek' community, which has a low population density, the current resident's lifestyle has changed from an agricultural based economic society to a commercial and service based economic society. Their main economy involves to rental-residence business and retail-shops to facilitate immigrant labour. However, there are a few residents who still participate in agricultural occupation by running orchards, vegetable gardens and cattle farms. In the near future, it is likely that there will be a massive change of land use from agriculture to housing business, which will ultimately cause environmental problems. For example, a water - drainage problem might occur when there is heavy rainfall since the former swamp areas or ponds are simply filled and adjusted for housing purposes (Rayong city municipality, Registrar Office, 2007).

As far as the urban area which is regarded as a centre of the local economy is concerned, the downtown business of Rayong city is comprised of two areas: along both sides of Sukhumvit road and nearby; and along 'Aree-Rart' and 'Samut Kong Ka' roads. The first area – along both sides of Sukhumvit road and nearby – lie the shopping plaza, transportation hub, banks and financial institutions, hotels and entertainment complex. This area has a very high population density and it is likely to have more population growth in the future. In addition, the periphery of this downtown business area is the residential area of latent population who have emigrated from other provinces. The majority of this group have careers as factory employees and street-vendors of seafood products such as shrimp paste, fish sauce, dried seafood, and tropical fruits, of which rambutan, mangosteen and durian are the most famous. The reason why this group of latent population chooses to stay in the periphery of the city is due to the proximity of their houses to workplaces and the convenience for daily commuting to work. It is also noted that these immigrant residents mostly have ties of kinship among their group or their neighbours from their hometown, persuading them to work together. At present, the number of the latent population is nearly the same as the local residents of Rayong city. Therefore, it is said that the group of latent population play an important role in driving local economy of Rayong city. They can also adapt and assimilate themselves to the new culture and local environment very well (ibid).

Another area of downtown business centre lies along 'Aree-Rart' and 'Samut Kong Ka' roads. This area is a crucial centre of the local fishery's economic society and fishing industry, which have been the main sources of local revenues from the past till the present. There are several communities in this area whose residents hold fishery occupations i.e. 'Phra Samut Jedi', 'Pak Naam', 'Sam Rit', 'Ban Pak Klong', 'Kon Puek', and 'Laem Rung Ruang'. Overall, there are 3 piers, 30 fish sauce factories, and 4 frozen food companies. There are at least 1,500 households which either run their own

small scale fishing businesses or have become employees in the fishing industry. In line with being a big area for fishery commerce, this area is the base for the accommodation zone of considerable numbers of fishery migrant workers from neighbouring countries such as Myanmar and Cambodia. These migrant workers are both legal and illegal. The illegal migrant workers have a direct impact on local resident employment. This is to say that the illegal migrant workers always have such low wages that local employees' wages are depressed which is very unfair for them. Apart from the centre of fishery commerce, this area along 'Aree-Rart' and 'Samut Kong Ka' roads boasts indispensable sea-life resources such as excellent seafood restaurants and seaside recreation parks. This service sector, therefore, represents one of the main local economic activities of Rayong city (ibid).

Rayong Municipality Administration

At present, the municipal territory is 16.95 square kilometres, and covers 4 sub-districts in *Muang* District. There are twenty-five sub-communities in the Rayong municipal area (Rayong City Municipality, the Technical Services and Planning Division, 2006). The decision-making body consists of the Municipal Council and the Municipal Executive Board (MEB). From 1975 to 1995, the municipal council contained no opposition members: all 18 councillors belonged to one political group, the "Old" group (*Klum Kao*)². As a result, the municipal council was passive in municipal decision-making. In the 1995 municipal election, Rayong municipal council changed dramatically as the Loog Rayong group was able to win the majority of the 24 council seats. Municipal politics in Rayong city seemed more competitive and the municipal meeting's atmosphere was more active as well. Then, there was a modification of the municipal councillors and the mayor election Act in 2003. The present mayor, Worawit Suppachokchai, has governed Rayong city municipality since 2004. He was first elected as a municipal councillor, and then appointed as a deputy mayor for two terms during 1995 – 2003 under the leadership of ex-mayor, Mr. Surapong Phoothanapibul. In the municipal election of 2004, Worawit applied for the position of the mayor under the Loog Rayong group, competing with the ex-mayor Surapong's team (he had quit the Loog Rayong group and formed a new group named "Rayong Kao Naa"). It turned out to be that the "Loog Rayong" group of Worawit dominated the municipal council, winning 23 of 24 seats in the 2004 election. During Loog Rayong's overwhelming majority (2004-2007), the municipal council was inactive, having few discussions. If there were any, such as, for instance, deliberation on the budget or on major public works projects, they were rather short, often lasting no longer than 30 minutes (Informant 1, 14 November 2007). It seemed that the single municipal councillor from the opposition played no role in the debate and finally became assimilated.

² It is known as the "Old" group because it has been in municipal power for a long time.

