

**SOLID WASTE SERVICE DELIVERY FOR SLUM AREAS THROUGH
STRENGTHENING PARTNERSHIP BETWEEN
LOCAL GOVERNMENT AND NGOS**

An analysis of the existing public private partnership between Dhaka City Corporation
and Non-Governmental Organizations towards inclusion of slum dwellers

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Statement of authenticity of material

This thesis contains no material which has been accepted for the award of any other degree or diploma in any institution and to the best of my knowledge and belief, the research contains no material previously published or written by another person, except where due reference has been made in the text of the thesis.

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TABLE OF CONTENTS

Acknowledgement.....	03
Acronyms.....	07
Executive Summary.....	08
Chapter 1: Introduction	10
1.1. Urbanization trends and service delivery in Dhaka City.....	10
1.2. Location, area and population.....	11
1.3. Urban Local government system and governance.....	12
1.4. Non-governmental organizations in Bangladesh.....	13
1.5. Local government-NGO relationship in urban areas.....	15
1.6. Service delivery situation in Dhaka and urban poor.....	17
1.7. Scope and limitations of present PPP in service delivery for urban poor.....	18
1.8. Partnerships in Solid waste service delivery system in Dhaka City.....	19
1.9. Contemporary research on urban solid waste management and gaps.....	22
1.10. The need for inclusion of slum areas in solid waste management system.....	24
1.11. Overview on the thesis.....	25
Chapter 2 : Research methodology	27
2.1. Rationality of the study and objectives.....	27
2.2. Definitions of the terms used in this study	28
2.3. Research instruments	29
2.3.1. Questionnaire survey.....	29
2.3.2. Direct interview.....	30
2.3.3. Group discussion with slum dwellers.....	30
2.4. Sampling method, size and response rates	31
2.5. Data sources and collection method.....	32
2.6. Analysis of data and interpretation of the survey results	33
2.6. .Scope and limitation of the study.....	35
Chapter 3 : Research findings from survey on slum dwellers	36
3.1. Trends in SWS delivery in slum areas.....	37
3.2. Existing situation in receiving SWS delivery.....	38
3.3. Degree of awareness in solid waste management among slum dwellers.....	39
3.4. Degree of willingness to participate in solid waste management	39

3.5. Problems and solutions addressed by slum dwellers	42
Chapter 4 : Research findings from survey on Non-governmental organizations	45
4.1. Existing partnerships with local governments (D.C.C.).....	45
4.2. Solid waste service delivery in slum areas.....	47
4.3. Major problems identified in inclusion of urban poor for SWS.....	48
4.4. Supports sought from government (DCC) to establish effective partnership.....	49
4.5. Cross-cutting issues supported by NGOs in Developing SWS to Slum areas.....	52
Chapter 5 : Research findings from survey on Dhaka City Corporation (DCC)	54
5.1. Present situation in SWS delivery to urban poor by DCC.....	54
5.2. Legal and regulatory responsibility in delivering SWS to urban poor.....	55
5.3. Existing partnerships with non-governmental organizations.....	58
5.4. DCC opinion on policy and institutional elements in PPP for SWM	60
5.5. Major problems identified for inclusion of urban poor in SWS delivery	62
Chapter 6: Analysis of the research outcomes	65
6.1. Policy and legal instruments for SWS provision for slum areas.....	68
6.2. Strengthening LG-NGO Partnership.....	74
6.3. Major issues identified by stakeholders for inclusion of urban poor.....	75
Chapter 7: Conclusion	80
7.1. Summary of the major findings.....	80
7.2. Implications of the findings.....	82
7.3. Limitations of the study and suggestions for further research.....	83
Chapter 8: Appendix	85
A.1. Map of the Dhaka City showing administrative units.....	85
A.2. Statistical tables used for the figures in the thesis.....	86
A.3. Bibliography.....	89

The complementary compact disk (CD) contains the following materials:

- The presentation of the thesis: It includes complementary analysis on research findings, recommendations and a proposed action plan
- Questionnaires used for the study
- Key reading materials used for the literature review

List of tables and Figures

Table 01: Typology and evolution of modern NGOs in Bangladesh and..... characteristics	14
Table 02: Types of Service Coverage of Primary Collection at the Ward Level.....	20
Table 03: Instruments used for the research.....	30
Table 04: Sample class and size.....	31
Table 05: Solid waste Generation by Slum Dwellers.....	36
Table 06: Estimated amount of service charges collectable from slums within high and middle-income residential areas.....	41
Table 07: Supports and assistance sought by NGOS from DCC.....	50
Table 08: Cross-cutting issues supported by NGOs in delivering SWS to slum areas:	53
Table 09: Gaps and opportunities of DCC ordinance for SWS Delivery under PPP..	56
Table 10: Potential of Public-Private Partnership Models to Serve the Poor.....	58
Table 11: Gaps within existing TOR for SWS Delivery Partnership.....	71
Table 12: Issues identified for the sustainability of SWMS ensuring the inclusion of urban poor.....	76
Figure 01: Stages followed in data analysis and interpretation.....	33
Figure 02: A schematic matrix showing the research methodology followed for this thesis.....	34
Figure 03: Reasons for supporting NGOs in SWS Delivery.....	39
Figure 04: Range of Service Charge to be paid by Slum Dwellers.....	40
Figure 05: Reasons for Supporting NGOs in SWS Delivery.....	43
Figure 06: Arrangements within the present partnership model in SWM of DCC.....	45
Figure 07: Receive door-to-door waste collection.....	47
Figure 08: Major Problems Identified by NGOs for SWS delivery to Urban Poor.....	48
Figure 09: Financial Balance of SWM within D.C.C.....	54
Figure 10: PPP Elements identified as important by DCC.....	60
Figure 11: Major Problems for SWM identified by DCC.....	62
Figure 12: Reorganization of activities to improve present model.....	73

Map 01: Distribution of N.G.O.s/ C.B.O.s with DCC Approval for Primary Collection.....	46
Map 02: Spatial distribution of slums in Dhaka City.....	67
Map 03: Map of Dhaka City showing administrative units (Zones and Wards).....	85

ACRONYMS:

SWMS	Solid Waste Management System
SWS	Solid Waste Service
SWM	Solid Waste Management
NGO	Non-governmental Organizations
LG	Local Government
DCC	Dhaka City Corporation
PO	Private Operators
PPP	Public-private Partnership
BIEDF	Bangladesh Integrated Environment Development Forum
TOR	Terms of References
JICA	Japan International Cooperation Agency
ADB	Asian Development Bank
CIDA	Canadian International Development Agency
USAID	United States Agency for International Development
UNDP	United Nations Development Programme

EXECUTIVE SUMMARY

- A. The unprecedented urbanization of Dhaka has led to severe pressure on the service delivery sector. Urban poor are the worst sufferers as most poor households have to rely on alternative arrangements that imply lower quality and higher costs to get access to services resulting adverse affect on their quality of life.

- B. D.C.C. does not have the capacity to extend services to urban poor due to it's severe budget deficit. To fill the gap in essential service delivery, non-governmental organizations took initiatives mainly in health care and education sector. Nearly two-third of slums in Dhaka City receives some sort of service delivery from NGOs.

- C. Most of the NGOs working in Dhaka City are small fourth and fifth generation NGOs and depends heavily on bigger NGOs and donors for funds. Government sometimes provides some grants through public departments. Some of the fifth-generation NGOs have started operations through Public-private Partnership (PPP) in solid waste service as this sector generate income that is sufficient to cover operational costs.

- D. After experiencing the difficulties and costs involved in delivering solid waste service delivery, DCC decided to initiate pilot projects in some selected wards in Dhaka City to improve SWMS and published tenders from prospective organizations for delivering services in solid waste management.

- E. NGOs are working as Private operators (POs) in solid waste service delivery sector. DCC does not provide any financial assistance from public funds but gives full authority to POs to collect service charges from residential and commercial areas and cover operational costs. However, NGOs have to participate in a competitive bidding process when DCC publishes tender on solid waste service procurement. The highest bidders win the contract and sign terms of references (TOR) with DCC to get work order.

- F. NGOs are responsible for primary collection of solid wastes from households and commercial areas within the contract areas while DCC performs the secondary collection. However, this service is provided only to formal households and slum areas with the contract area is not under service coverage. The high density within slums has created serious threat of environmental health risks to slum dwellers due to piling of uncollected waste.
- G. There is no solid waste management policy and plan in Bangladesh at national level. JICA has provided technical assistance to DCC to formulate a master plan on solid waste management. However, this master plan does not include any provision for solid waste service delivery to urban poor who constitutes the largest part of the population. In addition to that, the sustainability of the outcomes after implementing the master plan is questionable in absence of a national solid waste management policy.
- H. Slum dwellers are willing to contribute financially and manually for solid waste service delivery to them. NGOS and DCC has always underestimated their capabilities even knowing that slum dwellers pay much more higher price than formal households to get services.
- I. POs are willing to extend services to slum areas if they can recover operational costs. But both DCC and NGOs have never made any study on the possibility of recovering operational costs from slum residents. Instead of looking for ways on how to serve the largest population of the city, NGOs are engaging in commercial activities without building their capacities in operational management.
- J. Both DCC and NGOs have limited capacities and need to concentrate on upgrading their efficiency. Commercial activities should be encouraged only after POs have established a comprehensive coverage of solid waste service delivery in the contract area without excluding slum households within.

Chapter One

Introduction

1.1. Urbanization trends and service delivery in Dhaka City: Dhaka, as the capital city, historically attracts migrants consistently comprising 70% of total migration of the country. Studies have shown that at least 60% of population in Dhaka City lives under poverty level and 37.5% of total population within SMA, lives in slums and squatter settlements [1]. Poor urban management has resulted severe pressures on urban centers, particularly in essential service delivery sectors. The dominant strategy for long has been to provide services directly or through City Corporation and centrally controlled autonomous agencies. However, the changing socio-economic context in urban areas required innovation and improved quality in service provision and demand for expansion of service coverage to growing number of urban population. Service deliver for urban poor in Bangladesh is a difficult challenge since local governments do not have any plan on how to manage the service deliveries. Urban poor are the worst sufferers since failure in service provision seriously affect the productivity of economic activities and typically affect them disproportionately. As a result, most poor households have to rely on alternatives that imply lower quality and higher costs to get access to services. Government has used a number of mechanisms to establish partnerships for service delivery to meet the demand in urban areas.

Unlike policies adopted in the 1970s and 1980s, there were few attempts made to contain urban growth and to relocate population to new, secondary cities. Land management policies and human settlement programmes typically included measures to upgrade infrastructure and services, control the location of new housing and in general, ensure sound land use. Most of such programmes were designed to mitigate negative effects of the out-come of the earlier development initiatives. However, all urban areas have a great deal in common at local government level. Regardless of demographic specifics, economic

[1] Japan International Development Agency (JICA),2005

development level, political structure, or cultural roots, all face the challenge of meeting the needs of service delivery for their vast and growing populations on severely limited municipal budgets. Local governments are responsible for providing essential services like primary healthcare, education, water supply and sanitation. These services are particularly important to urban poor who are often left out from service provision resulting adverse consequences for their health and economic opportunities. The poor quality of some public services, namely education, health, utilities, water, and power reflect the absence of accountability, poor value for money and lack of effective redress of grievances for the people [2].

To fill the gap within the service provision to urban poor, non-governmental organizations (which includes private sector) came up with different initiatives particularly in healthcare, education and sanitation sector. Over 70% of the slums in Dhaka had at least one N.G.O. providing some sort of service for them [3]. These initiatives lead the local governments to form partnership with non-governmental organizations to ensure discipline in distribution in essential service provision.

1.2.Location,area and population: The city is located between latitudes 24°40' N to 24°54' N and longitudes 90°20'E to 90°30' E, and it covers an area of about 300 square kilometer. The Dhaka Statistical Metropolitan Area (DSMA) covers about 1464 sq. km (Bangladesh Population Census, 1995). However, a substantial portion of the adjoining low-lying areas has recently been brought under structured areas of the city due to the accelerated rate of urban growth in Dhaka. The city comprises with a total of 90 wards and 10 zones. [4]. The metropolitan area covers 131 sq. km. area and the population is more than 5.7 million. The population density has exceeded 40,000 per square km [5]

[2] Report of the Public Administration Reform Commission, Bangladesh, p.p. 113,June,2000

[3] Center for Urban Studies, Measure Evaluation and National Institute of Population Research and Training (2006) : “Slums Of Urban Bangladesh: Mapping and Census,2005), p.p. 12

[4] See Appendix p.p.83 for details

[5] JICA (2005): The Study on the Solid Waste Management in Dhaka City Final Report. P.p.1-1

1.3. Urban Local government system and governance: Bangladesh has a long history of local government system but has gone through numerous structural changes within different government regime since the independence in 1971. There was no effective measure for decentralization due to strong influence of varied political ideology about local administrative setup. At present, *Pourashavas* (Municipalities) and City Corporations constitute the two types of urban local governments. The six largest cities of Bangladesh (Dhaka, Chittagong, Khulna, Sylhet, Barisal and Rajshahi) are City Corporations and urban centers are known as “Pourashava”. Constitutionally, all the local governments are independent in decision-making and implementation at the local administrative areas and assigned with specific responsibilities. The functions of *Pourashavas* and City Corporations are similar with one important difference; ‘the *Pourashavas* Ordinance 1997’ has categorized the functions of *Pourashavas* as compulsory and optional [6]. This categorization does not apply to City Corporations. Among these functions, there are some common key areas where N.G.O.’s are also working independently in some urban areas.

The urban local governments have a good administrative organization but are heavily dependent on central government in all aspects for finance, policy guideline and action plans. Local institutions do not have the capability to formulate and execute development plans independently. The hierarchy of public administration was aimed at making it decentralized in terms of decision-making and implementation through local governments with a local development approach. But the influence of political economy has politicized the local governments resulting heavy dependency on central governments for policy instruction and decision-making for even local development projects. Dhaka City Corporation acts as the local government for Dhaka City under the “Dhaka City Corporation Act 1993”. This act is also applicable for four other city corporations in Bangladesh namely Chittagong, Rajshahi, Barisal and Sylhet.

[6] For complete list of local government functions, please visit:
<http://www.unescap.org/huset/lgstudy/country/bangladesh/bangladesh.html>

1.4. Non-governmental organizations in Bangladesh: N.G.O.'s in Bangladesh have international reputation for their innovations and success. They have been working primarily on community-based development activities emphasizing accumulation of physical capital and technical change (through micro-credit, agricultural promotion), human capital (through non-formal education programs highlighting literacy, life skills and political awareness building), and social capital (through education programmes and group capacity building). Grameen Bank [7] innovated the revolutionary concept of micro-credit and pioneered successfully to implement the model nation wide. Large national NGOs like Bangladesh Rural advancement Committee (BRAC) [8], PROSHIKA, and Association for Rural advancement (ASA) has successfully developed an integrated micro-credit model involving micro-credits, training and policy advocacy. Models developed by such organizations in micro-finance, non-formal education and primary healthcare are widely replicated in developing countries. Development NGOs engaged in broad socio-economic uplift of the poor in rural and urban areas are sometimes termed as private voluntary development organizations (PVDO) or voluntary development organizations (VDO). Socio-economic programmes of development, advocacy, legal aid, environment and relief programmes are also taken up by development NGOs.

N.G.O. programs have had a significant impact on the social and economic reality of many marginal households in Bangladesh at micro-level [9]. N.G.O.'s in Bangladesh work more closely with the people and most often better informed than government. These N.G.O.'s has proved to be more effective in community mobilization and has much needed professional organizational skills to work with specific issues starting from project design to implementation and maintenance. BRAC, PROSHIKA, ASA are some largest N.G.O.'s in Bangladesh where as Grameen Bank, a development bank, is arguably been one of the most globally influential agencies regarding micro-credit in particular and micro-development in general. The following table summarizes the typology and activities of N.G.O.s in Bangladesh:

[7] Grameen Bank is a financial service providing organization, currently registered as a Bank, not as a NGO.

[8] BRAC is world's largest NGO

[9] Amin, 1997; Edwards & Hulme, 1996; World Bank, 1996; Chowdhury, 1989

Table 01: Typology and Evolution of Modern NGOs in Bangladesh and characteristics

Typology	Focus area	Major Characteristics	Leading organizations	Urban service delivery
First Generation (Post Second world war)	-Relief and rehabilitation -Charitable works -Reconstructing essential infrastructures -Community development	-Dependency on foreign aids by donors -No interaction with government -Mostly international NGOs -A few local charities as partner	United nations/UNICEF	Not known
Second Generation (Post independence, 1971-1975)	-Post-independence reconstruction -Forming credit unions/cooperatives -Community based development -Micro-interventions in rural development	-Mostly international donors and NGOs -No strong interaction with government- -Community based development approach_ -Evolution of local primary and intermediate NGOs	CARE,DFID, UNDP/UNICEF, Grameen Bank	Water supply Primary education Primary healthcare
Third Generation (Mid -1970s-1980)	-Agrarian reform -Rural development programmes -Formation of apex bodies/forums -Expansion of Micro-credit interventions at grass root level -Health care and water supply	-Mushrooming growth of local NGOs -Integration of micro and macro issues into a more holistic framework in the following areas: Ecological and environmental problems Debt and structural adjustment issues Support for agrarian reform and rural development	Grameen Bank, BRAC CARE,DFID and UNDP/UNICEF	Water supply Primary education Primary healthcare
Fourth Generation (1980-2000)	-Community mobilization -Advocacy for community based development -Income generation activities	-Target oriented development approach -Growth of Major national NGOs -Engagement in production activities -Partnership with government in service delivery	Grameen Bank, BRAC, ASA, PROSHIKA	Water supply Basic sanitation Primary education Primary healthcare
Fifth Generation (Since 2000-)	-Advocacy in national policy issues -Social enterprise development -International orientation -Community based social enterprises	-Activities designed to influence public policies -Agro-based and cottage industries for income generation -Assisting local governments in service delivery through partnerships on cost recovery basis	Same + NGO forum, DSK and community based NGOs	Water supply Basic sanitation Technical service: -Renewable energy -SME Development

In context of urban areas in Bangladesh, Dustho Shastha Kendra (DSK- Healthcare for Vulnerables) and NGO-forum are well known for providing water supply and sanitation services. Many other small community based organizations are working in areas like primary healthcare and education. The limitation and inability of the government service providers has led the NGOs to fill the gap in social and infrastructural service delivery. These NGOs are also working in urban areas as well. The common characteristics among the contemporary NGOs have shown strong focus on advocacy in national development policy regarding to environmental management, development policy, plans and implementation in delivering essential services in both rural and urban areas.

The research has indicated some limitations and a number of important deficiencies within non-governmental organizations functioning within D.C.C. These include the following:

- Limited size, scope and impact;
- Loose structure, often with limited accountability to beneficiaries;
- Inadequate attention to the ‘very poor’;
- Ineffective strategy and implementation of measures to build institutional capacity and self-reliance among the poor;
- Insufficient attention to monitoring and evaluation;
- Weak planning and management capacity; and
- Lack of broad social and economic perspective.

