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Master's Thesis of Public Administration

**Policy Factors Affecting the
Implementation of Public Private
Community Partnership (PPCP) in
Solid Waste Management in Dhaka
City**

다카시 고품폐기물 관리의 공공-
민간-공동체 파트너십 집행에
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Abstract

Policy Factors Affecting the Implementation of Public Private Community Partnership (PPCP) in Solid Waste Management in Dhaka City

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The management of an increasing volume of solid waste with the hasty increase of urbanization in the Dhaka city has become a grave concern for the government of Bangladesh. As Dhaka City Corporation (DCC) cannot keep pace with the solution of the problem to manage the waste due to lack of institutional capacity and inadequate budget allocation, Public Private Community Partnership (PPCP) is a great choice to cope with this situation. In spite of the introduction of PPCP in Solid Waste Management (SWM), it is not being able to bring remarkable improvement of SWM system as well as

environment in Dhaka city due to its very limited extent and barriers to implement this partnership program which needs pragmatic public policy. This research aims to study the ‘policy issues’ and the policy factors influencing the implementation of PPCP in SWM in Dhaka city and will provide some policy suggestions to make the successful implementation of this partnership project.

This research required primary and qualitative data from service providing organizations, local government institutes and direct beneficiaries and quantitative data from secondary sources. The study used a single questionnaire which was designed to collect information from Dhaka city dwellers, Dhaka City Corporation Ministry of environment and non-governmental organization and direct interviews were conducted with one official from each of Ministry of Environment, Dhaka City Corporation and nongovernmental organization. The sample size of the questionnaire was 150 where 5 different wards out of 92 of Dhaka city were selected randomly and 25 questionnaires were filled from each of 5 wards. The rest 25 were filled by the officials of government and non-government organizations. Questionnaires were processed carefully which consisted of editing and tabulation of quantitative data. Qualitative analysis took the form of content analysis of interviews, discussions and documents, while quantitative analysis took the form of descriptive statistics such as frequencies, percentages, etc.

with the aid of Microsoft excel software. Data interpretation was done mostly by the use of graphs, charts and tables.

The findings of the research revealed that, three people out of four in Dhaka city perceive that, the environment and solid waste management is very bad. So the policies suggested to boost up the implementation of PPCP (Public Private Community Partnership) in Solid Waste Management(SWM) in Dhaka city are, a specific and demand based new law and conductive policy with the clarification of responsibilities of agencies and including fiscal incentives and market-based instruments, incentives especially low interest credit facilities can be provided to the viable entrepreneurs, combined financing from government (DCC), NGOs in partnership and community(by introducing polluters pay principle) and FDI, subsidy can be given on the recycled product in short term basis, combined promotion of recycled product by the government, NGOs and media to create its 'market demand', creating community awareness to ensure a 'clean and healthy environment' which also should be ultimate goal of this program and motivating them to be involved in this program to enhance community participation.

From the findings it is recommended that, it is the high time that, the government will take necessary steps sincerely to remove the barriers of this partnership program in SWM in Dhaka city and will take policy packages to encourage the prospective NGOs and private entrepreneurs to intensify this

program. It is not mere awareness of citizen is necessary but it is the time to involve the citizen in partnership program and should make them participate in the war against environmental pollution by alluring them towards 'quality life'.

Key words: Policy Factors, Public Private Community Partnership (PPCP), Solid Waste Management (SWM), Dhaka City Corporation, Community Participation.

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Abbreviations

CBOs- Community Based Organizations

CCTF- Climate Change Trust Fund

CDM- Clean Development Mechanism

DAE- Department of Agricultural Extension

DCC- Dhaka City Corporation

DNCC- Dhaka North City Corporation

DSCC- Dhaka South City Corporation

GHG- Green House Gas

JICA- Japan International Development Agency

NGO- Non-Government Organizations

LG- Local Government

LGD- Local Government Division

LGU- Local Government Units.