However, in the latest municipal election of 2008, Surapong's "Rayong Kao Naa" group tried to compete with the Loog Rayong group again. Surapong himself was eventually beaten by Worawit, but his team managed to win 5 seats in the municipal council. Although no threat to the municipal administration of the Loog Rayong group, the five opposition councillors from the Rayong Kao Naa group have stirred the atmosphere of municipal meetings with questions, opinions and critiques³.

Under the leadership of Worawit Suppachokchai, the executive power is, in practice, rather fragmented, since the mayor delegates full authority to his deputy mayors to conduct affairs in their assigned areas: the finance division, the planning and academic division, the education division, the social welfare division, the sanitation and environment division and the technical service division. The responsibility of the mayor, according to one of his former deputy mayors, was mainly to provide direction and guidance and to coordinate with higher authorities (Informant 2, 14 November 2007). This could be interpreted positively as a decentralized leadership style. Despite this decentralized leadership style, Worawit had no problem in achieving both horizontal coordination among divisions and unity of command. For his first term as mayor, there was no reshuffling of deputy mayors and the municipal clerk. All deputy mayors remained in office for the full four-year term and most of them still continue in the same position for the second term of Worawit's mayorship.

Business Sector

The Rayong Chamber of Commerce (RCC) is considered the leading business organization in Rayong. The RCC generally has some political influence with the municipal government on socio-economic development policy recommendations. The executives of Rayong city municipality always invite some delegates from the RCC to the municipal meeting when the annual policy formulation is set, but the RCC executives never interfere with municipal budget planning. In addition, the RCC has a major role as a main organizer in cooperation with municipal events such as the Loy Krathong festival and the Rayong Red Cross Charity.

"Business elites always play an important role in suggesting the development plan of the municipality. As most of them are merchants and businessmen, they know very well about the city's economy and want the city's economy to grow with sustainable development. Some of the key members in the RCC take part in the meeting when the municipality has already approved the budget. We will only recommend and comment about the projects that are going to be launched. We never interfere with any numbers in the budget" (Informant 3, 15 November 2007).

³ I observed the general session of the municipal council meeting on 26 February 2009, which mostly dealt with annual reviews and comments on municipal executives' administration for the past year.

The above data demonstrates that the RCC is a knowledgeable private organization which the municipality can rely on and always asks for advice in local economic development. From the interview, it seems that the RCC has no conflict of interests with the municipality as both sides only do their jobs according to their formal positions. For businessmen in the RCC, there is no observable evidence of their interference in the municipality's budget process. For the municipality, the current mayor, Worawit Suppachokchai, strongly supports the concept of Public-Private Partnerships (PPP). As one of the informants said:

“The municipality tries to put very much effort into taking good care of the private sector and facilitating the process of their investments. This is because the local public sector needs to collect taxes from the private sector as the main revenues for municipal development. Although nowadays negotiation between the public sector and the private sector is more informal – mostly through personal talks or phone calls – these actions have to be followed by formal written contracts and must be legal at every step” (Informant 4, 15 November 2007).

At present, there are a considerable number of PPP schemes in different kinds of municipal policies. Most of the public infrastructure projects, such as road and bridge construction, public electricity maintenance, are operated on the contract-out pattern. Public cleaning services are contracted out as well. Even in the education policy area, there is also a contract-out for English language teachers for five municipal schools. In addition, the tap water service, which used to be operated by the municipality in the past, is currently managed by the private sector in the form of privatization. The water management issue was a cabinet resolution in the last ten years. As the rapid expansion of the number of industrial factories in the Eastern region (in accordance with the National Economic and Social Development Plan) occurred, there was a lack of tap water for both households and industrial factories in most cities of the Eastern region in that period. So, the central government did not think that the municipality could operate under that severe pressure. Another municipal policy area that uses the form of PPP is solid waste management. This issue is the most popular pilot study for other local government units in Thailand which is explored in more detail in the next section.

3. Solid Waste Management in Rayong Municipality

From Community-based Development to Public-Private Partnerships (PPP)

The role of urban local government is fundamental to the question of sustainability (Hardoy, Mitlin and Satterthwaite, 1992; Chowdhury and Furedy, 1994: 20). It is argued by Hardoy, Mitlin and Satterthwaite, for example, that the severity of environmental problems in Third World cities reflects government failure to provide services. Moreover, the competence of a representative municipal government is crucial to good environmental quality. Municipal government in Thailand has a major role in urban

environmental management, since it is in charge of urban services, such as land use controls, waste-water treatment and waste collection and disposal, which have a direct impact on the city environment.