1.5. Local government-NGO relationship in urban areas: The relationship between the Government and NGOs has been mixture of cooperation and conflict, sometimes problematic. Recent trends show that LG-NGO relationship is now generally regarded as increasingly constructive. The main areas in which Government systematically cooperates with NGOs are primary education, health and family planning. In other sectors, NGOs have been allowed to operate as sub-contractors on Government projects. In a limited number of cases, Government has channeled foreign funding to NGOs as major implementers [10]. Some of the larger NGOs themselves are, at least at the national level, seeking to bring their activities into a coherent relationship with Government policies and programmes. However,

[10] Policy and Evaluation Department, Netherlands Ministry of Foreign Affairs: Evaluation of Netherlands-funded NGOs in Bangladesh, p.p.13 (29)

this cooperative approach between Government and NGOs has not yet generally filtered down to local levels, where coordination is also essential to maximize benefits of scarce resources. It was clear from the policy makers that rural development would be government's top priority and had focused on formulating comprehensive framework containing guidelines and policies regarding to rural development. This allowed development agencies and non-governmental organizations to work together. The micro-credit programme by Grameen Bank (Also BRAC, Proshika and ASA as other major organizations) was working in rural areas for economic and social capacity building in rural areas since 1972. Government also established a micro-credit institution named as PKSF (Palli Karma Shohayok Kormoshuchi- Programme for Assisting Rural Employment).

Policy makers failed repeatedly to realize the true potential of such efforts and never integrated this huge success into the national development planning, particularly in urban development issues. Urban poor had not been granted the access to essential services until non-governmental organizations came in action. Initially, NGOs worked independently and sometimes working in cooperation with other interested NGOs. With the growing regulatory measures undertaken by the government to ensure transparency and accountability within NGOs and decrease in funds from foreign donors, the issue of public-private partnership surfaced as a viable solution.

Donor's preference has shifted to work closely with the government and give funds to government projects allowing NGOs to bid for funds as an implementing partner and to deliver social services under national procurement guideline. But nevertheless, GO-NGO contracting has not escaped the governance problems associated with public procurement in general especially the absence of transparency, bribes associated with contract awards, delays and rent-seeking, and emergence of fake, and 'fly by night' NGOs in collusion with the contracting ministry.[11]

[11] Antuono, Laura, Meeks, Chris, Miller, Melissa Kay and Watchou, Jean Rene: "Evaluating NGO Service Delivery in South Asia: Lessons for Afghanistan", Workshop in Public Affairs, International Issues, Public Affairs 860, Spring 2006,p.p.09

1.6. Service delivery situation in Dhaka and urban poor: The unprecedented high rate of urbanization since the last decade has taken the capacity of service delivery within local government to its limit. The failure in responding to local needs for service delivery resulted severe pressure on service delivery sector making the entire service delivery system incapable of meeting demands. Service delivery for water supply, sanitation, healthcare and education are first priorities in many reasons but the issue of solid waste service delivery is yet to get proper attention. D.C.C. lacks the capacity to provide essential services to the growing number of urban population. Private sector responded only to provide services to peoples who can pay for the services and came up with innovative solutions to fill the gap in the service delivery sector. Understandably, the majority of urban poor are excluded from these types of service provision. Some NGOs and charities are providing healthcare and educational services to urban poor communities with the help from bigger NGOs and private donations in slum areas in big municipalities.

Dhaka City Corporation does not have any formal policy and guideline on either urban service delivery for poor or service delivery to urban poor through public-private partnership. A well-defined public-private partnership framework exists for energy sector. Education, health and transportation sector has been allowed to have full private operations where as water supply and sanitation service has been kept under government ownership. Since the last five years, the government realized its limitations to provide solid waste service in particular to the growing number of urban population and thus allowed private operators to work with local governments to provide such services within some selected urban areas.

NGOs working under service contact with D.C.C. did not attempt to extend services to urban poor communities within slum mostly due to misconception on their (urban poor) ability to pay for services and governments failure to understand the adverse consequence of exclusion from access to essential services on urban poor communities.

1.7. Scope and limitations of present PPP in service delivery for urban poor: The entire service delivery sector needs drastic reform considering the cost involving in service provision. Therefore, it is difficult for local governments to focus on the needs of the poor. NGOs have found a niche for themselves in the gap between society and state, seeking to promote the welfare of the people through grass-roots initiatives and development programs. N.G.O.'s play an indispensable role in collaborating with the international aid community to bring much-needed resources to the country during times of devastation, as well as implementing health, education, social and economic capacity building programs. Despite the success of NGOs in improving access to improved social condition, the question remains when and how the government and big NGOs will assume responsibility for perpetuating such reforms on both the national and local levels to serve the urban poor.

It has proved in the past that services provided by N.G.O.'s are increasingly valuable assistance to fulfill the task of the municipalities and rural local government. N.G.O.'s are receiving less and lesser foreign aids since the last ten years and many of the N.G.O.'s are limiting themselves in income generation projects which surely will result a social catastrophe in near future if government does not come foreword as a partner with financial, legislative and administrative support package through local governments.

Local governments have the limitation both in terms of financial and human resources. N.G.O.'s are capable of providing human resources and with limited financial support from their own budget. Therefore, it is not illogical to expect that with a proper partnership government can implement its national development plans at local level more effectively and N.G.O.'s can continue to act as a bridge between government and grass-root, hard to reach communities.

The government has started to recognize the importance of non-governmental organizations and established several partnership programmes in healthcare, education, water supply and sanitation sector. Still, the utility service is largely owned and regulated by the government through line ministries.

1.8. Partnerships in solid waste service delivery system in Dhaka City: The partnership approach undertaken by local governments proved to be beneficial for local governments as non-governmental organizations got permission to provide services under a contract. In most cases, contracts allowed the non-governmental organizations to work independently and accountable to local governments who holds the regulatory power. But much debate has surfaced on good governance issues within local governments in awarding contracts.

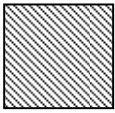
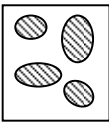
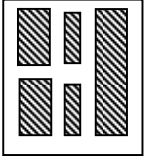
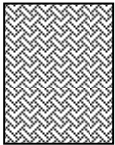
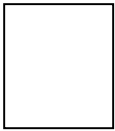
Solid waste service delivery is expensive. Local governments have financial and administrative limitation to meet growing demand for SWMS. Japan International Development Agency (JICA) has estimates that there will be a significant financial deficit within SWMS. Local government-N.G.O. partnership in healthcare and water supply service delivery is a well established practice since the last two decades.

Since the last decade, there has been an emerging trend in partnership between city and municipal corporations to provide solid waste service delivery as well. Dhaka City Corporation has been the first local government institution to establish public-private partnership in solid waste service delivery and gradually developed this partnership. Dhaka City Corporation has worked with Waste Concern and then developed partnerships with NGOs and private companies. This partnership model was replicated in many other municipalities and developed international reputation. Unfortunately, urban poor has always been kept out of such services in most cases. In addition to that, DCC-Waste concern model has never been tasted critically on how it will perform to serve greater number of population of entire Dhaka City considering great scarcity of land and density of population.

There have been some scattered experimental projects for solid waste management within slum areas, like ‘Barrel-type composting’ but no sustainable solution could be devised through such efforts since a city cannot establish two separate systems to serve one purpose. Nonetheless, this PPP has brought some encouraging and innovative solutions on how to manage solid waste services in urban areas in Bangladesh. This model has widely been accepted as a viable solution to the problem. Japan International Development Agency

(JICA) conducted a study on the existing primary collection arrangement in different wards of Dhaka city. The following table shows the summary of existing type of coverage:

Table 02: Types of Service Coverage of Primary Collection at the Ward Level

Type of Coverage in Primary Collection (Individual ward basis)		Characteristics
Type A: Full Coverage by one to two NGOs.		This type of service coverage satisfies D.C.C.'s policy that NGO/CBO approved by DCC provide primary collection service in whole ward.
b) Type B: Partial Coverage by various local organizations		-Typical situation of wards in Dhaka City except Old Dhaka. -Some areas are left with no primary collection services provided.
c) Type C: Full Coverage by various local organizations		-Considered as progressed situation of Type B, becoming a typical situation in Dhaka City, except in Old Dhaka. -The number of service providers has been increasing to the extent of covering whole areas in some wards.
d) Type D: Informal door-to-door collection by DCC cleaners		-Typical in the wards in Old Dhaka. Two types of primary collection are seen in Old Dhaka. One is managed by <i>Ponchayt</i> , a traditional neighborhood association. The <i>Ponchayts</i> collect fees from residents to pay --DCC cleaners for their services. --Another is based on the individual agreement among DCC cleaners and the residents.
e) Type E: No primary collection services		This type is not seen in any ward in Dhaka City. Primary collection services provided by NGOs/CBOs are now prevailing in every part of Dhaka City.

(Moderately changed from JICA: "The Study on the Solid Waste Management in Dhaka City Final Report", 2005, p.p.2-10 to 2-11)

Type-A model is now being promoted by DCC since 2002 for delivering solid waste services in different ward areas. This study attempted to analyze contemporary public-private partnership in solid waste service delivery in DCC and identify key areas to bring the urban poor community within the solid waste management system (SWMS). Waste Concern, an internationally reputed N.G.O., is leading the way to help urban centers to establish solid waste management system (SWMS) involving poor communities in primary collection and composting activities. Such practices are also internationally available but the major concern has always been the exclusion of poor urban residents from the service provision for their own households those consist the biggest percentage of the total urban population. There are certain problematic characteristics among the waste generation and disposal habits in the cities in Bangladesh. The main identified problems of solid waste and disposal are [12]:

- Lack of awareness of waste disposal and environmental sanitation at household level;
- No or very little awareness about solid waste management at community level;
- Roadside bins are insufficient and often broken;
- Scattering of waste from bins by animals and scavengers;
- Throwing of waste into drains which causes blockages and overflow into streets;
- Limited capacity of city administration to provide services for solid wastes removal;

The DCC partnership initiative has dealt with many critical issues those were never addressed before. The importance of such initiatives is high in the case of Bangladesh since it not only provides SWS, but also it engages poor communities who live on waste collection and processing. This model can be improved and developed further in order to meet the growing demand and challenge to deliver urban services ensuring social equity. The growing number of urban poor is certainly producing a considerable amount of solid wastes in total and without providing waste collection service to them, it is not possible to keep urban environment clean and healthy.

[12] Based on interviews with DCC and NGOs for this study

1.9. Contemporary research on urban solid waste management and gaps: There has not been much research done on public private partnership to deliver essential services to urban poor in Bangladesh. A number of national and international research publications on solid waste management in Bangladesh are available which mostly deals with the necessity of solid waste management in Bangladesh and points out to general interpretations on this issue with short recommendations. Waste Concern, an internationally reputed NGO, pioneered the way of research within solid waste management in Bangladesh. Apart from field project reports, Waste Concern has conducted and published a number of studies since 1987. Most of the studies dealt with issues and operational methods within the community based model developed by this organization. Hasan (1998) attempted to identify the nature of the problems in municipal waste management and found that lack of people's involvement and awareness in waste management and lack of waste management policy is critical for improvement. Since 1980's, numerous surveys and other research studies have focused on slums and squatter settlements. Most of these studies have addressed housing problems, socio-economic improvement and infrastructural problems. A limited number of studies focused on health service delivery but based on some selected slum area. In both cases, solid waste service delivery to urban poor has not been mentioned properly.

Proshika, World Bank, Survey, and research System conducted a comprehensive study on urban service delivery jointly in 2001. The outcome of the study was published in 2002 as "Bangladesh Urban Service Delivery: A score card". This report intended to evaluate the quality and problems in existing service provision. There was no real study on the solid waste service for urban poor. Urban poor have always been left out from all formal service delivery systems resulting in serious socio-economic and environmental health problems among poor communities. There was an attempt to analyze the relationship between urban poor with solid waste management by Nazrul Islam and Salma A. Shafi in 2004. However, the study did not provide any direction on how to include the urban poor within the solid waste service delivery and who is going to provide that service. The study by Houinsou on household waste management shows that community based solid waste management has to

be satisfied by the following five requirements to take effect and to ensure sustainability [13]:

1. Inclusiveness: The extent to which the service takes into account all beneficiaries or “demand”;

2. Adequacy: The degree to which qualitative goals are achieved;

3. Equitableness: Equal distribution of benefits and risks associated with the service among beneficiaries;

4. Effectiveness/efficiency: The extent to which service goals are achieved, relative to other possible services; and,

5. Democratic involvement: The degree to which the beneficiaries are able to contribute to the different stages of the provision.

Fernandez (1997) provided a highlight on institutional issues in a paper on “Solid Waste Management Micro-enterprises: Asian Regional Overview” funded by UNHCR. The first real study on solid waste management in Bangladesh was carried out by JICA to assist DCC in preparing a master plan on solid waste management in 2005. The entire study was dedicated to explore all the aspects regarding waste management within DCC. Once again, the issue of service provision for urban poor was over-looked neglecting the importance and potential of poor populations to contribute in SWMS. Asian Development Bank (2002) highlighted some important aspects related to the problems to deliver essential services to urban poor in Asian countries drawing examples from different countries on water supply, sanitation and solid waste services but none provided a framework on how to deal the issue in case of complex socio-economic conditions within mega cities like Dhaka.

Solid waste management plan for seven districts (Brahmanbaria, Jamalpur, Gaibandha, Kushtia, Munshiganj, Mymensingh and Rajshahi) were done by Waste Concern with assistance from Asian Development Bank and Local Government Engineering Department (LGED) in 2005. But none of these plans considered how to include urban poor and how to encourage local governments to build their institutional and financial capacities in SWM.

[13] Dedehouanou, Ir Houinsou: ‘Coping with house waste management in Cotonou’, The Journal of Environment and Urbanization, Vol. 10, No. 2, October 1998

Therefore, this thesis intends to contribute to fill the gap of knowledge in the issue of exclusion of urban poor from solid waste service delivery in order to improve existing model of public private partnership on solid waste service provision to poor communities consisting NGOs and local government authorities within urban areas.

1.10. The need for inclusion of slum areas in solid waste management system

The largest number of population in urban areas is poor and mostly lives in slum areas. With the rapid urbanization rate, the number of people living in slums is also increasing. The quantity of solid waste generation by slum dwellers is one-third of people living in formal households on individual basis. The quantity of waste generation by slum dwellers may be small in individual basis but total quantity of waste generation is far greater than it is estimated. . Insufficient solid waste service delivery is not only resulting piling of wastes in slum areas and its neighbourhoods but also resulting serious threat to the environmental health to the largest part of the urban population. The consequence of negligence for solid waste service delivery to urban poor certainly creates several health problems [14] to slum residents which ultimately adds extra pressure on slum dwellers due to medical expenditure and other associated costs. Inclusion of urban poor within SWMS will certainly help them to keep their households and neighbourhood clean and will have positive impact on improving environmental health and financial condition. A large number of urban poor are engaged in collection and processing of solid wastes most of whom, live in slums. UNDP (2005) estimation shows that the population of Dhaka will rise up to 22.8 million by the year 2020[15]. The majority of them will be living within slum areas.

[14]Center for Urban Studies, Measure Evaluation and National Institute of Population Research and Training (2006) : “Slums of Urban Bangladesh: Mapping and Census,2005), p.p. 12

[15] Human Development Report,2005

1.11. Overview on the thesis:

Chapter One. Introduction: The introduction chapter gives an overview on the basis and background for this thesis. It was considered important and useful to introduce readers to different issues regarding to urban service delivery situation in Bangladesh and explain the basis for public-private partnership for solid waste service delivery to urban poor. An analytical overview has been given in this chapter to assist in understanding the complex nature of NGOs in Bangladesh and interaction with the government in order to guide the readers about the research area of this thesis.

Chapter Two. Research methodology: The second chapter provides information on the research methodology followed in this study. This chapter contains the definitions, information on research instruments, sampling methods, data collection and analysis.

Chapter Three. Research findings from survey on slum dwellers: Third chapter has been used to present the findings from the survey conducted within the slum areas. The findings of the survey inform the readers on the trends and the present situation in solid waste service delivery for urban poor. This chapter also contains an in depth analysis on the issue of awareness and willingness of the slum dwellers to participate in solid waste management.

Chapter Four. Research findings from survey on non-governmental organizations: Fourth chapter presents the findings from the interviews and surveys collected from non-governmental organizations. This chapter informs the reader on the involvement of non-governmental organizations in solid waste service delivery and what partnership exists with Dhaka City Corporation. The chapter highlights the issues related to existing problems within the partnership model.

Chapter Five. Research findings from survey on Dhaka City Corporation (DCC): This chapter gives an overview on legal and regulatory issues. This overview has been further extended to explain the present model developed by DCC and existing problems and opportunities within.

Chapter Six. Analysis of the research outcomes: Chapter six provides an in depth analysis and interpretation of research findings on exclusion of urban poor, policy and regulatory instruments for delivering solid waste service delivery to urban poor, an SWAT analysis of the present model based on the findings. This discussion has been further extended to discuss issues related to policy and instructional aspects and how to integrate stakeholder's interests within the present model through a set of recommendations.

Chapter Seven. Conclusion: This chapter contains the summary of the major findings, implications of the findings and restates the limitations of this study to suggest for further research in this area.

Chapter Eight. Appendix: This chapter contains a draft action plan, the map of Dhaka City showing administrative units and the bibliography

Chapter Two

RESEARCH METHODOLOGY

2.1. Rationality of the study and objectives

This research was intended to explore different aspects including administrative and management issues on how to include urban poor communities under essential service coverage and look for options on how to improve the model through appropriate partnership between local governments and non-governmental organizations. Local government-N.G.O. partnership in healthcare and water supply service delivery is a well-established practice. Since the last decade, there has been an emerging trend in partnership between municipalities with non-governmental organizations to provide solid waste service delivery. Such practices are internationally available worldwide, but the major concern has always been the exclusion of poor urban residents from the service who are the biggest percentage of the total urban population.

The majority of population within Dhaka City Corporation consists of poor who are excluded from essential service delivery most often. There were a number of projects undertaken by both DCC and NGOs, but the scale and coverage of such projects are insufficient compared with the size of population living within slums and squatters. Even though, there are some projects running to provide primary education, healthcare and basic sanitation, the issue of solid waste service delivery to urban poor has not been mentioned properly. The environmental health risks associated with solid wastes are high and high density within the slums and squatters in Dhaka could prove to be severe in near future if they are not taken under the solid waste service coverage.

Previous research indicated the importance of understanding the partnership mechanism of the solid waste management system (SWMS) introduced by Dhaka City Corporation with different non-governmental organizations to examine the possibility to include urban poor

within the partnership model. Growing number of urban poor is certainly producing a considerable amount of solid wastes in total and without providing waste collection service to them, it is impossible to keep urban environment clean and healthy. Inclusion of urban poor within SWMS can help them to improve environmental health condition in their households and neighbourhood.

This research is intended to explore different aspects including contracting, administrative and management issues within the existing partnership model to include urban poor communities under solid waste service coverage and look for options on how to improve the model through appropriate partnership between local governments and non-governmental organizations.

2.2. Definitions of the terms used in this study:

For the purpose of this research, it was necessary to define some widely used terms to avoid overlapping and confusion.

2.1.1. Non-governmental organizations: Organizations that are working with Dhaka City Corporation under a service contract for a specific period of time through a competitive bidding process. Organizations that are registered with the social welfare Ministry and NGO Affaires Bureau (NOAB) often works within a community and with a cost-recovery approach. Private owned companies are also non-governmental organizations but operate on commercial basis for profit. In both cases, these organizations receive contract money in exchange of SWS delivery in contact areas.