LMG- Local Municipal Governments

MoEF - Ministry of Environment and Forest

MoI- Ministry of Information

NOAB- NGO Affaires Bureau

PPP- Public Private Partnership

PPCP- Public Private Community Partnership

POs- Private Operators

PVDO- Private Voluntary Development Organizations

SAARC- South Asian Association for Regional Cooperation

SEMP- Sustainable Environment Management Program

SWM- Solid Waste Management

SWMS- Solid Waste Management System

UNDP- United Nations Development Program.

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1. INTRODUCTION

1.1 Trend of urbanization in Bangladesh and demographics in Dhaka City:

As the development and opportunity were concentrated in urban areas and the rural areas were neglected in terms of economics, trade, business, transport, infrastructure and other urban services the population were mushroomed in urban areas in Bangladesh. The urbanization has increased gradually to 5.19% in 1961 and then very rapidly to 8.78% in 1974, 15.54% in 1981, 20.15% in 1991 and 23.39% in 2001 (BBS, 1991 and BBS, 2001). A recent study by World Bank has estimated that about 40% of the total population in Bangladesh will be living in urban area in Bangladesh by 2025 (ADB, 2000). One of the directly related consequences of rapid urbanization and population growth is the increase in waste generation.

Dhaka, the capital of Bangladesh is the primate city of the country as its share of national urban population was 25% in 1981, 31% in 1991 and 34% in 2001 respectively. Dhaka's dominance not only in terms of population, but also in terms of economy, trade, commerce, and administration is obvious. According to "The Principal Agglomerations of the World, 2012, Dhaka ranked 19th in the world and according to the report of World Bank (2010), Dhaka has an estimated population of more than 15 million people, making it the 9th largest city in the world. According to Far Eastern Economic Review, Dhaka will become a home of 25 million people by the year 2025.

The population of Dhaka (areas under the jurisdiction of the Dhaka city corporation) stands at approximately 7.0 million. The city, in combination with localities forming the wider metropolitan area, is home to over 15 million as of 2013. The population is growing by an estimated 4.2% per year, one of the highest rates amongst Asian cities. The continuing growth reflects ongoing migration from rural areas to the Dhaka urban region, which accounted for 60% of the city's growth in the 1960s and 1970s. More recently, the city's population has also grown with the expansion of city boundaries, a process that added more than a million people to the city in the 1980s.

1.2 Urban Local Government System in Bangladesh:

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 eleven largest cities of Bangladesh (Dhaka North and South, Chittagong, Khulna, Sylhet, Barisal, Rajshahi, Rangpur, Gazipur, Narayanganj, Comilla) 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.

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. Formally, Dhaka City Corporation used to acts as the local government for Dhaka City under the “Dhaka City Corporation Act 1993”. Now, Dhaka City Corporation (DCC) is the former self-governing corporation that is associated with the task of running the affairs of the city of Dhaka. The incorporated area is divided into several wards. The Corporation was dissolved by the Local Government (City Corporation) Amendment Bill 2011 on November 29, 2011, passed in the Parliament of Bangladesh, and formally ceased to exist on December 1, 2011 following the President's approval, making way for a North and South city corporation. Dhaka North City Corporation (DNCC) consists of 36 wards covering the thanas of Mirpur, Mohammadpur, Sher-E-Bangla Nagar, Pallabi, Adabor, Kafrul, Dhaka Cantonment, Gulshan, Banani, Badda, Uttara & some others. Dhaka South City Corporation (DSCC) consists of 56

wards covering the thanas of Dhaka Kotwali, Motijheel, Sutrapur, Ramna, Bangsal, Wari, Gendaria, Chwokbazar, Lalbagh, Hazaribagh, Dhanmondi, Shahbagh, New Market, Khilgaon, Kamrangirchar & some others.

1.3 NGOs 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 programs and group capacity building). Grameen Bank 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), 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 programs of development, advocacy, legal aid, environment and relief programs 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 .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 whereas 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.

1.4 Solid Waste Management systems in Bangladesh as well as Dhaka City:

The management of an increasing volume of solid waste in urban areas has become a serious problem in Bangladesh. Intensifying economic activities due to increasing urbanization and rapid population growth are contributing to the generation of 15,000 tons of urban waste per day nationwide. The World Bank predicts that, in 2025, Bangladesh will generate 47,000 tons of waste daily in urban areas.