At present, the quantity of waste generated daily in Rayong city is 80 tons. The municipal government is well-equipped with a troop of 20 waste-collection crews and 218 street and public space sweepers and 20 trucks operating daily, mainly on a door-to-door basis. Like most municipalities in Thailand, the Rayong city municipality provides waste collection and disposal services but charges low fees. While Rayong city municipality spent 37 million Baht, its annual income from waste service fees was only 0.7 million Baht (Rayong Municipal Finance Division, 2007). The service fee was only 5 Baht per household per month and collection of fees was done door-to-door by collectors from the municipality's finance department. The reason why the service fee cannot be increased is due to political interests. As one informant said:

“Municipal Administration has a very high cost of investment in waste collection and disposal services. It is impossible to make a profit from service fees since waste management is a kind of public service for which the service fee is not supposed to be too high. In addition, the authority to set this service fee in the Municipal Law is in the hands of local politicians, who are in the position of Municipal Executive. So, they do not want to lose their popularity and votes in the next election if the service fee is raised.” (Informant 5, 15 November 2007).

Phase I: Community-based Waste Management: waste sorting, recycling and reuse

Rayong Municipality has had a problem in solid-waste management for a decade. Over time, unsanitary disposal practices, such as open dumping and burning, have affected the quality of life and the environment in the municipality thereby making people cautious of government agencies' waste management. Therefore, in 1999, Rayong Municipality started the Waste Management Project with participation from other development parties, such as General Chartchai Chunnawan Foundation, Development of Environment and Energy Foundation, and the National Energy Policy Office. The project was initiated under the concept of community-based management and was steered by the ex-mayor, Suraphong Phoo-Thanaphiboon. Ad-hoc teams for the Environment were set up from volunteering – a total of 20 people – without being paid. These teams have a mission to coordinate between the public sector (municipal government) and local residents and to facilitate community activities created by the Municipality. They were given the task of building and strengthening the network to preserve environmental quality in their respective communities. There are many activities that have been initiated to promote and persuade the people to participate in collecting waste, for example: to separate the reusable and recyclable waste from home and join in Trading Recycled Waste to Eggs Activity – later known as 'Garbage for Eggs' (GFE) – and School Waste Bank Activity, to collect organic waste and join in

Hydro-Micro-organism Fermenting Activity, which produces "Odourless Waste". The odourless waste can be used as liquid fertilizer to replace chemical fertilizer, and as deodoriser to get rid of a bad odour from restrooms, drainage ditches or refuse dumps.

At first, the project launched a campaign to make local residents realize how important garbage problems are and how to sort garbage and make use of waste. The project was not successful via the campaign as it was not spread to all areas and was not seriously put into practice due to lack of motivation. In light of this, the municipal executives came up with the project "Garbage for Eggs" (GFE) with 25,000 baht supported by the United Nation Environment Programme (UNEP). The GFE⁴ is a recycling project that mobilises residents' cooperation in separating waste and bringing valued recyclables to exchange points. Local residents receive eggs in exchange for their recyclable waste. The municipality gained very good cooperation from local residents in every community from this project. Another successful initial project has been "School Waste Bank", of which Tesaban Wat Pak Naam School is a pilot project. And this project is now supported by every school in the municipal area. It was found that during the first two years of the implementation of these projects the quantity of garbage declined from 88 tons per day in 1998 to 78 tons per day in 2000.

Phase II: Integrated Waste Management: Waste-to-Fertiliser and Energy Project (sorting, anaerobic fermenting, generating electricity from bio-gas, and landfill) administered by the Development of Environment and Energy Foundation (DEE)

Apart from the waste recycling schemes (i.e., trading recyclable waste for eggs and garbage banking in schools and communities), Rayong municipality later launched the production of organic fertiliser from waste and using biogas as an energy source project with cooperation from the Development of Environment and Energy Foundation, the International Council for Local Environmental Initiatives (ICLEI)⁵ and the Cities for

⁴ The GFE concept originated in 1997 in a physically upgraded slum area of Bangkok called 'Choom Chon Pattana 70 Rai', located nearby Klong Toey port. The community is Buddhist and accommodates mostly poor people. At that time the community had tried to solve its flooding problem, which was caused by garbage blocking the drainage canals. The community development committee decided to fight against the littering habit by involving residents in managing their solid-waste problem. The GFE then was created under principles of self-management, fun and multi-purpose objectives. Financial assistance was provided by various NGOs and a government economic crisis rescue fund. The original community team members work not only for their own community, but they also advocate and propagate the scheme to other places, i.e. other districts of Bangkok, the municipalities of Phuket, Ratchaburi, Yala and others including Rayong (Pathumthong, 2000).

⁵ ICLEI – Local Governments for Sustainability (formerly founded as the International Council for Local Environmental Initiatives in 1990) is a global association of over 400 local governments and their associations. It fosters local sustainable actions. The twin goals of these actions are to enable efficient access to services while protecting global common goods such as air, water and climate. ICLEI's offices worldwide provide technical services to local governments to meet these goals.