2.1.2. Local Government: Dhaka City Corporation is the local government in Dhaka City where city representatives (commissioners) are elected through a direct election for five years within the city administrative boundary and units (ward, 90 in number). D.C.C. works within the framework of the “Dhaka City Corporation Ordinance 1993” and headed by a Mayor elected through direct vote for five years as well.

2.2.3. Partnership areas: Areas where DCC has awarded contracts for primary and secondary collection of solid wastes of in Zone 9 and Zone 10

2.2.4. Private Operators (POs): Non-governmental organizations involved in solid waste service delivery under a public-private partnership arrangement. Organizations involved with solid waste collection within DCC. This includes NGOs and DCC itself.

2.3. Research instruments: This research made an attempt to analyze an existing model of public-private partnership which required both quantitative and qualitative data from service providing organizations, local government institutes and direct beneficiaries. The findings of this thesis were based on data and information obtained from a mix of instruments. The objective for this mixed approach was to collect qualitative data as much as possible along with quantitative data from three key stakeholders namely slum dwellers, non-governmental organizations (N.G.O.'s) and Dhaka City Corporation (D.C.C.). The survey for this research used the following three instruments to collect information:

- Questionnaire survey;
- Direct interview;
- Group discussion with slum dwellers;

2.3.1. Questionnaire survey: The study used three questionnaires [16]. Separate questionnaires were designed to collect information from slum dwellers, Dhaka City Corporation and non-governmental organizations (N.G.O.'s). Questionnaire designed for survey in slum area was used to collect information on existing situation regarding to solid waste generation and disposal, solid waste management awareness and willingness to take part actively in SWM initiatives. Questionnaires for survey on non-governmental organizations and Dhaka City Corporation was designed to collect information on solid waste service type and coverage, needs assessment for capacity building to establish effective partnership.

[16] (See Appendix C for samples of each)

2.3.2.: Direct interview: Direct interview was conducted with top officials of non-governmental organizations and Dhaka City Corporation. In case of non-governmental organizations officials were at the rank of executive director and Secretary General. For D.C.C., Project Director within Conservatory Department (which is responsible for solid waste management in DCC) was interviewed. In both cases, the officials were interviewed followed by the questionnaire survey mentioned above.

2.3.3.: Group Discussion with slum dwellers: A group discussion was organized to cross check the research findings two days after the field survey conducted on the slum dwellers. This instrument proved to be very useful as new ideas and suggestions came out from the slum dwellers. One assistant helped to take notes on the discussion topics and outcomes during the discussion sessions. A brief overview on the instruments is illustrated in table 2.

Table 03: Instruments used for the research

Instruments Used	Target	Reason for selection
Questionnaire survey	Slum Dwellers Non-governmental organizations Dhaka City Corporation	To collect data and information on present solid waste management system and needs for capacity building in present partnerships
Direct interview	Non-governmental organizations Dhaka City Corporation	To collect information on present partnership model between LG-NGOs
Group discussion	Slum dwellers	To identify local needs and participation issues to assist DCC to include slum dwellers in SWMS

These questionnaires were developed in English since the researcher directly conducted all the surveys and interviews. Each of the questionnaires took an average time of 25 minutes in slum areas whereas 60-70 minutes were needed for surveys within non-governmental organizations. Each interview session with Dhaka City Corporation and non-governmental organizations needed between 90-120 minutes.

2.4. Sampling method, size and response rates:

The sample for the research was selected based on the discussion with different officials from NGOs and D.C.C. from 25 November to 05 December 2006. The size of the samples could not be larger due to shortage of time and funds.

The sample class and size is illustrated in table 1. A number of 35 non-governmental organizations are working with Dhaka City Corporation among which 33 organizations are working together by creating a forum named as “Bangladesh Integrated Environment Development Forum (BIEDF)” and rest of two operators are registered as private companies [17]. Within the forum, 10 organizations were selected on a random basis. The response rate was 70% among the slum dwellers and 80% among the non-governmental organizations. D.C.C. provided complete cooperation with three interview sessions having a week interval between each session.

Sample Class	Sample size
Slum dwellers	30
Non-governmental organization	10
Dhaka City Corporation	1

To fulfill the objectives of this research, it was important to collect information from Dhaka City Corporation and participating organizations within the model. During the course of interview sessions with them, the issue of service charge collection from slum dwellers surfaced as important for cost-recovery. Therefore, samples for slum area survey were selected randomly in three different slums. The bases for selecting three slums are following:

- i. Slum location within the service area covered by the DCC-NGO partnership areas within zone 9 to verify whether the slum dwellers receive any service or not; and
- ii. Slum adjacent to high class, middle-class and low-middleclass residence area in order to identify whether income factor has any influence over willingness to pay for service charges among the slum dwellers and also to verify whether location factors have any influence on income and attitude.

The Project Director (PD) within Conservation Department of D.C.C. provided all the information available within D.C.C.

[17] Dhaka City Corporation, Direct interview

2.5. Data sources and collection method:

This research made an attempt to identify the issues that are essential in building a partnership. This approach required collection of qualitative data as a priority basis and supporting quantitative data were collected through direct survey and secondary sources. Primary data and information were collected from slum dwellers, non-governmental organizations and Dhaka City Corporation. JICA in particular, provided complementary data and information on solid waste generation and organizational aspects from their study for solid waste master plan for Dhaka City. A number of studies, carried out by various national and international institutions provided some supporting data and information. Data from secondary sources were used only to fill information gap and not to supplement primary data and information.

Primary data collection was carried out through direct field visit with one person assisting in arranging surveys and logistics. The person was trained for one week on how to keep records of the interview outcomes. Separate questionnaires were used to conduct field surveys and interviews for Dhaka City Corporation, non-governmental organizations and slum dwellers. To collect the secondary data, various national and international institutions were contacted ranging from international development organizations to national research organizations. In addition to direct surveys and interviews, Japan International Development Agency (JICA) and Canadian International Development Agency (CIDA) and Bangladesh Integrated Environment Development Forum (BIEDF) assisted the study with some key documents. JICA provided documents on the proposed master plan for solid waste management in Dhaka City which provided some important statistical information that was needed for the study and waived the necessity to conduct household surveys in formal households. CIDA provided the final report on their study on urban slums in Bangladesh entitled as “Slums of Urban Bangladesh: Mapping and Census, 2005”. BIEDF provided a copy of the “Terms of References (TOR)” containing information on rules and regulations for awarding solid waste service contracts within D.C.C under the existing partnership model and a copy of the work order as well.

A number of internet resources were used for this research. The names and data used from secondary sources are mentioned in due places with proper acknowledgement. [18]

2.6. Analysis of data and interpretation of the survey results:

Questionnaires were processed carefully in order to take notes on comments or suggestions made by respondents and interviewees. The data processing consisted of editing, coding of open-ended questions and tabulation of quantitative data. Data and information collected in this research were used to understand the existing model used by D.C.C. in solid waste management system (SWMS) and the needs within non-governmental organizations and Dhaka City Corporation in improving the model.

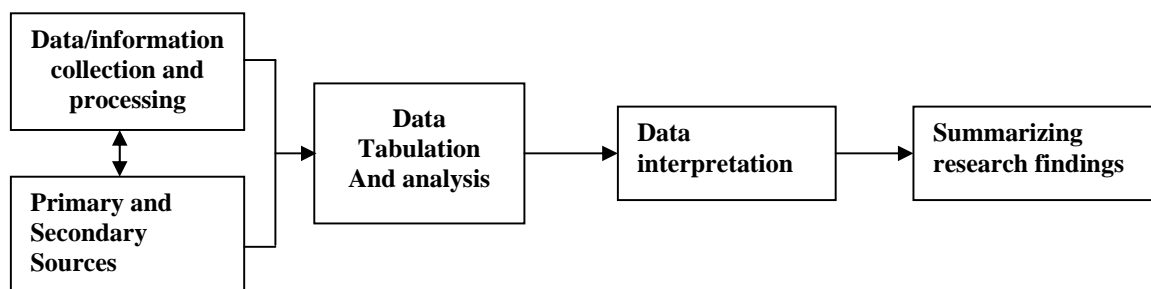


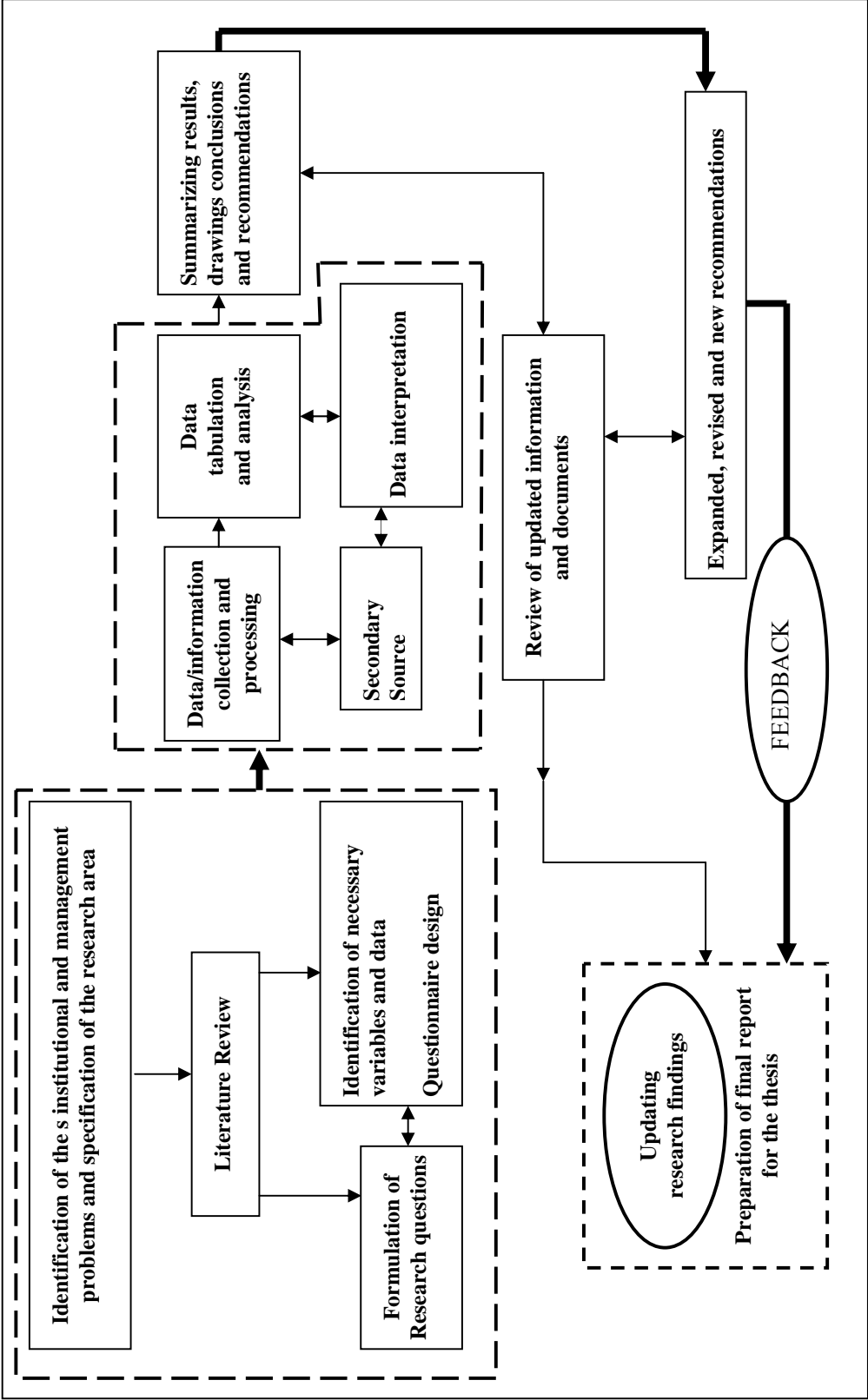
Figure 01: Stages followed in data analysis and interpretation

The data and information collected from slum dwellers were used to analyze their willingness to receive solid waste service delivery and what contribution can be expected from them. Data and information collected from non-governmental organizations and D.C.C. were used to identify key issues, which are needed to improve present partnership model in solid waste service delivery to urban poor. Non-governmental organizations provided with data and information, which were useful to understand existing problems and limitations within the present partnership model, and looked for their recommendation on how to improve the model in order to include urban poor communities.

The following flow-chart summarizes the research methodology that was followed for this thesis:

[18] See also Appendix .C. for the Bibliography

Figure 02: A schematic matrix showing the research methodology followed for this thesis



Adopted, modified and illustrated from the original diagram by: Grinnel Jr., Richard M.: "Social Work Research and Evaluation", F.E.PEACOCK Publishers Inc., Itasca, Illinois, U.S.A., p.p.33.

2.6. Scope and limitation of the study: This study makes an attempt to analyze the existing initiatives undertaken by Dhaka City Corporation for improved solid waste management. The outcome from this study was expected to explore obstacles and solutions to include urban poor within the SWS delivery model. This study has revealed some useful information regarding to willingness of the urban slum dwellers to pay for solid waste services and to what extent they want to participate. The findings from this research were opposite to the perceptions of DCC and non-governmental organizations on many issues. These unexpected findings indicated the importance of further research on urban poor with a broader perspective.

This study does not claim to be representative. It was impossible to select the minimum number of slums among the existing 4225 slums within Dhaka to make the data representative and many of the non-governmental organizations were unable to respond satisfactorily to the questionnaires in the first round of the interview due to lack of availability of information within their organizations and knowledge on SWM. The responses came out during second round only after a prolong seminar to explain the present solid waste management system and some official documents were provided. However, utmost care has been taken to collect as much information as possible from the respondents. However, all the respondents were spontaneous to cooperate and provided maximum amount of information that was available to them.

Chapter Three

Research findings from slum survey results

Slum areas are the accommodating approximately 2.5 million inhabitants as estimated in 2005 by a study conducted by CIDA. JICA estimation shows that peoples living within poor and ultra poor level generates 0.27 kilograms of solid waste per day. Solid waste generated by the slum dwellers are not collected by either City Corporation or private contractors. Slum dwellers usually dump wastes in nearby water bodies, open-fields or on road sides. This generation of solid wastes accumulates nearly 2,50,000 tons per year. The following table shows the estimation for generation of solid wastes by slum dwellers within DCC by 2015[19]:

Table 05: Solid waste Generation by Slum Dwellers

Year	Population within slums[20]	Generation of solid wastes (tons/year)
2004	25,33,758	2,49,700
2010	26,22,440	2,58,440
2015	27,14,225	2,67,500

(Source: Calculation based on studies conducted by JICA, 2005 and CIDA, 2005)

Populations within the slums are expected to be far greater than the above mentioned estimation in near future due to several factors. Most important factors will be the scarcity of land and economic opportunities for urban poor. The situation seems to continue to deteriorate resulting higher density in existing slums and establishment of new slums as well. UNDP (2004) estimated that around 50% of total population within Dhaka will live within slums and squatter settlements by the year 2015.

[19] The population growth estimation is based on the study Urban Slums,2005 by CIDA, where 2005 has been considered as the base year with 3.4% annual average growth rate

[20] CIDA,2005

This research found that the average size of the households in three slums is 4.8 in the study area which indicates that each household is generating 1.3 kilograms (kg) of solid waste per day and 475 kg per year.[21]

3.1. Trends in SWS delivery in slum areas:

The slum dwellers do not have the option to use the dustbins since they are not located nearby. Even the numbers of dustbins were insufficient and size of each dustbin could not accommodate the wastes generated within that locality. As a result, almost every dustbin was overflowed and discouraging to dump wastes properly in to those waste bins. The research found that many of the slums had dustbins nearby before the engagement of private operators in waste collection and removal. Many of these dustbins were gradually replaced by DCC within the partnership areas under the TOR agreement without providing any alternatives to slum dwellers [22]. This unwise initiative resulted in massive continual dumping of daily household wastes into near by water bodies, low and vacant lands, road-sides etc. In most cases, dumped wastes are not collected causing serious threat to environmental health and physical environment as well. Evidences found within the study area proved that, environmentally critical water bodies are being filled out rapidly due to huge dumping of wastes mostly generated by nearby slum population. Many roads have become unsuitable to walk on due to road-side dumping and odor.

Some of the slums were given small community waste bins to dump household wastes. For each ten households one bin was provided. Unfortunately, all the bins were stolen by the local thieves living within the slums and usually known to the slum dwellers [23]. Slums were given a second replacement bin but they were stolen once again. Since then, there is no dumping place and usual dumping within water bodies, open places and road-sides is in practice. Understandably, NGOs refused to provide any communal dustbins. Nevertheless, it was important to provide some sort of alternatives in order to avoid deterioration of natural and human environment within slum areas.

[21] Based on JICA estimation on solid waste generation of 0.27 kg/person within low income households

[22] Primary interview with DCC and NGOs

[23] Primary interview with slum dwellers

3.2. Existing situation in receiving SWS delivery

This research revealed the fact that the huge amount of solid wastes generated by slum dwellers did not get any attention by Dhaka City Corporation and private operators. There is attention to provide services in high and middle-income residential areas due to easy option for operational cost-recovery and do not provide any service to slum areas as they take advantage of the gap within the work order. There are certain problematic characteristics among the waste generation and disposal habits in the Dhaka City, which makes it difficult to provide services even within formal residential and commercial areas.

The main identified problems of solid waste and disposal within slum areas identified as:

- Lack of opportunities of waste disposal and environmental sanitation at household level;
- Negligence about solid waste management at community level;
- Roadside bins are insufficient in number and often broken;
- Scattering of wastes from bins by animals and scavengers due to irregular collection;
- Throwing of waste into drains, water bodies and open/vacant areas which cause blockages and overflow of drain-water and wastes into streets.

Slum areas are not considered for solid waste service provision. This negligence is proving costly since majority of urban population are living within slums in Dhaka City and the amount of waste generation by the slum households are not small. The failure in collecting solid wastes from slum areas not only exposes the threat of environmental health risks to slum residents but also deteriorating the quality of the surrounding natural environments as well.[24]. The slum dwellers have pointed out that many influential political leaders and business persons in the city have established many slum settlements at the middle of lakes or large water bodies and provided boats as a mean of transportation to dump solid wastes from neighbourhoods. This incident was evident near one of the slums surveyed (“Chairman Bari Baasti”). It is necessary to provide solid waste service delivery properly ranging from household waste collection to road side waste removal to protect the natural environment from further deterioration and environmental health of the slum dwellers.

[24] Primary interview and direct observation

3.3. Degree of solid waste management awareness among slum dwellers:

Majority of the households responded positively when asked about health risks associated with solid waste dumping. Majority of the households have knowledge on usage of waste bins as the proper way of dumping household wastes but complaints about the unavailability of waste bins near the slum area. The slum residents indicated that they do not have any solid waste disposal facility available since a long time.