The waste is generated from different source (domestic, commercial, industrial, street sweeping, health care facilities etc.). 3 (three) 'systems' of

waste management are coexisting side by side in Bangladesh. One is the 'Formal System', where municipalities/city corporations are responsible for Solid Waste Management (SWM). 'Formal system' is based on the conventional system of collection transportation- disposal of waste carried out by the local authorities. In this system the concept of transfer stations, resource recovery, minimization and recycling are absent. Next is the 'Community Initiative' that is based on primary solid waste collection by CBOs and NGOs, 'Community Initiatives' of house-to-house waste collection in neighborhood started due to lack of satisfaction with solid waste management service. Finally, informal System' represented by the large informal labor force involved in the solid waste recycling trade chain. Partnership between these three systems is needed to promote effective solid waste management system in the country.

In majority of the urban areas, community bin system of waste collection is being practiced in Bangladesh. Recently, in some areas NGOs have introduced door-to-door collection of solid waste. But the coverage of neither communal dustbin system nor house-to-house waste collection system is sufficient yet. Moreover, no specific rule and criterion is followed while placing dustbins. The practice of widely spaced communal bins is usually a failure because the demand placed on the households goes beyond willingness of the residents to co-operate.

There have been recent developments in Bangladesh to improve waste management, especially in urban cities. In Dhaka, Dhaka City Corporation

with support from the Japan International Corporation Agency (JICA) has a master plan underway to better handle the solid waste management in Dhaka. For instance, Social Business Enterprise Waste Concern has sprung up to tackle the municipal waste accumulation problem through working with the households. UNICEF has also initiated recycling programs and waste control with the city corporations and municipalities.

1.5 Scope in Public Private Community Partnership (PPCP) system in Dhaka city:

The management of an increasing volume of solid waste has become an arduous function in Dhaka city. With the conventional system of collection, transportation and crude dumping of solid waste, municipal areas of Bangladesh are generally faced with rapid deterioration of environmental and sanitation condition. As such, urban solid waste management has become a major concern for the cities and towns of Bangladesh. Municipal services in most cities and towns are already over-burdened, and simply cannot meet the growing demand for municipal services, resulting in unhygienic and filthy living condition in the neighborhoods.

“Waste is a resource which is created through innovations and partnerships.” with this motto one NGO named “Waste Concern” piloted the Public Private Community Partnership model in Dhaka city. The innovative approach and success of Waste Concern encouraged the Government of Bangladesh to select the Waste Concern as a sub implementing agency for the project

“Community Based Urban Solid Waste Management in Dhaka” in 1998 and signed partnership agreement in 1999. Dhaka City Corporation with support from the JICA is preparing a master plan for the solid waste management in Dhaka city.

Opportunities for developing partnerships between the government and stakeholders in waste management (who will engage in composting or recycling to reduce waste) are not explored because of the absence of a waste management policy. Waste reduction, reusing, recycling, and segregating waste at source or at the household level are not commonly practiced.

The concept of Waste Concern helped Bangladesh seize a new opportunity for foreign direct investment using the Clean Development Mechanism (CDM) of the Kyoto Protocol. This was achieved by successfully developing a city-scale composting project to reduce GHG emissions while improving the environmental condition of the disposal site.

1.6 Need for partnership and Community Participation:

In Dhaka, 3,500 tons of waste is generated per day, of which 80 per cent is organic. However, Dhaka City Corporation (DCC) collects only 50 per cent of the waste. At this rate, it is unable to take care of additional increases in the city’s waste. As a result, more uncollected waste is piled up on the roadsides or dumped into open drains and low-lying areas, further deteriorating the environment and the quality of life. This is despite the fact that almost 80 per cent of the waste is organic and can be converted into compost or soil

conditioner. Thus, this potential of waste as resource is unseen and the new resource remains unutilized.

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.

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 contacts.

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.

1.7 The problem Statement and Purpose of the study:

Waste management has become a grave concern with the hasty increase of urbanization in the capital city Dhaka of Bangladesh. As the local bodies can not keep pace with the solution of the problem to manage the waste due to lack of institutional capacity and inadequate budget allocation, public – private-citizen partnership is a great choice to cope this situation.