Climate Protection (CCP) campaign⁶. The ICLEI-CCP in Thailand is administered by the Thailand Environment Institute. The project aims to use biogas as an important source of renewable energy in the future. This is because a research study shows that biogas is composed of 67% Methane, which is sufficient to produce electricity. It is, therefore, estimated that one ton of organic waste can produce approximately 100 m³ of biogas.

Prior to the establishment of the biogas facility there was an intensive advocacy campaign on recycling and sorting garbage at source, starting in December 2001. Rayong municipality then provided 12-litre and 100-litre plastic bins for participating households and business establishments to serve as containers for organic waste. Organic waste would later be sent to the biogas facility for anaerobic digestion. The sorting organic waste activity has operated with the participation of two pilot communities, *Saphanrat* and *Samrit*, since May 2002. The feedback result surveyed by the Development of Environment and Energy Foundation shows that 40 per cent of local residents from 1,346 households in both communities participated in the project. It was possible to accumulate about 700 kilograms of organic waste per day, which accounts for 58 per cent of the total waste in both communities. The follow-up action by interviews demonstrates that local residents were very pleased to participate as they were able to benefit from community cleanliness and odourless garbage bins. This was as a result of organic waste being sorted and utilised daily. However, from the project evaluation comments, the Development of Environment and Energy Foundation recommended that, when applying this project to all communities, Rayong municipality seek private partnerships to operate waste collection. This is because the municipality has had a problem of time limitation in the waste collection.

Rayong Municipality's biogas project is in line with Thailand's goal of increasing the use of renewable energy from 0.5% to 8% by 2011. The total cost of the project was US\$ 4.5 million. The municipality allocated US\$ 875,000 for land procurement and received a US\$ 3.6 million grant from Thailand's Energy Policy and Plan Office. Rayong municipality signed a Memorandum of Agreement with ICLEI in October 2002 for technical services support in the construction of Rayong Municipality Waste-to-Fertiliser and Energy Plant. The "Waste-to-Fertiliser and Energy Plant" was built by Rayong Municipality to process about 26,000 tons of municipal solid waste (MSW) per year. It is expected to produce 5,100 MWh of electricity yearly, as well as organic fertiliser for the next 20 years. This plant is the first of its kind to be implemented in ASEAN. The biogas plant consists of a pre-treatment plant, an anaerobic digester and a 625 KW gas cogeneration set. The plant was engineered and supplied by STFE Co.

⁶ The Cities for Climate Protection (CCP) campaign was launched in 1993. It has enlisted more than 600 local governments worldwide. Campaign participants adopt policies and implement measures that improve air quality, cut public expenditures, improve access to services, and enhance the quality of life of communities while reducing greenhouse gas emission locally.

Ltd⁷. The main equipment suppliers were GE Jenbacher (Austria) and MK Protech (Finland). The expected payback period is nine years after commissioning. The heat and electricity produced from the biogas will be used for internal consumption. The surplus electricity will be sold to the Provincial Electricity Authority (PEA) (www.cogen3.net).

It is interesting to note that the Waste-to-Fertiliser and Energy project provides a modern technology for local organisation to demonstrate the proper and efficient use of waste management facilities. The success of this project is achieved through community willingness along with the support and cooperation from NGOs and government agencies as Mr. Worawit Supachokchai, the current mayor, gave his viewpoint during one seminar in 2004 when he had just become the new mayor of Rayong (www.cogen3.net). He said:

“The development of Rayong Municipality Waste-to-Fertiliser and Energy project is seen as one of the major milestones toward applying state-of-the-art technology to convert waste into useful and environmentally friendly energy. The plant is designed with the concept to reduce municipality organic waste, minimize the landfill area, and reduce the greenhouse gas effect.”

Mr. Worawit added:

“This pilot plant is one of its kind in Thailand to demonstrate the combination of technologies for solving and managing municipality waste for the city. The plant takes care of non-organic waste and selected recycled materials and other rejects to landfill. For the organic waste, the technology selected is HLAD (High Organic Loading Anaerobic Digestion), which produces biogas and humus for use in soil improvement and can further be turned into organic fertiliser. The high efficiency of the HLAD and integrated biogas cogeneration system should give rise to a new era of municipality solid waste management. In addition, the cooperation with the COGEN 38 team and European suppliers has been very fruitful. They provided very good advice throughout the project.”

⁷ STFE Co. Ltd comprises multidiscipline services, specializing in the field of electrical and mechanical as much as turnkey work for power generation project. The company started off as an off-shoot / a development of the already established Sri U-Thong Co. Ltd. (SUT) and later developed into an international joint venture company with Fortum Service Ltd. of Finland. The areas of technical service provided include engineering designs and construction for power and cogeneration plants.

⁸ The EC-ASEAN COGEN Programme Phase III is financed by the European Commission. It is coordinated in ASEAN by the Asian Institute of Technology (AIT), Bangkok, Thailand and in Europe by Carl Bro International, Sweden. COGEN 3 started its operation in January 2002 and continued until December 2004. The objective of COGEN 3 is to promote the use of cogeneration using biomass, coal or gas as fuel. This is achieved through partnerships between ASEAN industries and European suppliers.