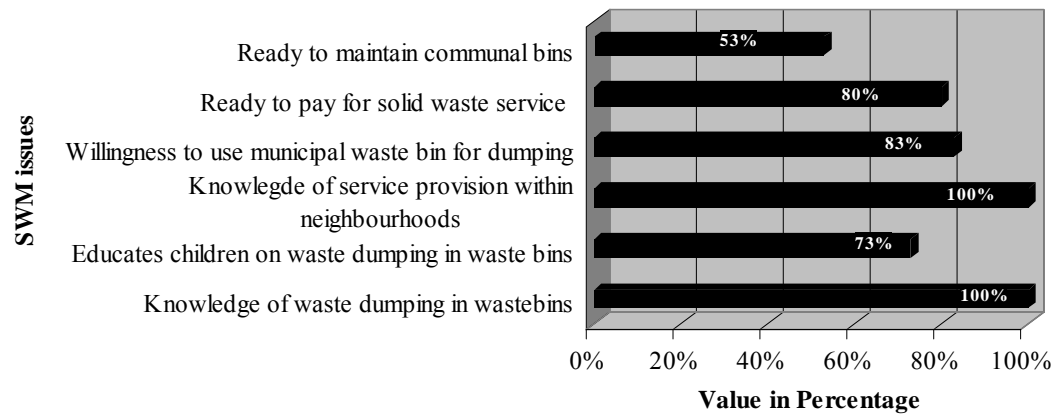


Figure 03: Reasons for supporting NGOs in SWS Delivery

3.4. Degree of willingness to participate in solid waste management:

The slum residents showed keen interest to participate in solid waste management within their slum area. Slum residents provided alternative options for participation. The survey identified that slum dwellers are willing to pay a monthly service charge to receive door-to-door waste collection service and ready to dump manually their household wastes in a specific waste bin if installed. Another alternative that has been experimented previously was the installation of a communal waste-bin each for ten households. However, this initiative could not be sustained since local miscreants stole communal bins several times at a regular interval.

Slum dwellers are well aware about the solid waste services within the formal residential areas and pointed out that if there were some provision for waste disposal, they would have disposed their wastes properly. More than two-third of the respondents have knowledge on

waste disposal in waste bins and teach their children on how to dispose wastes. Nearly 80% of slum dwellers are ready to pay for door-to-door service.

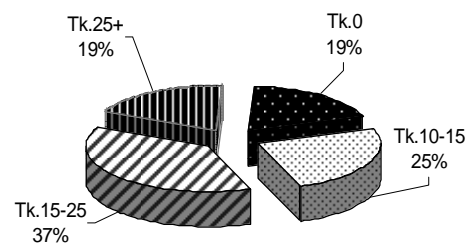
When asked if they can maintain communal bins to dump waste, fifty-percent of slum dwellers refused to have such facilities as they think that it is difficult to maintain due to irregular removal of waste from communal bins by private operators or DCC.

This research revealed that, both DCC and private operators have much misconception towards the willingness and ability of the slum dwellers to participate and contribute to municipal solid waste management.

3.4.1. Payment of service charges: The survey research found a mixed result regarding to payment for receiving solid waste service among slum dwellers. Peoples living in the slums located near to high-class residential area are willing to pay for 1 taka/day and peoples living in slums in middle or low-middle income residential areas are willing to pay for 15-20 taka/month as service charge.

As the diagram shows, more than half of the slum dwellers are willing to pay between tk.10-25 to receive door-to-door solid waste service, which is same as the monthly charge paid by middle-income households and nearly one-fifth of the population can pay tk.25-30 per month. This finding is significant since private operators have not provided any service to poor households arguing that they might not get service charges and face budget deficit.

Figure 04: Range of Service Charge to be paid by Slum Dwellers



Source: Primary survey, 2006

The respondents from non-governmental organizations pointed out the costs and efforts associated with the solid waste service delivery and argued that slum dwellers might not pay the service charges regularly. This study has found that most of the slum dwellers are ready to pay a reasonable service charge, which is acceptable to majority of the residents within their slums. Thus, this study found the claim of governmental and non-governmental

organizations baseless as the following table shows the amount of service charges collectable from the slums:

Table 06: Estimated amount of service charges collectable from slums within high and middle-income residential areas

Slum location	Number of households[25]	Willingness to pay service charge per month	Amount Collectable Per month
Banani Chaiman Bari Baasti	220	25-30	5500-6600
Uttara Tan Baasti	375	20-25	7500-9375
Mirpur Baistaki Baasti	275	10-15	2750-4125
Typical middle income residential colony[26]	300	25-30	7500-9000

(Source: Primary Survey, 2006)

The average amount of the service charge collectable from each slum household is very close or even higher than many middle-class residential areas. Again, the high density of households within slums can provide flexible option from imposing lower service charges for each household to encourage receiving solid waste service allowing waste operators to collect sufficient amount of fees to recover their operational costs.

3.4.2. Contribution through manual labour: Slum dwellers provided another alternative way of participation in form of manual labour to dump their own wastes into a large waste bin if installed in a convenient location within slum areas. Infract, this type of participation is the preferred way by every households. 80% of households responded positively for this kind of participation (figure 5). Following reasons were identified for manual participation:

- Door to door waste collection time might not match with their working schedule;
- Manual dumping allows households to dump wastes at their convenience;
- Large waste bins cannot be stolen and gives a sense of communal ownership;
- Slum dwellers need not to be responsible for maintenance of the waste bins;
- Daily removal of solid wastes from the waste bins will not be required;

[25] Estimated from information available from local slum dwellers

[26] Monthly service in Mohammad Pur residential area, Source: BIEDF,2006)

3.5. Problems and solutions addressed by slum dwellers:

Slum dwellers have pointed out many key problems on existing solid waste service provision. Absence of waste disposal bins or proper dumping places near to slum areas are responsible for open dumping of wastes on roadsides, vacant lands or in water bodies. Some N.G.O.s (i.e. Waste Concern) are working on installation of communal backyard composting facilities (barrel-type composting) which was not a viable solution to the respondents. Slum dwellers identified the following problems as major: [27]

- i. DCC or its contracted operators does not provide any waste disposal bins in slum areas;
- ii. Neither DCC nor its contacted operators remove wastes from slum areas including nearby roads or water bodies even though the both DCC and operators have legal obligation to provide services to slum dwellers;
- iii. DCC or the private operators never came to them to verify the possibilities of solid waste service provision resulting exclusion from service provision even if slum dwellers are capable of providing service charges;
- iv. Slums which received communal waste-bins previously were never given any alternative solution to dispose of waste; and
- v. If provided, the quality of door-to-door service might not be satisfactory since the collection time and frequency of collection could be inconvenient to slum dwellers, as most of the slum residents might not be present at the time of collection.

[27] Primary survey,2006

The above-mentioned problems are mostly related to primary collection and thus require convincing the slum dwellers that the facilities for primary disposal will be provided in consultation with them. The sustainability of service delivery system within the slum areas depend on the maintenance arrangement of the infrastructures that are used for the service provision. In case of solid waste service delivery, the installation and maintenance of communal waste bins proved to be unsuccessful in slum areas due to inability of maintenance and commitment of the residents.

Maintenance and active participation of the slum dwellers are very important to provide solid waste services to them. The research has found a number of critical issues that are vital to make any partnership functional. The following diagramme shows that slum dwellers would like to have solid waste service provision from NGOs instead of DCC.

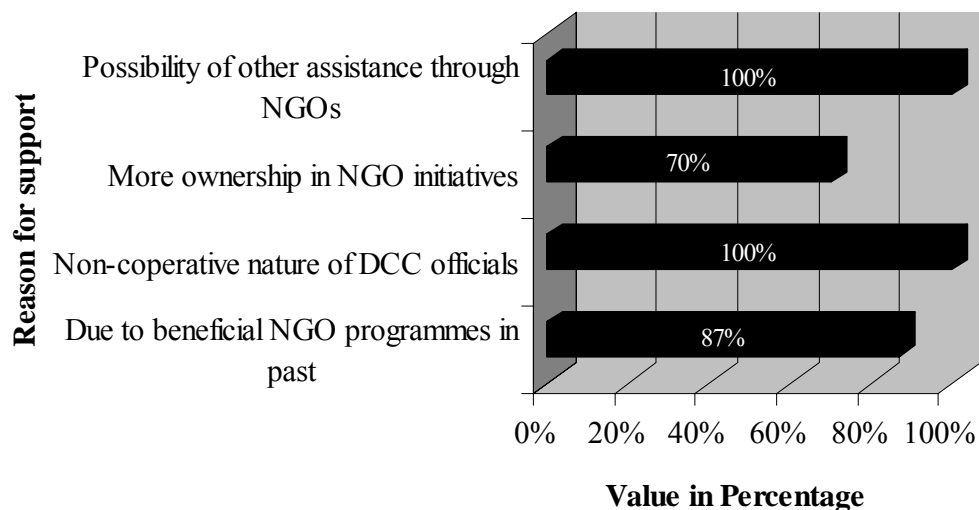


Figure 05: Reasons for Supporting NGOs in SWS Delivery

Slum dwellers preferred a municipal waste disposal bin as it gives them the option to dispose waste at their convenience as they can dispose waste any time when they finish their household works.

The following solutions and recommendations came out from the research:

- i. Slum dwellers are ready to pay for door-to-door collection service, if provided at their convenience (i.e. collection time, service charge, regular collection);
- ii. Slum dwellers can dispose wastes manually if door-to-door service is not possible and can pay a small maintenance fee between (5-10 taka); and .
- iii. Slum dwellers can maintain a communal bin (1 bin for each 10 households) if waste bins are conveniently located within slum areas, regular removal of wastes from the bins are done and preventive measures are taken from stealing of waste bins (i.e. brick build dustbins).

Slum dweller showed keen interest in providing solid waste services by NGOs. NGOs have won this kind of respect among slum dwellers with their committed effort in improving the lives of slum dwellers. Therefore, it is not surprising that the slum dwellers cooperate and work closely with NGOs more spontaneously. More importantly

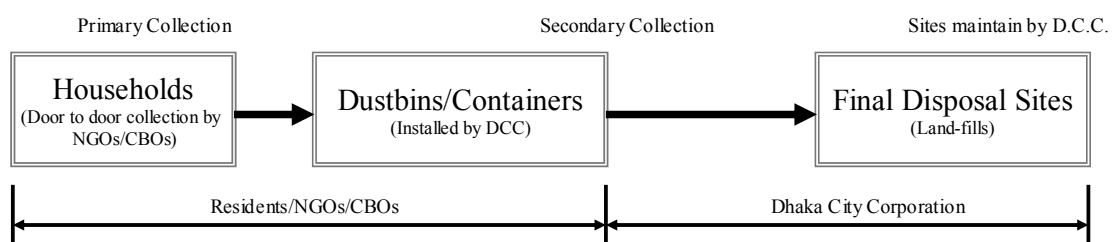
Chapter Four

Research findings from NGO survey results

4.1. Existing partnerships with local governments (D.C.C.) in SWMS

Since 2002, DCC has introduced public-private partnership (PPP) model based on service contract approach with non-governmental organizations comprising NGOs/CBOs/private organization to provide primary waste collection through door-to-door waste collection services in different wards. This model was intended to systemize the primary collection through reorganizing various types and size of organizations/individual engaged in solid waste management [28]. Therefore, DCC gave approval to organizations having capacity to provide service coverage for entire ward area. In some exceptional cases, half or part of a ward. Organizations submit proposals and DCC evaluate those proposals and approves them. At present, DCC has given approvals to 47 NGOs/CBOs to work in 57 areas, covering 52 wards. Not all NGOs who got approvals have started their activities due to shortage of manpower and equipment At least 15 NGOs, members of Bangladesh Integrated Environment Development Forum (BIEDF), have not yet started the activities mostly due to shortage of equipment and manpower.[29]

Figure 06: Arrangements within the present partnership model in SWM of DCC



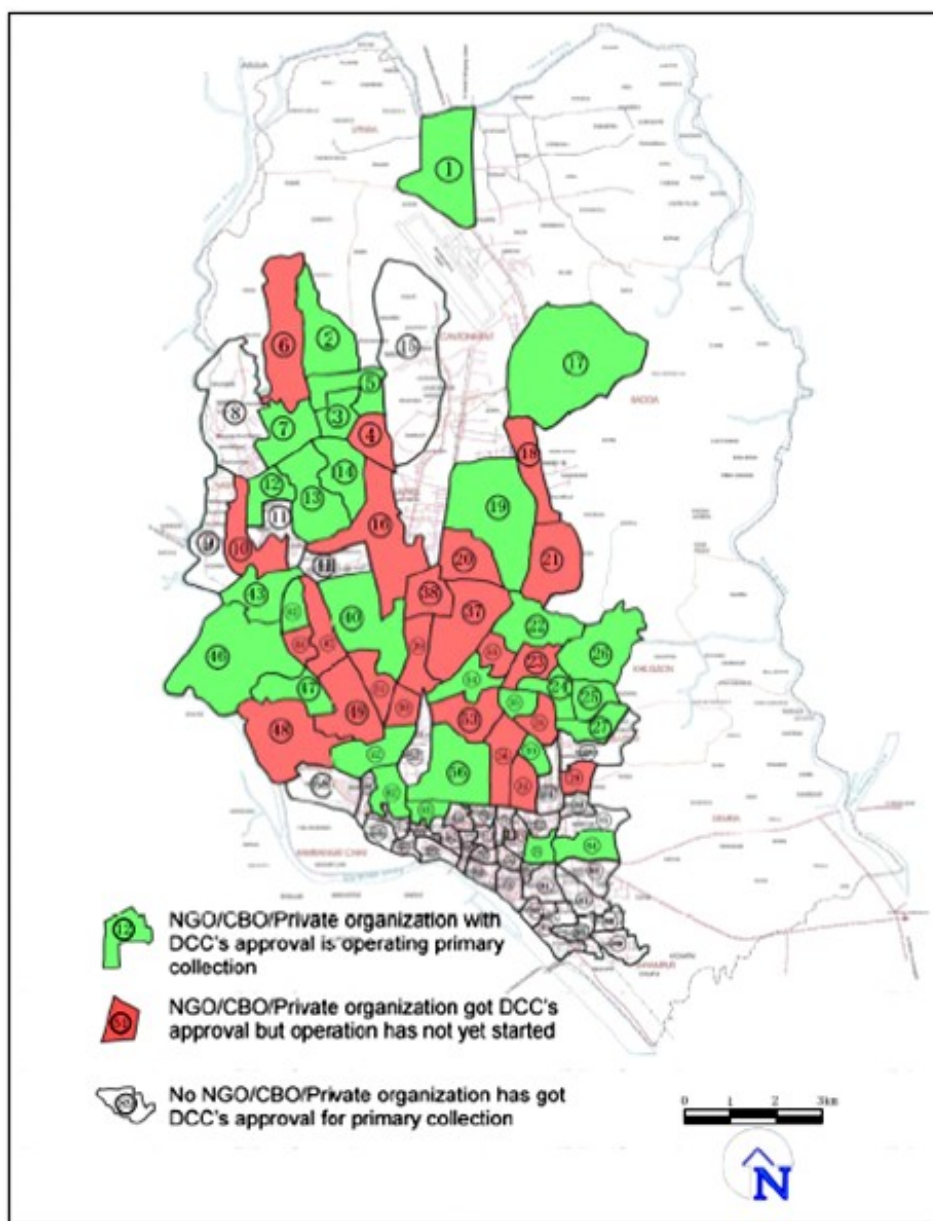
(Adopted from: BIEDF, Conservation Department of Dhaka City Corporation and JICA 2005/06)

[28] JICA master plan p.p.2-8

[29] Primary Interview with BIEDF,2006

BIEDF is a NGO that functions to coordinate between member NGOs working in the field of solid waste management, DCC, and other related organizations. With the support of BIEDF, 35 member NGOs got approvals for providing door-to-door waste collection services from DCC, covering 40 areas in 38 wards. This means 74% of NGOs that received DCC approvals are members of BIEDF [30]

Map: Distribution of NGOs/C.B.O.'s with DCC Approval for Primary Collection



Source: DCC Conservancy Department and BIEDF

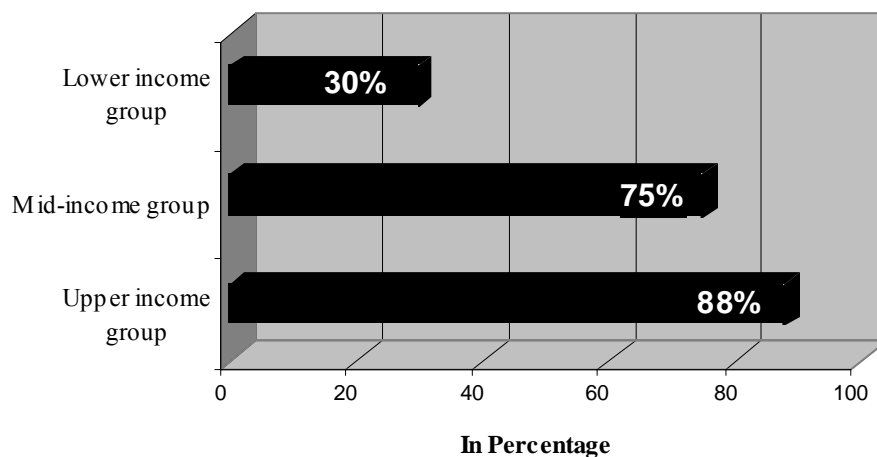
[30] Primary survey,2006 and direct interview with DCC and BIEDF,2006

DCC now has arrangement with NGOs to cover eight wards in two zones namely Ward 1 in Zone 10 and Ward 17,18,19,20,21,37,38 in Zone 9

4.2. Solid Waste Service (SWS) delivery to urban poor:

Slum dwellers never receive any kind of primary collection services. The survey outcomes and supporting data shows that only three sections of people receive door-to-door SWS and coverage is not satisfactory in every part of the contract areas. POs have concentrated to deliver services only in areas where they can collect monthly service charges easily.

Figure 07: Receive door-to-door waste collection



Source: Primary survey, 2006

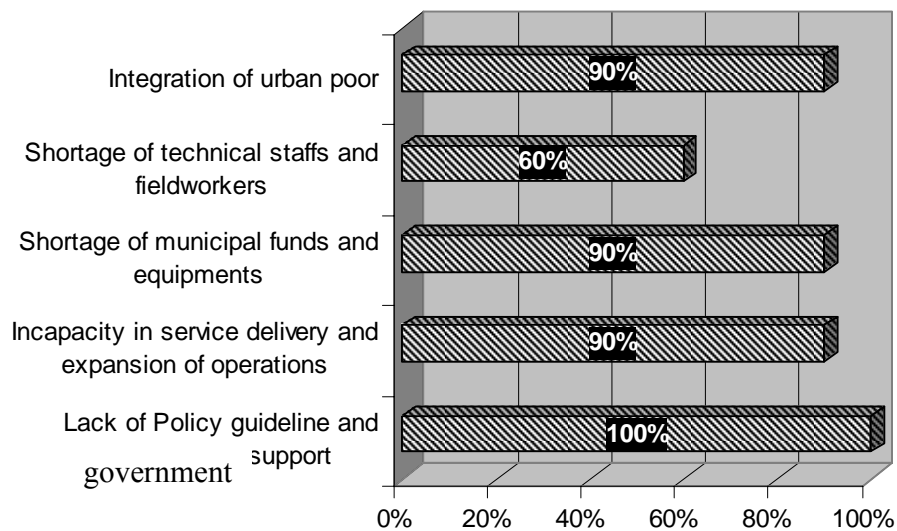
As shown in the figure, majority of upper and mid-income households receive door-to-door solid waste collection services where as only one-third of lower income group receive this service. These findings indicate that two-third of the low income households are not receiving solid waste service delivery from NGOs in the contracted areas whereas slum areas are completely out of services. PO's do not have any plan to extend service coverage to slum areas as they argue that it will raise the operational cost and put pressure on their existing budget. POs expressed their interest to provide services to slum areas if DCC gives them subsidy or increase the amount of contract money to cover additional operational costs to provide services in slum areas. Alternatively, they want DCC to negotiate with slum dwellers and give them authority to collect nominal service charges to be fixed by

slum dwellers themselves in exchange of door-to-door service delivery. Otherwise, they suggested that DCC should install community waste bins in a convenient location where slum dwellers can dump their wastes and DCC collect the waste at their own responsibility. This option was widely supported by the slum dwellers as they do not have to pay for SWS or the service charge will be very low. Nevertheless, POs have not yet taken any initiative to conduct a feasibility study to explore this area either by them or jointly with DCC.