In spite of some initiatives to Public Private Partnerships in SWM, e.g. Waste Concern; it could not cover the whole city since 1999 and could not take noteworthy improvement in the environment condition of Dhaka city. The pioneer of Public Private Community Partnership in waste management in Bangladesh claimed that, they are facing obstacles in every stages of implementing their project which include skepticism of the concerned government officials about the project, unwillingness of the local government bodies, lack of availability of low interest credit facilities for piloting the initiatives and problems linked to marketing the end product. Pragmatic public policy is needed to overcome the obstacles to implement the Public Private Community Partnership with community participation to improve environment.

The purpose of this research is to study the policy issues to implement the Public-Private -Community Partnership in solid waste management. This paper aims to discuss the policy factors influencing the implementation of Public Private Community Partnership (PPCP) in solid waste management in

Dhaka city and it will provide some policy suggestions to cope with the problems of successful implementation of this partnership project in Dhaka city.

2. REVIEW OF LITERATURE

2.1 Policy implementation and its factors:

Edwards (1980) argued that, Policy implementation is the significant stage of policy making, between the establishment of a policy and the consequences of the policy for the people whom it affects. Policy implementation is a complex course of action. A good policy if poorly implemented may fail to achieve the goals of its designers. Implementing a public policy may include a wide variety of actions, including factors like financing, personnel, planning, collecting data and disseminating information.

Bhuyan et. al. (2010) reargued that; “Policy implementation” refers to the mechanisms, resources, and relationships that link policies to program action. Understanding the nature of policy implementation is important because international experience shows that policies, once adopted, are not always implemented as envisioned and do not necessarily achieve intended results. Moreover, some services are provided with little attention as to how such activities fit into or contribute to broader policy goals. Policymakers and program implementers also often have limited understanding of how broader policies might help overcome service delivery obstacles. (Calista, 1994; Love, 2004)

Sangmahachai(1995) stated that, Policy implementation at the organizational level is the direct responsibility of the administrative arm. Therefore,

administrative factors play the important roles on the success or failure of policy implementation. Influencing factors affecting policy implementation can be characterized by using internal approach and systems approach. The internal approach involves the study of variables within the organization that have influences on policy implementation. Success and failure of policy implementation are dependent upon the organization's capability to manage the projects or programs effectively and efficiently. It includes various aspects such as organization structures; human resource; finance; facilities; materials and equipment; as well as innovation and technology. The systems approach puts emphasis on the external environment that impinges on the organization and the interaction between it and its external environment. Therefore, factors of input, transformation process, output, and information feedback are involved.

Van Meter and Van Horn (1975) propose a model for the analysis of factors accounting for policy implementation including six variables: (1) measure and objectives of the policy; (2) resources; (3) communication; (4) the characteristics of the implementing agency; (5) socio-political and economic aspects of the environment; and (6) implementers' dispositions.

Edward (1980) also points out the four critical factors that have influences on the policy implementation including (1) communication; (2) resources; (3) dispositions; and (4) bureaucratic structure. Communication of policy directives must be adequate, clear, accurate, and consistent; and must be transmitted to the appropriate personnel in order to eliminate confusion and

prevent the implementers' from exercising their own discretion which may distort the real intentions of the original policy. However, too precise and specific implementation communications may hinder implementation by sifting creativity and adaptability. Therefore, implementers' need leeway to adapt novel policies to be suitable for some particular situations.

Bhuyan et. al.(2010) restated that, Walt and Gilson(1994) argues various factors influence policy implementation, including the content of the policy, the nature of the policy process, the actors involved in the process, and the context in which the policy is designed and must be implemented. Calista (1994) argues, Implementation is an ongoing process of decision making by key actors who work in complex policy and institutional contexts and face pressures from interested as well as opposing parties. Bresser,(2004) argues, as such, the motivation, flow of information, and balance of power and resources among stakeholders influences policy implementation processes. Matland, (1995) argues, moreover, different stakeholders may have differing perspectives on what constitutes successful policy implementation. Sabatier, (1986) argues, A top-down approach emphasizes the faithfulness with which implementation adheres to the policymakers' intentions.