The Mayor also emphasized:

“In order to reduce the plant operation cost, we need to encourage people to participate in organic waste sorting in their homes.”

The Rayong Waste-to-Fertiliser and Energy Plant uses municipal solid waste (MSW), food-vegetable and fruit waste (FVFW), and night soil waste (NSW) as waste materials. The plant can manage and handle a maximum of 70 tons per day. The biogas is fed into a gas cogeneration set to produce electricity for internal consumption. The electricity surplus will be sold to PEA. Fertiliser or humus is expected to give full benefit to farmers and orchard growers. Other recycled materials, which have been sorted and separated will be sold and generate additional income (ibid.).

When the construction of the Rayong Waste-to-Fertiliser and Energy Plant was finished, the biogas facility started its operation in June 2004. In an earlier period, the Development of Environment and Energy Foundation had been in charge of the plant's operational administration from June 2004 until September 2005. During the 16 months of its administration, the DEE foundation generated good income for Rayong Municipality from selling the electricity produced. The fertiliser had been distributed to orchard growers for their business at a reasonable price. However, there were some factors affecting both the quality and quantity of biogas and organic fertiliser such as the types of organic waste and the intensity of organic waste which passed through the anaerobic digestion process. The problem was that the available machines could not digest all kinds of organic waste of the fibre kind. This resulted in a problem of blocked pipes, which were fixed frequently and made the expenditure per ton higher than the break-even point. This issue could not persuade the private sector to sign a contract for administration. In addition, as this plant is the first kind of pilot project in Thailand, it was necessary to adjust some machines to make them more efficient under the local conditions. Therefore, in order to get obvious and stable income from sold electricity and organic fertiliser in the long run, the DEE foundation proposed the improvement of Front-end treatment (FET) equipments to enable the operation of the plant at maximum capacity. The DEE foundation then sent a proposal to Rayong Municipality about financial support for the operational administration in the form of operational research for one more year (October 2005 – September 2006).

The DEE foundation's administration first aims to run the Rayong Waste-to-Fertiliser and Energy Plant continually which is in line with the garbage sorting plan from the community source. The second objective is to compile data on the cost and income of the plant and use this information for contract making with the private sector in the next phase. Brief details of the operational scope are as follows:

- Seeking high potential human resources to supervise the whole line operation system in accordance with the standard of plant-related laws and municipal acts.

- Experimenting with the line operation, starting from the Front-end treatment (FET) in which the collected municipal solid waste (MSW) is both sorted and unsorted. The estimated quantity of MSW of both types is 12 tons per day on average.
- Evaluating the efficiency of machine operations, analysing variable factors affecting the efficiency of machine operations and setting the recommended guidelines for improving both machine operations and the sorting process in order to make the benefits of investment from the private sector worthwhile.
- Maintaining all the plant machines and equipment in a good condition and ready to operate all the time. This excludes the maintenance of machines and equipment from the condition of warranty from the company that constructed the plant.

Phase III: Integrated Waste Management: Waste-to-Fertiliser and Energy Project (sorting, anaerobic fermenting, generating electricity from bio-gas, and landfill) administered by the private sector -- Joint Venture 'Paknam Maung-sa-ard' (JVPM)

When the project of operational administration of the Rayong Waste-to-Fertiliser and Energy Plant managed by the DEE foundation ended in September 2006, the executives of Rayong Municipality approved the hiring of the private sector to administer the plant as planned. The Joint Venture 'Paknam Muang-sa-ard' (JVPM) was selected to be in charge of the administration of the Rayong Waste-to-Fertiliser and Energy Plant. The contract, lasting for 5 years, has been effective since 1 October 2006. The main tasks of JVPM comprise both the waste collection and the Waste-to-Fertiliser and Energy Plant operation.

Waste collection plan

With regard to waste collection, the JVPM has two different plans: solid waste collection and organic waste collection. The total area of Rayong Municipality for solid waste collection is divided into seven zones. The total average weight of the solid waste collected is approximately 45 tons per day. The organic waste collection is divided into four zones which focus particularly on the wet-market and hotel areas. The total average weight of the organic waste collected is about 12 tons per day. The reason why the organic waste collection is a low quantity is that there are middle men picking up organic waste from local residents' houses to be pig food. However, as the Rayong municipality launched the campaign about Waste to Fertiliser and Energy project, the quantity of organic waste collected is likely to be higher as a greater number of people participate.

The Waste-to-Fertiliser and Energy Plant's operation

The waste collection serviced by JVPM operates seven days a week, starting from 7.30 a.m. until 1.30 a.m. the following day. From the first six-months of operation (October 2006 – March 2007), 8,117 tonnes of waste was collected for sorting at the Energy Plant, comprising 5,566 tons of solid waste and 2,551 tons of organic waste. When calculating the quantities of collected waste sorting at the plant on a daily average, there are 45 tons per day, 30 tons higher per day compared to the previous operation by the DEE foundation, when there were still 'unfixed' faulty machines.