4.3. Major problems identified in inclusion of slum dwellers for SWS:

The research has found several common issues that were addressed as major problems by both DCC and NGOs. Lack of policy guideline and support mechanism was identified as the most critical problem by all the NGOs and DCC.

Figure 08: Major Problems Identified by NGOs for SWS delivery to Urban Poor



(Source: Primary Survey, 2006)

NGOs have pointed out that DCC has not considered empowering NGOs at the initial stages of the SWMS as most of the NGOs were new in SWM. Since the beginning of the PPP from 2002, NGOs have not received any professional development training on SWM nor they were introduced with modern SWM techniques to use modern equipments.

The initial learning period was devoted to cover as much households as possible to recover the amount of money that is paid to DCC as bid money. Therefore, less effort was paid to develop organizational and management skills. As a result, NGOs are now facing problems of adequate number of technical staffs creating a vacuum of knowledge which is restricting NGOs to engage in facilitating and coordinating the commercial activities like composting or recycling of informal sector. NGOs were not ready to accept the fact that it was their own responsibility to explore new areas for service provision in order to increase their income and gradually develop relationship with financial institutions. But they failed to capitalize this opportunity as they could not build any credible reputation due to lack of proper exposure and communication.

4.4. Supports sought from government (DCC) to establish effective partnership:

The commitment of the NGOs involved in solid waste management is unquestionable to fulfill their task assigned by DCC. With their limited capacity and knowledge they have built a network and cooperative mechanism among themselves to support each other and work as a team to achieve common goals. As most of the NGOs work locally at community level and new comers in the filed of solid waste management, they require assistance and cooperation from DCC to enhance their capacity for further development. The following supports were sought:

- I. ***Standardization of service procurement rules, contract agreements, and technical-financial-infrastructural assistance:*** Without being critical of D.C.C.'s role as the regulatory authority, NGOs wanted to establish joint evaluation and monitoring system to ensure the quality of service delivery. All the NGOs sought support from DCC in order to formulate standard service procurement and contract award policy which provides clear and elaborated instruction on organizational and management issues, provision of technical, infrastructural and financial assistance, guideline on commercial waste processing activities, provision for joint inspection , monitoring and evaluation. That is, al the NGOs wanted to have a compressive policy guideline from DCC.

Table 07: Supports and assistance sought by NGOs from DCC

Support sought from DCC	Supported by NGOs	In Percentage
Standardization of service procurement rules and contract agreements to ensure necessary technical-financial-infrastructural assistance	10	100%
Modernization of municipal laws for provision of grants and subsidy	10	100%
Comprehensive regulations and framework on public private partnership in SWM	10	100%
Transportation and hardware support at initial stages	08	80%
Assistance in acquiring soft-loans and funds from international donors to expand operation	7	70%
Grants and subsidy from public fund to encourage SWS in slum areas	8	80%

(Source: Primary Survey, 2006)

II. *Modernization of municipal laws for provision of grants and subsidy:* All the NGOs pointed out that the DCC Act, 1983 does not provide any clear instruction on what regulatory and income-tax provision applies to NGOs for engaging in to commercial activities using their collected solid wastes raw materials for processing. The National government has national policy on NGOs, but Municipal laws are not updated to clarify whether NGOs engaged in such activities should be considered as private companies or not. NGOs are eligible for receiving funds from local or international donors which is not permitted for private companies. Therefore, to avoid further debate and bureaucratic complexities, the DCC Act will need to provide instruction.

III. *Comprehensive regulations and framework on public private partnership in SWM:* NGOs supported the fact that only modern rules, service agreement or Acts cannot ensure proper development of SWS delivery sector as this sector has multi-dimensional

characteristic comprising environmental, social-economic and commercial aspects. In addition to them, solid waste management requires involvement of several departments to ensure service quality. To avoid institutional and bureaucratic complexities, NGOs want one-stop service from DCC where they can get all the services required ranging from bidding to payment. The need for a comprehensive regulations and framework on public private partnership in SWM was assumed since POs might have to establish partnership with commercial private companies as well as international donors to acquire financial or technical assistance. Without a PPP framework that is compatible with other PPP frameworks recognized as a standard, might create unnecessary delay for approval from DCC.

- IV. ***Transportation and hardware support at initial stages:*** The Majority of the NGOs (80%) want assistance from DCC at the initial stage of their operations in terms of provision of small trucks or non-motorized vehicles for a time period to be agreed by both DCC and respective NGOs. In addition to that they needed additional instruments to collect wastes when there is excess demand. However, DCC opposes this demand as NGOs were supposed to estimate and arrange their own transportation and equipments needed for primary collection.
- V. ***Assistance in acquiring soft-loans and funds from international donors to expand operation:*** More than two-third (70%) NGOs were in need for finance to expand their operations in new households. As NGOs do not receive any subsidy from DCC and are not in a position to invest from their own resources, they seek for DCC assistance as a facilitator and guarantor to get soft-loans of funds from national or international donors.
- VI. ***Grants and subsidy from public fund to encourage SWS in slum areas:*** Drawing examples from projects run by other NGOs, POs insisted that DCC could also help them with some sort of grants or subsidy to cover the cost of service delivery within slum areas incase, slum dwellers refuse to pay service charges. The fact is that, local governments gave small grants to 7.1% of small NGOs working in educational and

health sector, but the mechanism is not available publicly[31]. DCC is not willing to make any contribution in this context due to its severe budget deficit and encourages the NGOs to self-finance.

4.5. Cross-cutting issues supported by NGOs in delivering SWS to slum areas:

Non-governmental organizations admit that they are in better position to extend solid waste service delivery to slum areas. 10 out of 10 NGOs surveyed for this study has said that they are extending services in slum areas as slum areas do not fall within partnership agreement with DCC. Slums do not have legal recognition and other public utility service providers do not give access to facilities as well. But they agreed to deliver solid waste service delivery if DCC establish any suitable arrangement with them under a specific partnership agreement or updating present one.

In this connection, 70% of NGOs pointed out the need for international funds or investments in order to cover operational costs to deliver free services to slum areas. They argued that international donors are funding several NGOs through large national NGOs, those are working in slum areas and easily can integrate provision for funds for solid waste service delivery and can hand it over to DCC for allocating to POs (BIEDF).

When questioned why they feel that NGOs should be engaged in solid waste service delivery in slum areas and not DCC, all the NGOs supported their claim by saying that they are much more organized and functional in the field compared with DCC and the trust that slum dwellers have for NGOs on provision of quality services puts them in a better position. In terms of cost-sharing, NGOs feel that DCC should share cost of SWS so that slum areas can be brought under service coverage. Compared with 100% support from NGOs in favour of cost sharing, a contrast in opinion came out as 75% NGOs opposed the statement that NGOs look for self-finance or arrange finance at their own risk while 30% of

[31] World Bank Study on Bangladesh NGOs, 2004-2005

NGOs supported this statement as they cover areas where the service charge collection fee is higher than other contracted areas.

Table 08: Cross-cutting issues supported by NGOs in delivering SWS to slum areas:

Issues	Percentage of NGOs agreed			
	Strongly Disagree	Disagree	Agree	Strongly Agree
POs should provide SWS to slums			100%	
PPP is essential to ensure SWS in slums			100%	
International investment is necessary		70%		
NGOs can play more effective role as POs			100%	
DCC should share cost of SWS			100%	
POs should look for self-finance rather to look for assistance from public funds		70%		
Informal sector is the key for sustainability in any SWMS			100%	

(Source: Primary survey, 2006)

All the NGOs agree with DCC that informal sector is the key for sustainability in any SWMS as this sector comprise informal waste collectors (Tokai) and informal recycling plants. Most importantly, the majority of them live in slums in Dhaka City (see p.64).

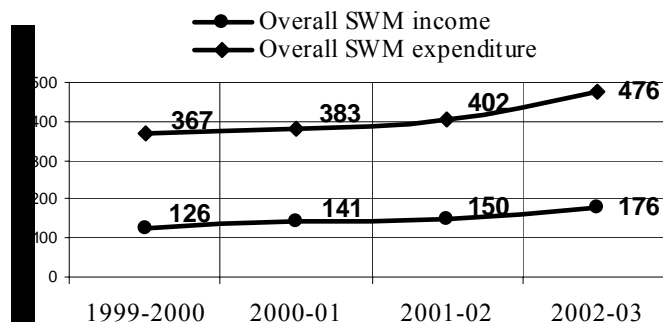
Chapter 5:

Research findings from Dhaka City Corporation (DCC) survey Results

5.1. Present situation in SWS delivery to urban poor by DCC

Heavy budget deficit and inefficient solid waste management system has resulted serious gap within SWMS. DCC budget for SWM for financial year 2002-2003 was tk 176 million from their own account with a budget deficit of Tk.300 million. This income gap compels DCC to squeeze its expenditures except for salary/wages. This limitation in financial and management has made DCC inefficient to expand their service coverage satisfactorily in under-served or new areas and improvement in service quality has experienced serious set-back.

Figure 09: Financial Balance of SWM



(Based on: DCC, 2006 and JICA, 2005)

Dhaka City Corporation accepts the liability for the failure to deliver solid waste services to urban poor as DCC severely lacks funds for expanding solid waste services to every part of the city and lack of manpower to make it impossible to collect wastes from slums and their neighbourhoods [32]. DCC have not clarified whether private operators should provide

[32] Primary survey with DCC,2006

SWS to slum areas allowing private operators to exploit this gap by excluding services from slum dwellers and taking advantage of weak supervision. DCC does not have any policy and plan on how to ensure SWS delivery in slum areas and to its neighbourhoods. These limitations have resulted in the exclusion of urban poor living in formal and informal settlements from solid waste service provision.

5.2. Legal and regulatory responsibility in delivering SWS to urban poor

Dhaka City Corporation is legally obliged to deliver essential services to all section of people who apply for access for services. But DCC provides connections or services like water supply and sanitation only to households having legal land titles. As the slum or squatter settlers could not provide any proof of legal entity of their households, they were denied access from essential services. It was only recently when national governments and international development agencies recognized the importance of inclusion of urban poor in the service delivery system. ADB (1999) redefined urban poverty as:

“Poverty is a deprivation of essential assets and opportunities to which every human is entitles. Poverty is measured in terms of basic education, healthcare, nutrition, water and sanitation, as well as income, employment and wages. Such measures must also serve a proxy for other intangibles such as feeling of powerlessness and lack of freedom to participate.” [33]

With growing pressure from local and international organizations, D.C.C. under took some slum upgrading projects and viewing the positive results the Government of Bangladesh (GOB) made it mandatory to include slum upgrading components in every urban infrastructure development projects since 1999[34]. These efforts are limited in construction or upgrading physical infrastructures like internal streets, sanitation and drainage. In some projects access to water supply were granted through installation of community water taps or tube-wells. According to the Section 78 of Dhaka City Corporation Act, 1983, DCC is responsible for solid waste service delivery.

[33]ADB,1999: Beyond Boundaries: Extending Services to The Urban Poor”

[34] GOB and ADB,2000: Bangladesh Secondary Town Infrastructure Improvement Project, Phase-II, Slum Upgrading Component

Table 09: Gaps and opportunities of DCC Act, 1983 ordinance for SWM under PPP

Ordinance sub-clauses [35]	Gaps within the Act	Opportunity for PPP
The Corporation shall make adequate arrangements for the removal of refuse from all public streets, public latrines, urinals, drains and all buildings and land vested in the Corporation, and for the collection and proper disposal of such refuse.	- This section does not clarify whether informal settlements i.e. slums or squatters will receive SWS - This section leaves gap for service provision for urban poor	-NGOs/CBOs are assigned for SWS delivery in formal settlements -Informal settlements are not receiving SWS
The occupiers of all other buildings and lands within the Corporation shall be responsible for the removal of refuse from such buildings and lands subject to the general control and supervision of the Corporation.	No supervision by DCC enabling informal settlers to dump wastes in open fields, roadsides or water bodies located in neighbourhoods	Private operators do not provide waste removal services in inner streets taking advantage of lack of DCC instructions
The Corporation may cause public dustbins or other suitable receptacles to be provided at suitable places and where such dustbins or receptacles are provided, the Corporation may, by public notice, require that all refuse accumulating in any premises or land shall be deposited by the owner or occupier of such premises or land in such dustbins or receptacles.	-DCC does not provide any dustbin for the informal settlements nor install them at convenient distance -Negligence by DCC escalating risk for environmental health for urban poor	-Private operators do not assist in removal of wastes from informal settlements act does not provide any instruction
All refuse removed and collected by the staff of the Corporation or under their control and supervision and all refuse deposited in the dustbins and other receptacles provided by the Corporation shall be property of the Corporation.	-The act does not clearly recognize governments policy for service delivery to urban poor through public and private agencies and thus need to be updated	-Empowers DCC to establish PPP -Gives authority to DCC to decide what to do with refuses and whom to serve

[35] Source: Dhaka City Corporation Act ,1983

The Dhaka City Corporation Act, 1983 provides a general policy guideline on SWMS within Dhaka City and assigns overall responsibilities to take all necessary initiatives to ensure proper SWM starting from primary collection to final disposal. DCC is empowered to take any necessary actions or make service contract with private service providers (operators). Local households are obliged to dump solid wastes into municipal dustbins or give waste to private operators authorized by DCC within formal households. Following the principles of other public service providers, DCC does not provide solid waste services to households which do not have legal land/property rights contradicting government's commitment in poverty reduction and improvement of lives within urban poor.

DCC were supposed to build adequate number of dustbins to ensure proper dumping and collection of solid wastes in every part of the city. But the number of dustbins is inadequate and most often are not suitable for dumping due to overflow of wastes from them. This is resulting serious environmental health threats among neighbourhoods and also within slum areas [36]. As private operators are not willing to remove wastes from neighbourhoods of slum areas, unless they are subsidized by DCC, most of the open/vacant land, roadsides and water bodies are experiencing pilling of wastes resulting severe air and water pollution.

DCC Act, 1983 gives adequate power to DCC and municipal Corporations to design terms of references (TOR) for awarding of service contracts to private operators and keep the regulatory rights to monitor activities to extend or dissolve service contracts. This act does not clearly defines whether informal settlements are eligible for SWS by private operators or not. This gap has allowed private operators to concentrate to work within areas that generates adequate monthly service fees assuming that informal households are not able to pay service charges.

The gaps within existing clauses of Section 78, provides adequate policy guideline but need to be updated and specified to deal the changing urbanization trends and socio-economic characteristics within urban poor.

[36] Primary interview,2006

5.3. Existing partnerships with non-governmental organizations: The growing pressure and inability of DCC to satisfactorily provide solid waste services has led to systemize the existing practice of public-private partnership with non-governmental organizations in order to improve the efficiency with overall SWMS. There was a number of partnership approaches prescribed by the World Bank in General in 1998 which was widely promoted as tool kit by ADB afterwards for Asian countries[37]. The following table gives an overview on the different partnership approaches considered by DCC:

Table 10: Potential of Public-Private Partnership Models to Serve the Poor

Options	Potential to Serve poor	Asset Ownership	Operation & Maintenance (O & M)	Capital Investment	Commercial risk	Duration (In Years)
Household management	Medium	Private Household	Private Household	Private with public	Private Households	Indefinite
Community Management	Strong	Community	Community	Public with community	Public with community	Indefinite
Small independent Providers	Strong	Private Business	Private	Private	Private	Variable
Service contract	Least	Public	Public and private	Public	Private	1-3
Management contract	Medium	Public	Private	Public	Public	3-5
Lease	Strong	Public	Private	Public	Shared	8-15

(Source: ADB, 2000 and modified after analyzing data from direct interview with DCC and BIEDF, 2006)

[37] Asian Development Bank (ADB),2000 : Beyond Boundaries: Extending Services to The Urban Poor, p.p.09

JICA has made a comprehensive study and compiled a brief description of existing partnership arrangements which has been shown in the following

Among these approaches, DCC opted to work with three different approaches in different times.

1. ***Community-based management:*** In partnership with Waste concern as pilot project by providing public lands. Not operational in DCC at present;
2. ***Small independent providers:*** Through giving permission to small community based organizations for primary collection within high-middle and middle income areas including commercial areas;
3. ***Service Contract:*** In partnership with BIEDF under a Terms of Reference (TOR) where DCC provides a contract to them and charges an amount that is payable in monthly installments to D.C.C. and subject to extension after one year from contract-award time based on performance. This is the present model for SWS delivery.

The Household management approach was widely practiced for a long time as this system proved to cost-effective and easy to maintain. High income residential areas had their own societies through which they initiated community based SWM by introducing door-to-door collection method in 1988. Sensing the commercial prospect, many small clubs and CBOs started to provide door-to-door collection of solid wastes in middle-income and high-middle-income groups. But unprecedented population growth demanded more innovative and professional systems other than to limit the SWMS in primary collection through private service providers. As there was not enough regulatory framework and policy guideline on privatization of SWMS completely, DCC needed to comply with DCC Act, 1983 and established the existing PPP primarily with BIEDF which gives a ground to further develop the model.

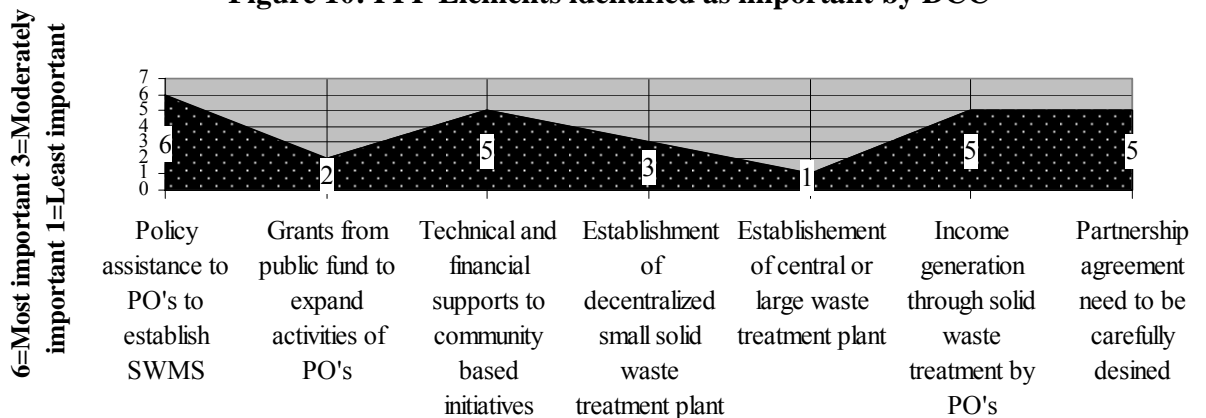
Unfortunately, the research found that, even after a four year period, this model has not been developed or updated in order to extend services to other parts of the city. JICA

provided some technical assistance to prepare a master plan for DCC in SWM but fails to address the issue of empowering partner NGOs in order to deal with market demands and income generation. DCC is willing to provide technical assistance to private operators but strongly recommends to seek for financial help from their own sources [38] to expand or reorganize their operations.