In the first three months of JVPM operation, the quantities of collected waste sorted at the plant are low as a proportion of the total collected waste in Rayong Municipality because the facilities in the plant are not in good working condition. However, after improvements and repair by JVPM, plant efficiency is higher, which can be seen from the increasing quantities of collected waste sorting at the plant (table 2).

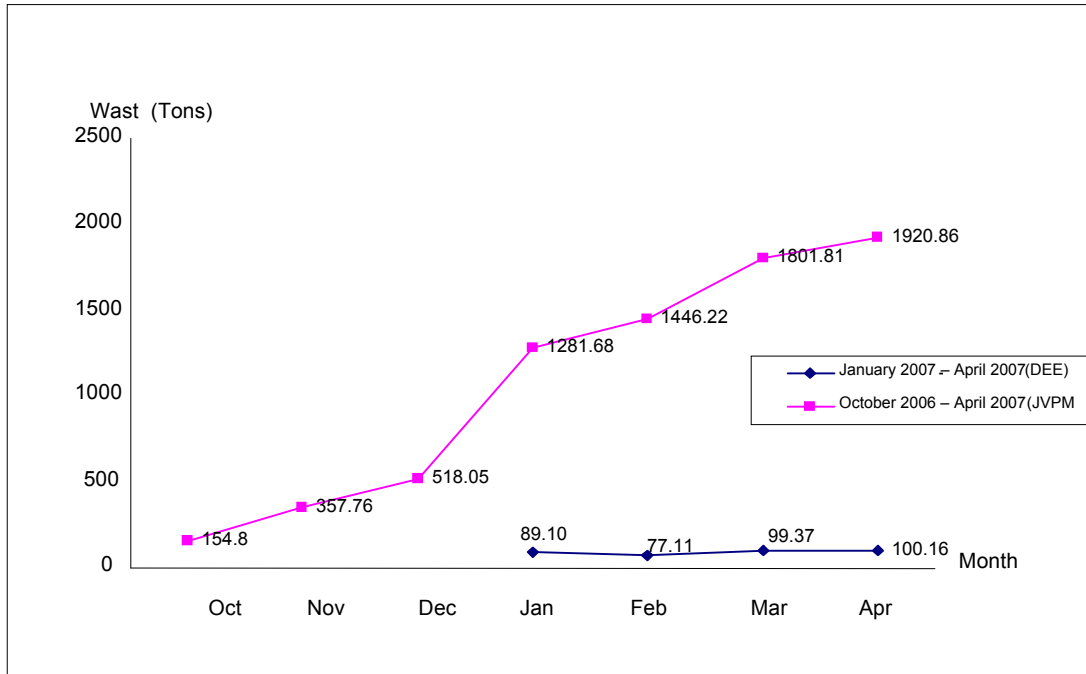
Table 2: The efficiency of the quantities of collected waste sorting at the plant

Month	Total collected waste in Rayong Municipality (tons)	Total sorted waste sent to the plant (tons)	%
October 2006	2536.8	516.51	20.36
November 2006	2364.77	703.18	29.74
December 2006	2356.95	850.82	36.10
January 2007	2466.01	1744.82	70.75
February 2007	2187.32	1836.68	83.96
March 2007	2553.31	2355.02	92.23

Source: JVPM six month report, April 2007

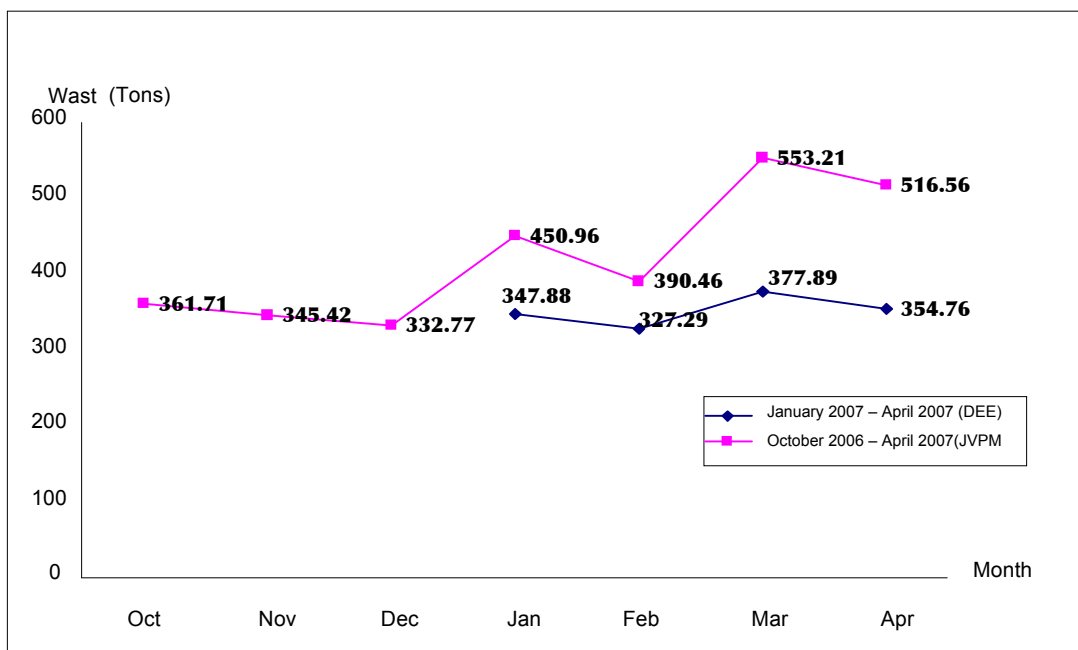
When comparing the waste treatment between the DEE foundation and JVPM, the JVPM obviously performs better in the operation (Figure 1 and 2).

Figure 1: Comparison of the quantities of solid waste collected operation between the DEE foundation and the JVPM



Source: JVPM six month report, April 2007

Figure 2: Comparison of the quantities of organic waste collected operation between the DEE foundation and the JVPM



Source: JVPM six month report, April 2007

Figure 1 and 2 represent the quantities of both solid waste and organic waste that the DEE foundation operated compared with those operated by the JVPM. It is very evident that the quantities of both types of waste must have increased when the JVPM came to manage the Rayong Waste-to-Fertiliser and Energy Plant. This means that the JVPM's involvement helps improve the solid waste management better than the public sector did alone.

4. Discussion

The structure and function of the governing body that coalesces around critical decisions in a city have a direct impact on the outcome pursued, the beneficiaries of this outcome, and even shape the context of future policy questions. This research finding is rooted in the claims of urban regime theory (URT), which explains the decision-making processes of local governance structures. From the empirical findings derived from the case study it is evident that the governing coalition of Rayong city consist of the municipal authorities, in particular the mayor and his deputy mayors, and of the business elites. It seems that the mayor was perceived to be the most influential person in making decisions about municipal public policies. In addition, it is surprisingly found that some municipal authorities or local politicians and business elites in the city are the same people. I would call this governing coalitions as a 'businessmen-cum-politicians' regime.

Most of the municipal authorities were businessmen before joining local politics. The entry of Thai capitalists to politics almost entirely began at the local level. Wealthy merchants and business elites have elevated their status by using their economic power to win elected political and administrative office at municipality level. Once they have established themselves economically, they seek the prestige, authority and accompanying commercial advantages that political office brings. A major incentive driving individual businessmen to fight expensive campaigns for local office is that office gives the holder access to district and provincial bureaucrats and opportunities to establish mutually helpful relations with them. It is not unusual for well established urban business people to be active in local politics, whether in Thailand or elsewhere in Asia. A number of local-level studies reveal how political and economic power often goes hand-in-hand⁹.

The study of public-private partnerships in local governance by using urban regime theory illustrates not only the implications of political economy processes in the city but also the forms of power dominating urban governance. Urban regime theory basically attempts to push us beyond a narrow focus on power as politics and is not restricted to acts of domination by the elite and consent or resistance from the ruled. However, as regime theory was originally applied to liberal democratic states and more recently to neo-liberal states such as the US where local governments have a very high degree of

⁹ For example, Gallin (1968); Kerkvliet (1990); Rutten (1990); Sharma (1978); Wolters (1983).

autonomy and decentralization, neo-pluralism seems to be dominant when understanding the distribution of power – i.e. the notion that while power is concentrated by elite groups, different elite groups dominate different power centres and hence a competitive elite pluralism prevails. But when applying urban regime theory in a developmental state such as Thailand, its application is influenced by differences in socio-cultural, political and economic factors, it should not be surprising therefore that elitism dominates our understanding of the distribution of power in local authorities in Thailand and is reflected in ‘businessmen-cum-politicians’ regime.

It appears to be the case that the implementation of integrated waste management project in Rayong Municipality started with the concept of ‘public participation’ in 1999. This was a result of the advent of the Thai Constitution 1997 which was formulated through bottom-up process and has empowered the people to participate more. This was followed by the ‘Decentralization Plan and Process Act of 1999’ which was set up to support the implementation stage of plan. The Act is tangible proof, and has obvious measures of decentralization to municipalities, both mission and budget, for managing problems in their communities, including the environmental issues.