5.4. DCC opinion on policy and institutional elements in PPP for SWM:

The government does not provide any solid waste management policy at local or national level. Therefore, the need for such policy support felt to be very important in order to create a formal platform to utilize compostable and recyclable wastes. DCC has pointed to several elements which they consider as important in public-private partnership for solid waste service delivery as shown in the figure:

Figure 10: PPP Elements identified as important by DCC



(Source: Direct interview, 2006)

DCC expressed their full support to privatize the solid waste service delivery under specific terms of reference to establish SWMS in wards. DCC wants to retain the regulatory power and PO's to be accountable to DCC. However, DCC completely opposed the proposal of providing funds and equipment from DCC to expand or establish new operations as it wants the PO's to arrange finance and necessary operational arrangements from their own funds or at their own responsibility. Keeping in the mind their limitation in man power,

[38] Primary interview,2006

infrastructural facilities and budget deficits to establish and maintain large and modern waste treatment plants or large sanitary landfills, DCC encourages small community based initiatives so that establishment and operational costs for small PO's remain low and pressure on DCC is reduced. In this context, DCC expressed their interest to provide technical and financial support to non-profit community based initiatives under the management of community representatives.

During the interview session, the necessity of a solid waste management policy at local and national level surfaced as vital time and time again. Dhaka City Corporation Act, 1983 is not sufficient to supplement a policy guideline. DCC officials stated that there was no attempt by the government to formulate policy guidelines to compete with evolving nature of public-private initiatives. The lack of institutional and regulatory framework in establishing PPP has created several complexities with the existing SWMS for DCC. Such as:

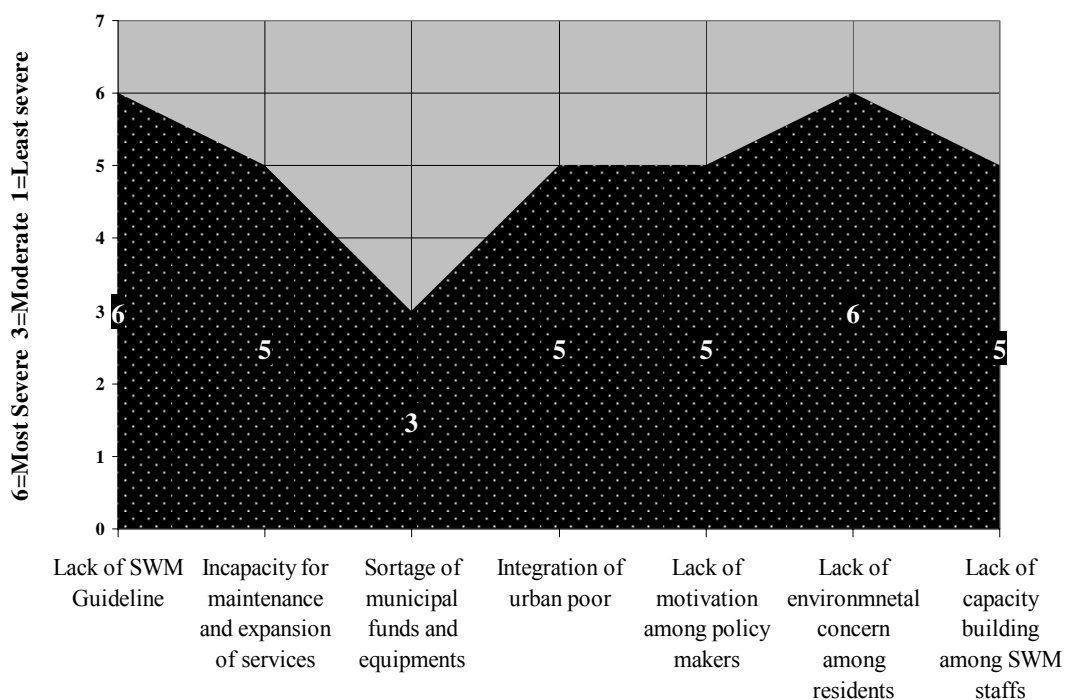
- i. Unnecessary delay in approval proceedings i.e. contract award and payment;
- ii. Inability to provide assistance as facilitator between different stakeholders i.e. to act as a guarantor on behalf of PO's to acquire financial loans or community/private lands etc;
- iii. Limiting the scope of conducting necessary research or feasibility study on exploiting commercial value and productivity with the waste processing sector that includes composting and recycling;
- iv. Creates conflicting situation among DCC and PO's in issues like expansion of service coverage, inspection and evaluation reports, extension and rewarding contracts;

- v. Standardization of terms of references (TOR) in PPP for solid waste management could not be established and incompatibility with general public procurement rules due to evolving nature of activities within non-governmental organizations; and
- vi. Rules and regulation on joint commercial venture among companies and non-governmental organizations do not exist thus limiting the scope of private entrepreneurs to invest within solid waste processing activities.

5.5. Major problems identified for inclusion of urban poor in SWS delivery:

In course of the interview, this research found that DCC do not have any policy guideline on how to enforce the existing regulatory measures in order to ensure the service quality and extend services to urban poor through partner organizations. This gap in existing service delivery system has been resulted due to lack of SWM policy guideline for DCC and DCC mentioned it as the most important factor to improve overall SWMS and plan for future.

Figure 11: Major Problems for SWM identified by DCC



(Source: Direct interview, 2006)

As shown in the figure, DCC pointed out the lack of environmental concerns among residents as another problem to further improve the system. Policy makers have also failed to address the problem of solid waste management to the people and never took any initiative to provide instructions to DCC to formulate any guideline on SWM for DCC. This situation has led all existing initiatives to instability as there is no framework on what issues have to be included to establish public-private partnership for solid waste service delivery. The organization of responsibilities for SWM in DCC is not efficient as different departments are responsible for specific type of activities. DCC cannot provide instruction to PO's to extend their services to urban poor since DCC itself does not provide any sort of basic services in informal settlements with exception of some project areas. Following complex situation has emerged and thus has raised many serious questions pointing at the weaknesses for the existing model. Such as:

- i. DCC can not force the private operators to deliver services to informal households due to moral reasons as public utility agencies do not give access to them;
- ii. The contract money is sufficient to provide services to existing areas but will create severe debate with private operators if service coverage is expanded to slum areas without decreasing the amount of contract money or provision for subsidy as they fear that slum areas will not generate enough money to cover operational costs;
- iii. Private operators collecting enough money to participate in the tender and pay to win the bid. DCC does not have proper monitoring and supervision system to enforce private operators to be accountable and transparent in financial reporting to DCC so that DCC can enforce PO's to utilize some part of the profit to delivery services to slum areas;
- iv. NGOs have allegedly said that, the evaluation and grading system introduced by DCC leaves plenty of space for corruption and often they had to bribe DCC inspectors for better grades and renewal of service contracts which ultimately discourage private operators to initiate research for income generation activities like composting and recycling;

- v. DCC do not cooperate with the private operators to engage in income generating activities as this might result in distraction of attention from primary responsibilities assigned to private operators. But most of the private operators were willing to extend services to urban poor if the operation cost can be recovered from commercial use of wastes or expansion of services. But no initiative or feasibility study has been carried out yet to verify PO's proposal. Though this research has found that DCC is right in many aspects; and

- vi. Private operators want to expand their operation for commercial composting projects even though they lack capacity in terms of technical know-how, human resources and funds due to higher profitability. Diversion of attention to commercial activities is resulting in less effort in expanding service coverage to include new households to increase income from primary collection activities.

The DCC interpretation of solid waste service delivery was encouraging but it also points toward the fact that DCC can not provide service to urban poor. DCC has recommended empowering the slum dwellers as they are the major player in terms of their dominant role in the overall solid waste management system of the city as scavengers or informal processing activities. With the limited resources and lack of maintenance capability, DCC suggests developing the management and financial capacity within slum dwellers so that they can maintain and manage their own waste and allows DCC to provide removal of waste at its convenience. Nevertheless, contract between DCC and NGOs clearly states that PO's are legally bound to provide services to all parts of the contract area which in general terms also include the informal settlements. But due to institutional incapability and lack of policy guideline, DCC has not been able to draft a well defined service procurement guideline in order to enforce the TOR strictly and provide necessary guidance to PO's to improve their service quality and expansion of service coverage through exploiting commercial value of waste. In other words, lack of policy guideline on SWM is not allowing DCC, NGOs and slum dwellers to participate in improving solid waste service delivery in Dhaka City.

Chapter Six

Analysis of the research outcomes

The overall weakness of public sector provision of services has encouraged the private sector to establish partnership in service provision. Local governments are empowered by the constitution to take any necessary initiative to ensure service provision and equity. Thus, local governments can make partnership with any organization to provide services. Local government and N.G.O. partnership is not only a question of signing a memorandum for a single project. Rather it is a long-term development mechanism for Bangladesh with a firm commitment to achieve common sustainable development goals. With decline in foreign assistance and grants to N.G.O.'s and strict government regulatory measures towards the expenditure of foreign donations made many small N.G.O.'s to close-down their operations and many have to restrict operations in selected projects or have formed associations to survive. Such situation is undesirable since most of the N.G.O.'s in Bangladesh are small and based at grass-root level where large N.G.O.'s and local government cannot reach. With the closure or inactiveness of such N.G.O.'s, those grass-root communities become hard to reached and much resource is wasted to re-establish the network and bring them back in to the development scheme. A recent publication by the World Bank rightly pointed out that [39]:

“The unique nature of Bangladesh’s NGOs is not confined to the delivery of social services and pro-poor advocacy. NGOs have developed commercial ventures in order to link poor producers with input and output markets as well as to develop a source of internally generated revenue. As we look forward, the draft Poverty Reduction Strategy Paper (PRSP) views the role of NGOs as an integral part to achieving national poverty reduction targets, particularly through delivering and facilitating pro-poor services.”

[39]The World Bank, Poverty Reduction and Economic Management Sector Unit South Asia Region: The Economics and Governance of Non Governmental Organizations (NGOs) in Bangladesh, August 2005 p.p.i

Non-governmental organizations in urban areas work as community-based organizations and provide much needed support to DCC to fill the gap of service deliveries. The research outcomes of this study supports the claim that community based initiatives for SWM can provide a viable solution for big cities within developing countries where cities are struggling with limited budget for service delivery. New perspectives on solid waste management are emerging based on experience with the environmental, socio-economic and institutional consequences of conventional methods of managing solid wastes. These new views recognize that waste management can only be improved through making better use of the resources of residents and small and micro-enterprises that are operating in their own neighbourhood communities [40]. Community-based services are complementing DCC's effort to fill the gap in solid waste service provision within the formal households and their neighbourhoods.

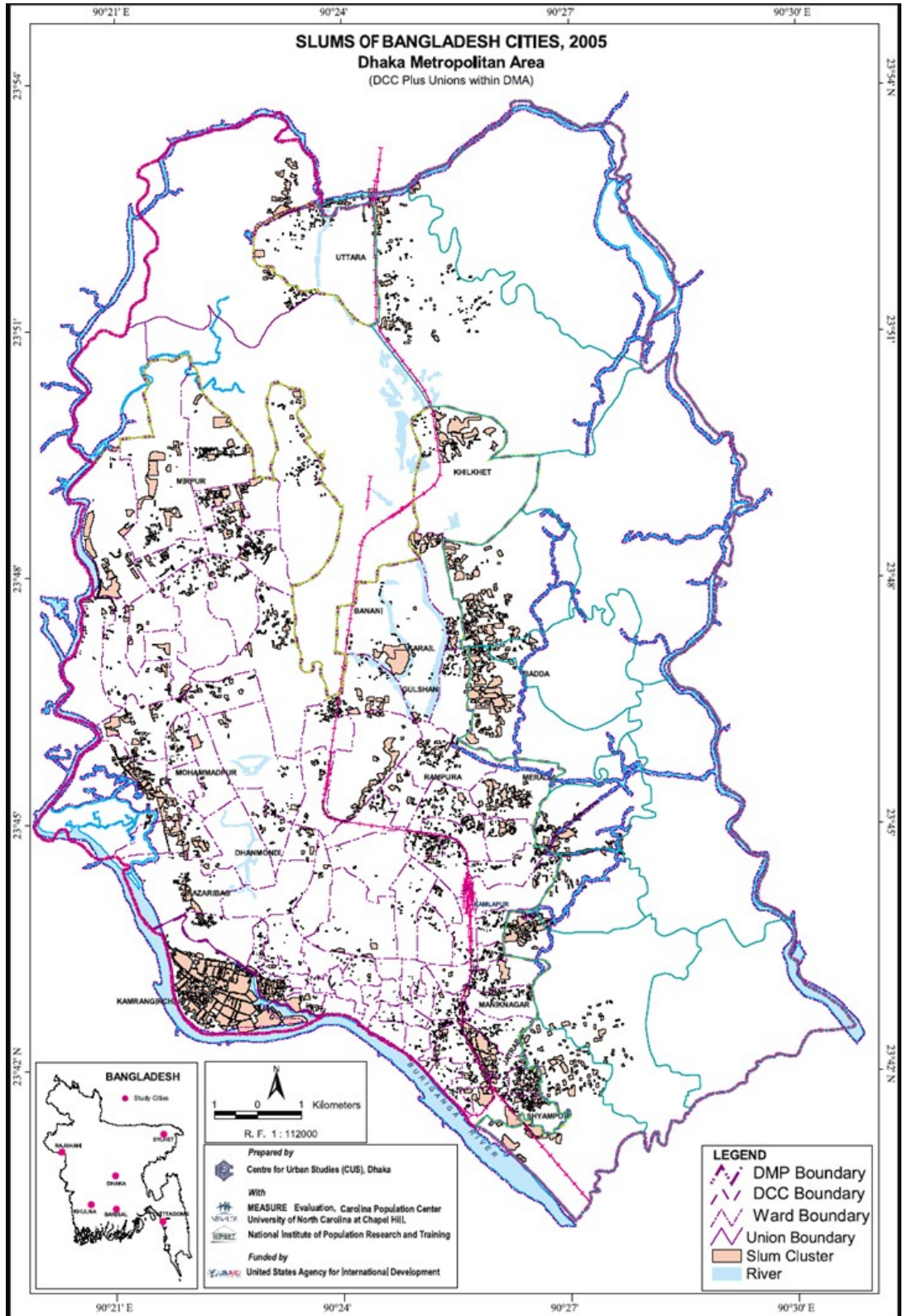
This research found that exclusion of urban poor is the result of failure to assess the ability of the urban poor to pay service charges and inability of DCC and non-governmental organizations to devise a subsidy scheme on how to balance the deficit budget to provide solid waste service to urban poor. The Majority of respondents within the slum areas have agreed to pay same amount or even higher amount of service charges as other pay to POs.

Slums in Dhaka City are located in every part of the city in pockets and vary in size and population. Solid waste service coverage by POs is limited within formal residential and commercial areas (See p.43). The wide spread extension of slums accommodate the largest part of population which generates a huge quantity of solid waste. It is not difficult to assume that these wastes are not collected as only 10% of the solid wastes are collected by DCC through POs [41].

40 Muller, Iyer, Keita, Sacko, Traore: 'Differing interpretations of community participation in waste management in Bamako and Bangalore: some methodological considerations', *The Journal of Environment & Urbanization*, Vol 14 No 2 October 2002, p.p.243

[41] Bangladesh Bureau of Statistics (B.B.S.),2005

Map 02: Spatial distribution of slums in Dhaka City



Source: Center for Urban Studies (CUS). Bangladesh and USAID. 2005/2006

6.1. Policy and regulatory instruments for SWS provision for slum areas:

Successful solid waste management system for service provision to slum areas and its sustainability depends on the active participation of diverse stakeholders, including individuals and organizations in both public and private sectors who are engaged in the system. This initiative has to be supported by good policy and legal instrument in order to ensure efficiency.

6.1.1. Policy instruments: Inclusion of stakeholder groups is essential to build broad support for new policies and programs. This research has found clear evidence that slum dwellers have strong sense of self-interest and awareness about the problem they face. Therefore, to ensure active participation of slum dwellers in SWMS, both DCC and NGOs need to satisfy the answers to the following questions:

- i. Do this initiative is compatible with existing local and national policies?
- ii. Does this model have considered socio-economic, commercial and management arrangement properly concerning slums residents, DCC and NGOs?
- iii. Who is involved or has an interest in this initiative?
- iv. What goals do stakeholders pursue? What motivates them?
- v. Does this model satisfy the interest of all stakeholders concern?
- vi. How do stakeholders operate and interact within the SWMS?
- vii. What authorities and powers do stakeholders possess?, and
- viii. How are they controlled (by regulation or governance structures)?

Solid waste service delivery within slum areas will require appropriate attention to the informal sector engaged with solid waste management. Informal sectors play the key role in Dhaka. They have necessary skills to contribute in overall SWMS. Therefore, this research suggests that it is necessary to:

- Understand the informal sector within the slum areas, quantify and cost its contribution to service delivery, and look at ways of legitimizing and regulating entrepreneurial activities;

- When planning appropriate solid waste management projects to serve slum areas it is important to take lessons from existing service delivery mechanisms and seek ways of working *with*, rather than *against*, existing individuals, businesses and structures;
- Acknowledge that urban infrastructure and service development will always impact the informal sector, and that both DCC and NGOs will often have to accept middle ground; and
- Advocate at all levels the rights and needs of solid waste service delivery, and shed light on the problems they face in urban development.

From a study carried out by Institute for Global Environmental Strategies, it was found that immediate transferability without long term and economic viability consideration cannot be advised as this would result in unsustainable replication of such model. This indicates that economic viability and longevity are important criteria compared to short term replication (transferability) and adaptability [42]

6.1.2. Regulatory instruments: DCC has contracted BIEDF under a service contract which gives DCC the authority to regulate the activities of POs but DCC is not liable to interfere in the day-to-day activities. POs are suppose to submit monthly activity report to DCC and DCC inspects every week in order to evaluate the quality of service delivery by POs based on evaluation report to give a grade. This grading system has been heavily criticized by POs as it gives single authority to DCC to renew contracts. Even though, existing terms of references

According to the work order to one of the NGOs working as PO in ward number 18 (same work order is issued to all POs) DCC do not pay for service delivery to POs and liable to recover the operational costs by themselves through collection fees from residential and

[42]Urban Environmental Management Project : ‘Prioritization of Strategies for the Replication of Dhaka’s Community-based Decentralized Composting in Developing Cities of Asia: Multi-Criteria Approach’, Institute for Global Environmental Strategies Kitakyushu,Japan,2004

commercial areas. The following terms were agreed between DCC and POs to establish the partnership [43]:

1. DCC will not provide any financial assistance to The Pos;
2. DCC will ensure the secondary collection from containers/dustbins in specific areas;
3. If, there is a need to establish any additional containers/dustbins, POs will have to construct at their own cost upon the approval of DCC and assist DCC to establish those containers/dustbins;
4. POs has to initiate massive public awareness campaign before the beginning of their operations on solid waste management;
5. POs has to collect wastes from each and every households through their own human resources and dump wastes in specific containers/dustbins managed and maintained by DCC after separating organic and inorganic wastes; and
6. POs has to conduct physical and social survey and submit the survey report to urban planning department before they start service delivery and also submit progress report in each three months.

The research has clearly found some irregularities within the field operations of POs as DCC does not have enough regulatory and monitoring instruments other than cancellation of contract based on poor service quality. As DCC does not provide any instruction to POs to include slum areas and raise awareness among community peoples.

[43] Copy of original work order from DCC was supplied by “Desh Kollan Forum (Forum for countrywide welfare)” a member of BIEDF during the direct interview,2006

Even the Terms of Reference (TOR) signed by DCC and BIEDF do not provide any clear guideline and leave some serious gaps within the existing regulatory framework as shown below:

Table 11: Gaps within existing TOR for SWS Delivery Partnership

Issues	Present Initiatives	Gap within service provision
Objectives	Provision of improved services to residents	Slum dwellers are not under service provision
Area coverage	Covers eight wards in two zones. Zone 9: Ward 17,18,19,20,21,37,38 Zone 10: Ward 1	Covers only 8% of the total DCC area and 10% of population where there is no sign for further expansion to deliver services to urban poor
Time-frame	One year contract period subject to extension on annual basis based on performance	Short time considering inexperience of the service providers and need more time at initial stage to stabilize their operational set up
Working area	1. All roads, markets, parks, footpaths 2. All open and closed drains 3. Surrounding area of dustbin and container 4. Dumping wastes at landfill site 5. Road signs and traffic signs	Dumped wastes from water bodies and slum areas are not removed which is causing piling of wastes within slums and filling water bodies resulting in serious damage to natural environment and environmental health.
Performance evaluation	Performance grading based on a set of six indicators with specific points assigned with indicator based on 'on the spot inspection'	Respondents claim that inspections are not professionally done and requires bribes for awarding higher points indicating lack of good governance in the model

Slum areas can not be brought under service coverage only if the above mentioned gaps are filled. Rather it is very important that DCC and NGOs recognize the following issues to formulate any future policy or regulatory framework:

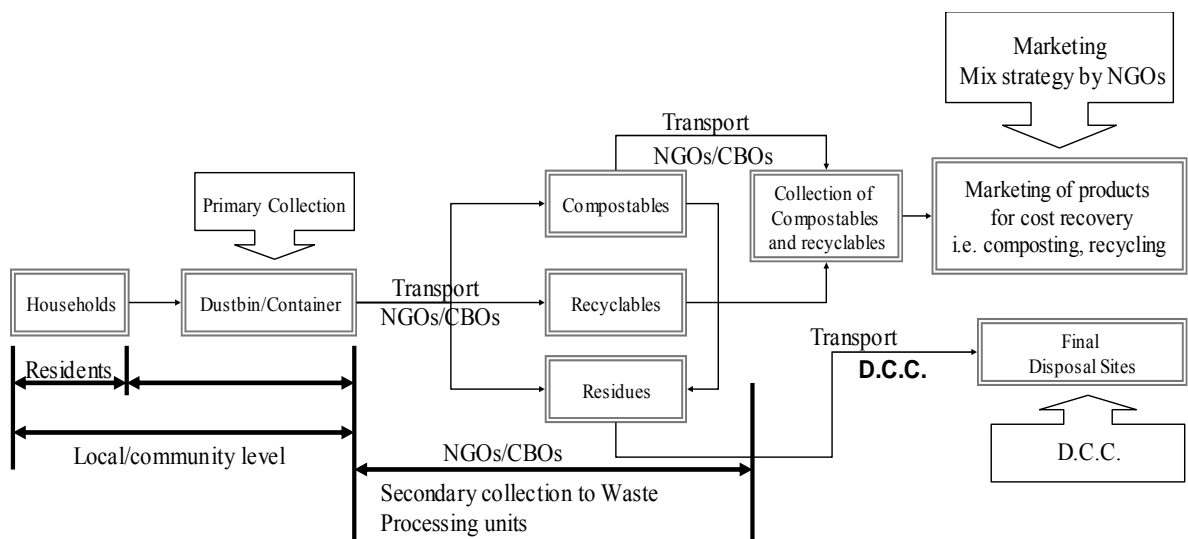
- Slum dwellers may refuse to pay service charges to the waste operators if DCC does not introduce the PO to slum residents;
- Women are involved in generating and dumping solid wastes in most cases as they are traditionally in charge of household kitchen;
- Land is the crucial factor for waste processing plants but can be arranged on a mutual benefit agreement with land owners through offering attractive rent package to owners;
- POs may need access to funds from financial institutions when they expand their operations or upgrade existing facilities;
- Joint and collaborative operations among different small waste operators having small capital can reduce their individual operational cost and shared responsibilities can ensure efficient management of their own responsibilities i.e. waste collection, processing or marketing; and
- Human resources and interests are there at local level but they need proper guidelines, technical and financial support.

6.2. Strengthening LG-NGO Partnership: The research findings suggest that present solid waste service delivery system is working well in formal areas and there is no need to establish separate arrangement to deliver services in slum areas. It will need to satisfy some key elements in order to strengthen cooperation and coordination between DCC and POs. The process may start with formulation of legal framework to enforce regulations to provide solid waste service delivery to slum dwellers by POs and DCC will need to provide some assistance to POs to cover operational costs. This will require sincere government support to DCC in order to allow DCC to ensure NGO involvements in decision making for SWM. Institutional framework appeared to be crucial

Referring to the existing service delivery system (p.p.42), it is not difficult to assume that solid waste service delivery system will need certain rearrangement in responsibilities to

extend service delivery coverage to slum areas. NGOs do not have adequate plan and preparation to start commercial operations. POs have to increase their efficiency in waste separation before it dumps to municipal containers/dustbins. Separation at source could be an effective measure but residents are unwilling to do that [44]. It will enable POs to collect compostable and recyclable wastes more conveniently and the quantity of residues will decrease considerably when DCC collects them for final disposal. The following figure shows some suggestions on how to reorganize the existing model to

Figure 12: Reorganization of activities to improve present model for solid waste service delivery including slum areas/informal settlements



(Adopted from original diagram from BIEDF, DCC and JICA based on research findings)

NGOs will have to develop strong marketing strategy that should satisfy four key components of marketing (popularly known as marketing mix strategy) i.e. production, price, place and promotion. This component is important as weak marketing plan will work as obstacle in adequate income generation and might result POs several new problems. POs needs to clarify to DCC what products they will produce (composts, recycled products), what price to set in order to generate profit, which areas will be using the products and which channels are going to be used for marketing the products.

[44] Direct interview with BIEDF,2006

The research has found that NGOs are counting on commercial production of composts based on the experience of Waste Concern. But the risk has been always the diversion of attention from waste collection to commercial operations and may lead to low service quality. DCC will need to have strong intervention to ensure financial accountability of the POs and slum areas are brought under service coverage using a part of the profit. As pointed out earlier, DCC does not provide any financial assistance to POs and DCC itself is not of question of governance issues.

Until the commercial operation and its associated issues are not studied well, it is highly recommended to construct containers/dustbins at the convenient location in slum areas so that POs can collect wastes and dump in municipal dustbins for secondary collection and disposal. Both DCC and POs need to work together in order to implement the good governance in their management before experimenting or upgrading existing system. It was clear from the interviews that POs want to start commercial operations as early as possible and put enormous pressure on DCC to provide necessary lands and policy support. The recent award of land near a public land fill to BIEDF is the evidence that DCC is responding to the demand of the NGOs. The move is justified as this kind of initiative encourages interested organizations to get involved and contribute to SWM of the city.

DCC being critical on experimental projects, appraise systematic initiatives undertaken by partner organizations. POs have contributed a lot in to the overall management of solid wastes. Establishment of a new or separate system is very expensive and time-consuming as well. As the existing model can be utilized to provide services in slum areas, therefore it is recommended that slum areas can easily be served without significant rise in operational costs if POs and DCC can overcome the weaknesses and limitations of the present partnership model

POs pointed out that unless they increase their income through commercial activities they will not be able to provide services to slum areas. Therefore, DCC will need to take the leading role to conduct a feasibility study on POs demands and also utilize the willingness of slum residents to contribute to SWMS.

6.3. Major issues identified by stakeholders for inclusion of urban poor:

The priority issues that were surfaced from this research were policy guideline and institutional framework for efficient SWMS in order to fill gaps within existing partnership model which has resulted complete exclusion of urban poor from SWS. Sustainability of private solid waste service delivery system depends on cost-recovery for the service delivery which has escalated significantly from Tk.12.7 million taka per year in 2002 to tk. 21.5 million taka in 2006 [45]. Private operators completely rely on contract money and have no serious effort to diversify income sources through processing of organic and inorganic wastes. This inability points to the fact that NGOs engaged in existing partnership has little capacity in assisting DCC to improve the model. NGOs have the advantage to establish networks with other organizations for assistance to exchange knowledge, organize slum communities and negotiate with potential entrepreneurs to invest in composting and recycling industries. There is a huge market for composts through out Bangladesh and recent study conducted by Waste Concern shows that the size of recycling industry is growing by 10.43% per year which involves 22,792 peoples consisting 1% of entire workforce within Dhaka City [46].

Research findings of this study have proved the fact that social and institutional capacity building, diversification and adoption of organizational/management aspects in response to changing market demand are the key issues in contemporary SWMS in Dhaka City. Stakeholders like NGOs, social entrepreneurs and informal work force are increasingly becoming more important. Considering the limitations of present SWS delivery model, it is not difficult to assume that, DCC cannot effort to continue awarding contracts for SWS delivery and thus require full privatization of this service especially in primary collection and processing. The fear of exclusion of urban poor from essential services from private operators is an established fact. But the scope of participation within solid waste service sector for urban poor is much wider considering the size of population involved and job opportunities provided by this sector. JICA master plan prepared for DCC does not provide

[45]Direct interview with DCC,2006

[46] Waste Concern (2006): Composition of Plastic Waste and Market Assessment of the Plastic Recycling Sector in Dhaka City

any inclusive framework other than modernizing primary collection system. This lacking has created a serious gap to address critical issues like utilization of informal sector which includes individual waste collectors (Tokai), small recycling plants and huge formal and informal market for recycled products. Therefore, D.C.C has to come up with strategic management plan to solve this problem putting focus on development of waste processing (i.e. composting and recycling) sector and market channels for maximizing economic return to informal sector. Market driven solid waste management system can certainly improve the existing service delivery system as it ensures the participation of urban poor concerned and profitability for private service providers.

One of the major concerns that were revealed by respondents from DCC and NGOs was the conflict between formal industries with organized informal processing sector. The major points were:

- Formal industries might oppose the concept of empowerment of informal sector as it might effect the export-import balance of raw materials that are used for plastic and paper based products and profit margin of fertilizer traders might go down;
- The quality of the processed products in informal processing plants might not meet minimum industrial standard;
- The city might lose cheap and free labour as individual waste pickers might get involved with waste processing units resulting rise in overall SWMS; and
- Due to attitudinal and social influence, informal sector might be difficult to organize on a long term basis which arise the question of sustainability of the entire system.

Many of these speculations were not found correct since NGOs like Waste Concern and DSK have successfully implemented service delivery system. These two sides of the issue indicate the importance of recognizing to keep up the interests of the stakeholders and regular communication for resolving conflicts. On the other hand, DCC will need to come up with a regulatory and policy framework addressing key issues to make such initiatives successful. The following table summarizes stakeholder and issues analysis based on the research findings of this thesis.

Table 12: Issues identified for the sustainability of SWMS ensuring the inclusion of urban poor

Issue indicators	Associated factors		Areas of concentration
	Actors/stakeholders	Key Issues	
Social capacity building	<i>Waste generators</i> <ul style="list-style-type: none"> ● Formal Households ● Vegetable markets ● Hotels and restaurants ● Food processing industries ● Slum dwellers 	<ul style="list-style-type: none"> ■ Type of waste produced ■ Preferred way of disposal ■ Willingness to pay service charges ■ Preferred way to handover wastes 	<ul style="list-style-type: none"> ● Determination of convenient way of service delivery and charges ● Waste separation at source ● Encouraging participation of local communities through community campaign
	<i>Waste collectors</i> <ul style="list-style-type: none"> ● NGOs/C.B.O.'s- POs ● D.C.C./City administration ● Informal garbage collectors (<i>Tokai</i>) 	<ul style="list-style-type: none"> ■ Transportation ■ Integration of informal collectors as regular worker ■ Collaborative waste collection methodology ■ Delivering wastes to specific processing authority 	<ul style="list-style-type: none"> ● Door to door collection ● Human driven vehicles like van or carts ● Engaging local <i>tokai</i>/slum community in collection ● Engaging women in processing works
	<i>Users and market</i> Agriculture, plastic, glass and paper industries <ul style="list-style-type: none"> ● Wholesale agents ● Retailers 	<ul style="list-style-type: none"> ■ Supervision for regular and adequate supply ■ Convenient way of delivery through using regular marketing channels 	<ul style="list-style-type: none"> ● Market price of the product ● Utilizing vast network of Agriculture Department for marketing and use of composts ● Manufacturing industries
	<i>Mass communication</i> <ul style="list-style-type: none"> ● Media: Print and electronic ● Social/community groups ● Educational institutions 	<ul style="list-style-type: none"> ■ Community meetings ■ Extensive campaign ■ Social awareness campaign involving school/college students and guardians 	<ul style="list-style-type: none"> ● Regular advertisement in prime times/front pages ● Group meetings in educational institutions ● Exhibition/demonstration in slum and formal households
	<i>Informal garbage processing units</i> <ul style="list-style-type: none"> ● Small inorganic waste processing units run by individuals 	<ul style="list-style-type: none"> ■ Identification of units ■ Integrating small units together and rehabilitation ■ Necessary financial and knowledge support by 	<ul style="list-style-type: none"> ● Provide soft credits ● Rehabilitation to move processing units in specific areas to ensure quality and safety

	<ul style="list-style-type: none"> ● Small and medium industries dependent on processed or semi-processed inorganic wastes 	D.C.C. and N.G.O.'s	<ul style="list-style-type: none"> ● Ensure harmony among partners
Institutional and organizational/ management aspects	<p>Public institutions</p> <ul style="list-style-type: none"> ● D.C.C. ● Ministry of Agriculture ● Department of environment ● Local Government ● Engineering department ● Ministry of Planning and Finance ● Ministry of law 	<ul style="list-style-type: none"> ■ Recognition of informal operations as opportunities to provide formal jobs ■ Establishment of close ties and collaboration with all stakeholders ■ Necessary administrative, financial and legal support to operators 	<ul style="list-style-type: none"> ● Ensure inter-departmental coordination and cooperation ● Provide necessary initial administrative and municipal support with money, land and labour to operators if necessary ● Tax reduction for operators and waiver for municipal tax payers
	<p>NGOs/Private/C.B.O./Waste operators</p> <ul style="list-style-type: none"> ● Waste treatment organizations <p>D.C.C., Private operators, Donor funded projects</p>	<ul style="list-style-type: none"> ■ Adequate investment in hardware's and software's ■ Appropriate technology ■ Involvement of local labours in operations ■ Cost recovery 	<ul style="list-style-type: none"> ● Sound management ● Acquisition of land ● Necessary soft loans ● Effective marketing network ● Quality control
	<p>Distributors:</p> <ul style="list-style-type: none"> ● Fertilizer sellers and resellers ● inorganic waste processing industries 	<ul style="list-style-type: none"> ■ Partnership on combined use of products processed from composting or recycling ■ Price adjustment and market regulation 	<ul style="list-style-type: none"> ● Initial subsidy for specific periods for encouragement ● Ensure competitive profit margin through product price ● Adequate supply of products
Market demand	<p>Dominant market players:</p> <ul style="list-style-type: none"> ● Chamber of commerce and industries (Commercial operators) ● Trade and labour unions ● Cooperatives of urban poor engaged with waste collection and processing 	<ul style="list-style-type: none"> ■ Solving the conflict of business interests ■ Heavy investment in industries for large scale organic manure production 	<ul style="list-style-type: none"> ● Making links among community based operators and large scale commercial operators for mutual benefits And service improvement

The involvements of primary and external stakeholders indicate that sustainability of such inclusive community based waste management system requires extensive communication and liaison among actors. It is important to understand that if the system fails to serve the interest of one group then the entire initiative cannot function properly. The research has pointed out that management and functionality of any service delivery project in large communities depends on how efficiently the conflicts and problems within stakeholder's interests were considered and resolved in planning and execution.

Chapter Seven

Conclusions

7.1. Summary of Major findings:

7.1.1. The massive number of households within slum areas generates huge quantity of solid waste and wastes are not collected from slum areas;

7.1.2. POs are providing primary collection services mainly to high income and middle income households. Only one-third of low income households are receiving SWS. Slum areas do not receive any service;

7.1.3. Slum dwellers are aware of their solid waste related problems and willing to participate to receive primary collection services preferably from NGOs due to their commitment and goodwill;

7.1.4. Majority of the slum dwellers are ready to pay between tk. 10-25 that is agreed by majority of the slum households or manually dump wastes in community containers/dustbins;

7.1.5. Lack of policy guideline is the most important factor to ensure effective solid waste management and ensure inclusion of slum areas;

7.1.6. Most of the POs are suffering from shortage of funds and equipments to expand their service coverage and sought for DCC assistance or wants DCC to act as a facilitator in order to assist the POs to establish networks with financial institutions, national and international NGOs for knowledge-exchange;

7.1.7. POs are in a better position to deliver solid waste services in slum areas but unwilling to serve unless operational costs are subsidized by DCC or commercial engagement is permitted;

7.1.8. DCC will not give subsidy due to its severe budget deficit and encourages POs to look for finance from other sources;

7.1.9. DCC has legal and obligatory responsibility to deliver solid waste services in slum areas and it is also true for NGOs working under TOR with DCC as well;

7.1.10. DCC supports the NGOs demand to engage in income-generating activities but wants the assurance that their primary responsibilities will be performed appropriately;

7.1.11. Both DCC and NGOs should work together to design policy and regulatory instruments to ensure the inclusion of slum areas within the formal solid waste service delivery system;

7.1.12. Existing partnership arrangement under Terms of References (TOR) has gaps and need to be redefined as it does not provide any instruction on policy and regulatory issues in order to ensure proper monitoring and evaluation of activities by POs;

7.1.13. Some of the NGOs have started commercial compost production which suggests that existing partnership structure and distribution of activities need to be rearranged in order to ensure the service quality of existing service delivery system and expansion of service coverage to slum areas;

7.1.13. Informal solid waste collection and processing sector will need to be included in the overall SWMS as they are the key for sustainability; and

7.1.14. Internal and external stakeholders will have important role with the changing socio-economic context within the solid waste management sector. Therefore, issues related to different stakeholders have to be analyzed and considered properly.

7.2. Implications of the Findings:

DCC has rightly pointed out that non-governmental organizations are now engaging heavily in profit making activities which includes collection of service charges from households and waste processing activities rather to upgrade their existing operations. On the other hand, NGOs are also facing many hidden costs that put enormous pressure on their tight budget. As the NGOs have invested a considerable amount of money to win the bid from DCC, they have a moral right to maximize their income as well. DCC were needed to play the role of a facilitator in order to build a network among NGOs, DCC, financial institutions, international donor agencies/organizations and communities. This would help POs to build their institutional and financial capacities to put DCC in a position to examine the option to privatize the solid waste management system through NGOs. NGOs have superior organizational and management which can take decision and implement without wasting time money and delivery services accordingly. DCC has not made any attempt to explore and utilize the innovative and evolutionary nature of NGOs that can deliver improved services and expand service coverage more effectively if DCC would have provided them with a policy guideline and plan on solid waste management.