Overall, from the earlier concept of community-based management to the application of public-private partnerships (PPP), the Rayong integrated waste management project resulted in a series of positive achievements for the community. First, collaboration and communication among community members have been strengthened. The relationship among the participating communities has been rewardingly enriched. Second, the Rayong Municipality spent less on waste collection and disposal due to reduced garbage volume generated by each household. Third, environmental consciousness of the local residents, especially younger people, is enhanced. Communities can now appreciate the benefits of waste recycling. Forth, revenues are generated from selling the electricity and fertiliser produced daily. Lastly, this local initiative serves as an inspiration for other communities to address waste problems in a sustainable manner. These social and financial benefits come from the following successful factors:

- *Policy and mechanism empowerment*
Although environmental dimension has been put in the National Economic and Social Development Plan since the Fourth Plan (1977), it still lacked of guideline and operational measures. Until the advent of the Thai Constitution of 1997, the Eight National Economic and Social Development Plan (1997 – 2001) supported the people empowerment principle by proposing workable guideline and procedure to solve environmental degradation and pollution problems. The bottom-up participation approach policy was deployed by local governments including Rayong Municipality.
- *Leadership and willingness to solve the problem in own community*
It is said that since the integrated waste management in Rayong Municipality started, both the ex-Mayor, Mr. Suraphong Phoo-Thanaphiboon, and the current

Mayor, Mr. Worawit Supachokchai, place the environment policy as their top priority. This is because not only they intend to solve the problem of increased waste and more pollution in the community, but this pilot project also brings about several benefits and fame as it is one of its kinds in Thailand to demonstrate the combination of technologies for solving and managing municipal waste for major cities. If the project is successful, this can be one of the mayor's masterpieces in his administration.

- *Participation in the community*
With the compelling campaign, the 'Garbage for Eggs' project encourages local residents to participate in waste separation and recycling programme at sources such as at homes, businesses, institutions and factories. In addition, people participation in sorting organic waste is increased when they know about the usefulness of organic waste for the Waste-to-Fertiliser and Energy project.
- *Support and cooperation from NGOs, government agencies and private sector*
Without the support and cooperation from NGOs, government agencies and private sector, the Rayong integrated waste management could not be accomplished. As the budget for municipal solid waste management is very high, only municipal revenue from service fees is not enough when compared to the high cost of facility construction. So, other government agencies, along with NGOs, have to provide funding and technical assistance for Rayong Municipality. In addition, the expertise and experience of private sector such as JVPM in waste management has been proven to be highly effective. Nevertheless, this is just a beginning step. To ensure public-private partnership (PPP) success in the long term, the following criteria must be addressed:
 - A willingness of the central and local government sectors to employ the private sector
 - A desire to improve standards of operation
 - The capability and willingness of the private sector to participate
 - A proper legal framework
 - The need to inject funds into solid waste management infrastructure and the relative abilities and costs associated with government and the private sector meeting this need

In Conclusion

For local partnership, the private sector has to be central to the economic development process as local resources and central government assistance are insufficient to fund the various kinds of local development projects. However, legal and policy restrictions prevent local authorities from directly accessing private capital markets. This is one of the reasons why local authorities need to be a partner with the private sector.

Formal co-operation between the business sector and the municipal authorities in Rayong city was initially focused on the environmental issue. As the city has been developed as the industrial hub for the Eastern Seaboard Development Plan since 1980, great concern about environmental effects enables both municipal authorities and business people to join hands together in this regard. Business elites in Rayong seem to respond very well to the partnerships with the municipality, in particular social and environmental projects. This is because what their manufacturing processes – mostly in the industrial companies – made to the environment affect local residents' quality of life. Therefore, business people need to provide some social projects in order to secure good relations with local residents and prevent community protests.

The case study seems to illustrate that the cooperation of municipal stakeholders to engage in constructive local governance is a condition of successful solid waste management in Rayong Municipality. This local cooperation is initially based on the concept of Community-Based Management Approach which mainly focuses on the local residents' participation. As the earlier 'Garbage For Eggs' (GFE) projects for waste separation and recycling is very persuasive, local people can easily take part and can be proud of their achievements. This is crucial for community participation, empowerment and development. There is strong evidence that, when the capacity and bargaining power of the local community have been increased, the dependency relationship to the local government and/or bureaucrats can be reduced. The local authority has to pay more attention to the needs and ideas of the local people. This, in turn, can initiate an era of people's participation in solid waste management.

The development of Rayong Municipality Waste-to-Fertiliser and Energy plant is regarded as an upgrade approach with the concept of Integrated Waste Management. To demonstrate the complete cycle of solid waste management that include recycling, fertilising, and generating energy utilising resource recovery principles, this project obtained good cooperation from all civil society i.e. government agencies, NGOs and private sector. There are at least three important factors for Public-Private Partnerships (PPP) emergence of this project: the history and political culture of public-private interaction in the community, the nature and orientation of private businesses, and the stability and quality of political and corporate leadership in the city. Because the concept of PPP has just been applied for solid waste management as the first and solely project of Rayong Municipality for four years, it is still too early to evaluate the pros and cons of this mode of governance due to some constraints of the project. Nevertheless, it is a good example for local public services provision as being a more effective device of new public management.

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