The draft master plan by Japan International Corporation Agency (JICA) cannot be considered as a ground for formulating a solid waste management policy since there is no national solid waste management policy. The implementation of JICA master plan would result in incompatibility with other national development policies that DCC is implementing within Dhaka metropolitan area. NGOs have shown clear dissatisfaction over the entire process of formulating the master plan as their participation and contribution was not acknowledged properly and their achievements are not reflected in the recommendations made within the draft master plan. Therefore, this research suggests that, DCC must initiate serious action to formulate a solid waste management policy in consultation with non-governmental organizations already working in local communities and ensure active participation for all in entire planning process. Technical assistance from international agencies like JICA needs to be considered as advice rather to directly authorize them to formulate policies on behalf of DCC. Capacity building among local institutions is vital to achieve any sustainable results.

The shift of attention towards commercialization of the SWM among NGOs has diverted their attention to business rather than to strengthen their institutional capacities to increase income through improved service quality and inclusion of slum areas. There is nothing wrong to look for income-generating activities to expand service coverage and bisect the operational cost through integrated management approach consisting primary collection and waste processing by themselves. But POs have been struggling to fulfill the primary responsibilities assigned to them and the addition of new operations will certainly degrade the service quality unless they build-up their capacity accordingly so that new components can be operated independently. DCC must intervene in such initiative so that POs can be brought under standard regulatory and monitoring framework in order to ensure that slum dwellers get quality service. NGOs have shown keen interest to provide solid waste service delivery if they can collect service charges at a reasonable rate from slum households or if DCC allow them to engage them in commercial waste processing activities for income generation.

Existing partnership model between DCC and NGOs is functioning well but the exclusion of slum areas within contract areas was never brought into question. Therefore, it is necessary that existing DCC-NGO partnership model for solid waste service delivery is modernized by responding to the changing socio-economic and organizational context. The potential of slum dwellers to contribute to the SWMS cannot be ignored and requires proper attention. The exclusion of slum households from formal solid waste management system is not acceptable since slum areas accommodate the largest part of the population in Dhaka City. Slum dwellers are capable of contributing more than our assumption if NGOs in partnership with DCC can motivate and mobilize them properly.

7.4. Limitations of the study and suggestions for further research

As survey results from the slum areas found that slum dwellers can provide enough money to enable POs for solid waste service delivery therefore, this study has not investigated or analyzed the issue of commercialization of NGO activities through engaging them in to production of composts or recycled products. This study has also not investigated how they

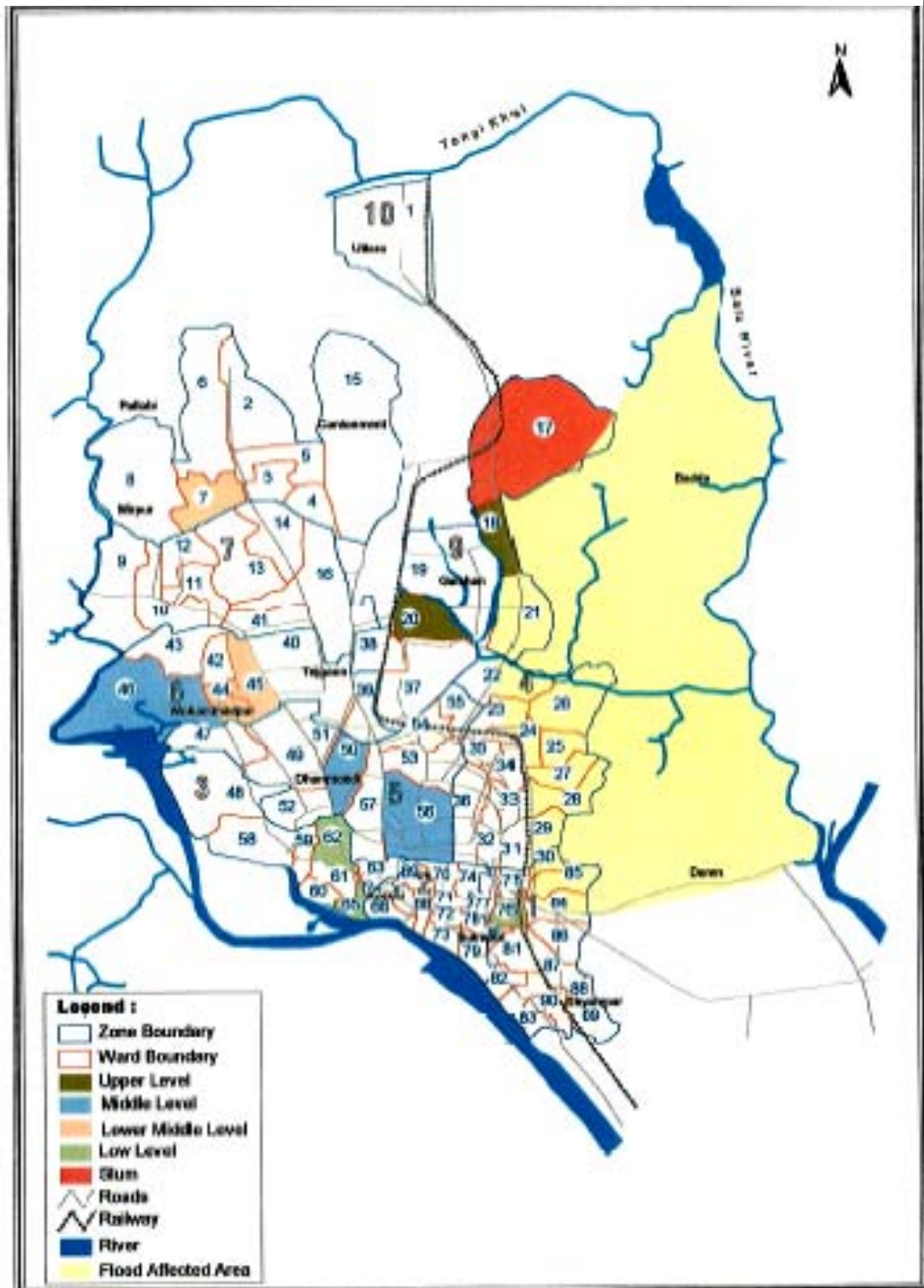
are going to invest this money to extend their service coverage in slum areas. The focus of this study was to find out issues that are important to strengthen existing solid waste service delivery model in order to ensure inclusion of urban poor living in slum areas in Dhaka City. This is why, this study was limited to collect and analyze data related to existing service procurement rules formulated by DCC. However, this study has raised several questions that are worthy for further research. Such as:

- i. NGOs suggested that DCC should privatize the solid waste service delivery completely. How far this can be feasible and bring improvements in our solid waste management system?
- ii. As there is no solid waste management policy guideline in Bangladesh, either at national or local level, how this situation if effecting existing initiatives to establish partnership in terms of sustainability of the results?
- iii. How DCC can exploit and utilize the commercial potential of composting and recycling activities in partnership with NGOs for income generation in order to invest in improving service quality and expansion of service coverage?

To improve the situation, there is a need for effective solid waste management policy for Bangladesh. At present, under the Sustainable Environment Management Program (SEMP), the Ministry of Environment and Forests (MoEF) is preparing a Solid Waste Management Handling Rules. The Solid waste service delivery in Dhaka City is a sensitive issue as a large percentage of urban poor is engaged in informal waste collection and processing activities. DCC does not have any other way but to heavily relay on labour-intensive solid waste management system due to budget-deficits and shortage of funds for further development. DCC were able to meet the minimum requirement for solid waste service provision in some parts of the city. But DCC has never taken any initiative to improve the system in order to expand service through out the city .The lack of solid waste management policy and guideline has resulted exclusion of urban poor from solid waste service delivery and until now neither DCC nor the NGOs took any initiative to deal with this issue.

APPENDIX

A.1. Map of Dhaka City showing administrative units (Zones and Wards)



A 2. Statistical tables for the figures used in this thesis

Table 1: Degree of SWM awareness among slum dwellers

Issue	Number of respondents	Percentage (%)
Ready to maintain communal bins	11	53
Ready to pay for solid waste service	17	80
Willing to use municipal waste bin for dumping	18	83
Knowledge of service provision to neighbourhood	21	100
Educates children on waste dumping in waste bins	15	73
Knowledge of waste dumping in waste bins	21	100

Table 2: Range of service charge to be paid by slum dwellers

Range of service charges (In taka)	Number of respondents	Percentage (%)
0-9	4	19
10-15	5	25
15-25	8	37
25+	4	19

Table 3: Reasons for supporting NGOs in SWS Delivery

Issues	Number of respondents	Percentage (%)
Possibility of other assistance through NGOs	21	100
More ownership in NGO initiatives	15	70
Non-cooperative nature of DCC Officials	21	100
Beneficial NGO programmes in the past	18	87

Table 4: Solid waste service (Door-to-door collection)

Service provision to	Number of respondents	Percentage (%)
Low income group	6	30
Mid-income group	16	75
Upper income group	17	88

Table 5: Major problems identified by N.G.O.s for SWS delivery to urban poor

Major problems	Number of respondents	Percentage (%)
Integration of urban poor	9	90
Shortage of technical staffs and fieldworkers	6	60
Shortage of municipal funds and equipments	9	90
Incapacity in service delivery and expansion of operations	9	90
Lack of policy guideline and governmental support	10	100

Table 6: Major problems identified by N.G.O.s for SWS delivery to urban poor

Major problems	Number of respondents	Percentage (%)
Integration of urban poor	9	90
Shortage of technical staffs and fieldworkers	6	60
Shortage of municipal funds and equipments	9	90
Incapacity in service delivery and expansion of operations	9	90
Lack of policy guideline and governmental support	10	100

Table 07: Cross-cutting issues supported by NGOs in delivering SWS to slum areas:

Issues	Percentage of NGOs agreed			
	Strongly Disagree	Disagree	Agree	Strongly Agree
POs should provide SWS to slums	0	0	0	10
PPP is essential to ensure SWS in slums	0	0	0	10
International investment is necessary	1	1	7	1
NGOs can play more effective role as POs	0	0	0	10
DCC should share cost of SWS	0	0	0	10
POs should look for self-finance rather to look for assistance from public funds	1	7	1	1
Informal sector is the key for sustainability in any SWMS	0	0	0	10

**Table 8: PPP Elements identified as important by DCC
(6=Most important, 3=Moderately important, 1=Least important)**

Elements	Degree of support/agreement					
	1	2	3	4	5	6
Policy assistance to Pos to establish SWMS	██████████					
Grants from public fund to expand activities of Pos	██████████	██████████	██████████	██████████	██████████	██████████
Technical and financial supports to community based initiatives	██████████					██████████
Establishment of decentralized small solid waste treatment plant	██████████			██████████	██████████	██████████
Establishment of central or large waste treatment plant	██████████	██████████	██████████	██████████	██████████	██████████
Income generation through solid waste treatment by POs	██████████					██████████
Partnership agreement need to be carefully designed	██████████					

**Table 9: Major problems for SWM identified by D.C.C.
(6=Most severe, 3=Moderately severe, 1=Least severe)**

Elements	Degree of support/agreement					
	1	2	3	4	5	6
Lack of SWM guideline	██████████					
Incapacity for maintenance and expansion of services	██████████					██████████
Shortage of municipal funds and equipments	██████████			██████████	██████████	██████████
Integration of urban poor	██████████					██████████
Lack of motivation among policy makers	██████████					
Lack of environmental concern among residents	██████████					
Lack of capacity building among SWM staffs	██████████					██████████

8.3. Bibliography:

1. Report of the Public Administration Reform Commission, Bangladesh, p.p. 113, June, 2000
2. Center for Urban Studies, Measure Evaluation and National Institute of Population Research and Training (2006) : “Slums of Urban Bangladesh: Mapping and Census, 2005), p.p. 12
3. JICA (2005): The Study on the Solid Waste Management in Dhaka City Final Report. P.p. 1-1
4. Policy and Evaluation Department, Netherlands Ministry of Foreign Affairs: Evaluation of Netherlands-funded NGOs in Bangladesh, p.p. 13 (29)
5. Antuono, Laura, Meeks, Chris, Miller, Melissa Kay and Watchou, Jean Rene: “Evaluating NGO Service Delivery in South Asia: Lessons for Afghanistan”, Workshop in Public Affairs, International Issues, Public Affairs 860, Spring 2006, p.p. 09
6. Dedehouanou, Ir Houinsou: ‘Coping with house waste management in Cotonou’, The Journal of Environment and Urbanization, Vol. 10, No. 2, October 1998
7. Grinnel Jr., Richard M.: “Social Work Research and Evaluation”, F.E. PEACOCK Publishers Inc., Itasca, Illinois, U.S.A., p.p. 33.
8. ADB, 1999: Beyond Boundaries: Extending Services to The Urban Poor”
9. The World Bank, Poverty Reduction and Economic Management Sector Unit South Asia Region: The Economics and Governance of Non Governmental Organizations (NGOs) in Bangladesh, August 2005 p.p. i
10. Muller, Iyer, Keita, Sacko, Traore: ‘Differing interpretations of community participation in waste management in Bamako and Bangalore: some methodological considerations’, The Journal of Environment & Urbanization , Vol 14 No 2 October 2002, p.p. 243
11. Bangladesh Bureau of Statistics (B.B.S.), 2005
12. Urban Environmental Management Project : ‘Prioritization of Strategies for the Replication of Dhaka’s Community-based Decentralized Composting in Developing Cities of Asia: Multi-Criteria Approach’, Institute for Global Environmental Strategies Kitakyushu, Japan, 2004

13. Waste Concern (2006): Composition of Plastic Waste and Market Assessment of the Plastic Recycling Sector in Dhaka City
14. JICA: “The Study on the Solid Waste Management in Dhaka City Final Report”, 2005, p.p.2-10 to 2-11)
15. Muller, Iyer, Keita, Sacko, and Traore: ‘Differing interpretations of community participation in waste management in Bamako and Bangalore: some methodological considerations’, The Journal of Environment & Urbanization Vol 14 No 2 October 2002
16. Shafiqul Islam, AZM: ‘Solid Waste Management in Dhaka City’, Dhaka City Corporation, 2001
17. Dedehouanou, Ir Houinsou: ‘Coping with house waste management in Cotonou’, The Journal of Environment and Urbanization, Vol. 10, No. 2, October 1998
18. Christian, Drescher, Rytz, Sinha and Enayetullah: ‘Decentralized composting in Bangladesh, a win-win situation for all stakeholders’, Resources, Conservation and Recycling 43 (2005), p.p.285
19. HJORTH, Peder: ‘The Challenge of Providing Water Supply, Sanitation And Solid Waste Management In An Urbanizing World’, Department of Water Resources Engineering, Lund University, Sweden. p.p.7
20. Urban Environmental Management Project: ‘Prioritization of Strategies for the Replication of Dhaka’s Community-based Decentralized Composting in Developing Cities of Asia: Multi-Criteria Approach’, Institute for Global Environmental Strategies Kitakyushu, Japan, 2004
21. Center for the Environment: ‘Urban Water Supply and Sanitation Programming Guide’; United States Agency for International Development (USAID) April 2001
22. Rouse, Jonathan: ‘Absorbing informal-sector entrepreneurs into improved urban services’, The Journal of Small Enterprise Development, Volume 15, Number 2, June 2004, p.p.8-9
23. SINPA-Bangladesh (2001): Facilitating Local Participatory Initiatives: A Handbook for Urban Platforms, p.p.57-86.
24. Robson, B.T.: Urban Analysis: A Study of City Structure with Special Reference to Sunderland, Cambridge University Press, 1969, p.p.39-131

25. Islam, Nazrul: Dhaka: From City to Mega City, Bangladesh Urban Studies Series, No.1, Department Of Geography, University Of Dhaka, Bangladesh, 1996. P.p.32-40,164-174,189- 213.
26. Grinnel, Richard M. Jr.: Social Work Research And Evaluation, F.E. Peacock Publishers, Inc., Itasca, Illinois, 1993, p.p.02-37.
27. Todaro, M.P.: Economic Development, Longman, 1994 (4th Edition), p.p.178-216.
28. Rashid, Mamun: Housing at Uttara Model Town in Dhaka City: An analysis and exploring ways to tackle the housing problem of middle class.
29. Steinberg, Florian: Strategic Urban Planning in Latin America: Experiences of Building and Managing the Future, SINPA, 2002
30. Hualin, Mr. Zhao:” Urban Environmental Management in China”, Department of Pollution Control, SEPA, Beijing 100035
31. Hemmati, Minu and Whitfield, Robert: “Capacity Building for Sustainable Development Partnership”, Capacity Building (April, 2003), Stakeholder Forum for Our Common Future, p.p.2-8
32. Asian Development Bank, 1999: “Governance: Sound Development Management”, Publication Stock No.: 090699, p.p.03
33. UPHOFF, NORMAN: “Local Institutions and Participation for Sustainable Development”, International Institute for Environment and Development, GATEKEEPER SERIES No. 31, p.p.04
34. Islam, Prof. Nazrul: ‘Urbanization, Migration And Development In Bangladesh: Recent Trends And Emerging Issues’, UNFPA-CPD Publication Series 01. p.p. 04-20
35. Grinnel, Richard M. Jr.: Social Work Research And Evaluation, F.E. Peacock Publishers, Inc., Itasca, Illinois, 1993, p.p.02-37.
36. Steinberg, Florian: Strategic Urban Planning in Latin America: Experiences of Building and Managing the Future, SINPA, 2002
37. Hualin, Mr. Zhao:” Urban Environmental Management in China”, Department of Pollution Control, SEPA, Beijing 100035
38. Hemmati, Minu and Whitfield, Robert: “Capacity Building for Sustainable Development Partnership”, Capacity Building (April, 2003), Stakeholder Forum for Our Common Future, p.p.2-8

Online resources:

1. Sustainable Development Networking Programme (SDNP), Bangladesh :
http://www.sdnxbd.org/sdi/international_days/wed/2005/
2. World Bank:
<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/BANGLADESHEXTN/0,,menuPK:295765~pagePK:141159~piPK:141110~theSitePK:295760,00.html>
3. Asian Development Bank: <http://www.adb.org/Bangladesh/default.asp>
4. The Global Development Research Center (GDRC) :
<http://www.gdrc.org/spheres/urban.html>
5. Making Cities Work Programme, USAID, United states of America:
<http://www.makingcitieswork.org/>
6. Megacity Taskforce of International Geographical Union, Department of Geography, University of Cologne : <http://www.megacities.uni-koeln.de/documentation/>
7. Best Practices Database, UN Habitat : <http://www.bestpractices.org/>
8. Wageningen University and Research Centre (Wageningen UR) :
<http://portals.wi.wur.nl/msp/>
9. The International Development Research Center (IDRC): http://www.idrc.ca/en/ev-8958-201-1-DO_TOPIC.html
10. UNDP, The Urban Governance Initiatives : <http://www.tugi.org/>
11. Journal Articles on Bangladesh, Association For Economic and Development Studies On Bangladesh: <http://www.aedsb.org/Articles-J.htm>

END