Little et. el. (1992) pointed that; Environmental project must compete with other capital projects of the company. Even though they may be technically and economically sound there may still be difficulties in securing sufficient initial funding to enable them to proceed. In such circumstances the steering

group should be significantly flexible to make changes or modifications to the proposal, such as staged implementation program if possible.

Maynard-Moody et. al. (1990) argues conversely, a bottom-up approach argues for local implementers to adapt policy strategies to meet local needs and concerns. Calista, (1994). These two perspectives can result in very different strategies and outcomes. Increasingly, democratic policy systems support moving away from top-down or bottom-up dichotomies to a centrist approach emphasizing how actors from different institutional contexts influence what gets implemented.

Edwards, III (1984) stated that, urban public services are essential to the safety, health and well-being of the citizens. Life could not in any civilized way without them. These services are so routine that we seldom consider how vital they really are: police and fire protection, education, transportation, education, water, sewerage, transportation, refuse collection, recreation, flood control, sanitation, and health. One of the myths about these services that, they have little to do with politics. In fact, the implementation of routine public services is fraught with opportunities for political conflict. The political issues inherent in service delivery decisions are significant.

2.2 Public Private Partnership:

Rubin (2007) argued that, A PPP is defined as a contractual agreement between a public sector entity and a private sector entity whereby private sector performs a departmental function in accordance with an output based

specification for a specified, significant period of time. In return for performing this function a benefit which is normally in the form of financial remuneration is received by public party.

In moving to provide public service, using private sector companies, according to Baker (2003), it is essential that government around the world exercise some form of ownership rights and control over the nature and pricing of the public services offered by the privatized companies.

The need for state to spread risk appears to be common theme across many countries. HM treasury (2003) of UK describes the share of risk as the key to ensuring that, the value for money benefits in PPP are realised. What this suggests is that, the risk that the private party incurs, when engaging in PPP, is incentive enough to ensure good performance and assuming of responsibilities.

Ahmed (2002) claims that, already over two thousand PPPs have been formed worldwide. Countries where PPP has been successfully implemented include United Kingdom(UK), Germany, The United States of America(USA), Australia, Canada, Argentina, to name but a few. This global drive for PPP implementation is mainly due to the governments around the worlds focusing on inadequacies prevalent in rendering services to their citizens.

Barnier (2003) argues, the efforts of the Accession Countries to reform and upgrade infrastructure and services could potentially benefit from the PPP approach. This is particularly true, given the enormous financing requirements

to bring these infrastructures up to the standards. The Commission has identified four principal roles for the private sector in PPP schemes: to provide additional capital; • to provide alternative management and implementation skills; • to provide value added to the consumer and the public at large; • to provide better identification of needs and optimal use of resources. However, while PPPs can present a number of advantages, it must be remembered that these schemes are also complex to design, implement and manage. They are by no means the only or the preferred option and should only be considered if it can be demonstrated that they will achieve additional value compared with other approaches, if there is an effective implementation structure and if the objectives of all parties can be met within the partnership.

Miller(2000) pointed that, In the context of developing countries, the recent proliferation of PPPs has been attributed to several explicitly stated reasons, including: the desire to improve the performance of the public sector by employing innovative operation and maintenance methods; reducing and stabilizing costs of providing services; improving environmental protection by ensuring compliance with environmental requirements; reinforcing competition; and reducing government budgetary constraints by accessing private capital for infrastructure investments.

Barnier (2003) continues that, more recently, the use of PPPs has been stimulated in sectors where there has been a significant increase in the burden of traditional public sector responsibilities and this is particularly true with

regard to the disposal of municipal waste. Increasingly, for economic and environmental reasons, public authorities are reducing their reliance on landfill which has been the traditional means of disposing of waste. New methods of waste disposal such as waste to energy schemes and recycling plants require substantial investment and specialized technical know-how. The considerations that will shape the selection of a preferred form of PPP are similar to those for the transport and water sectors and include the size and scope of the project (including operational content), the ability to apply user charging and the extent of risk transfer required. Projects in the waste sector are likely to be very suited to the more developed forms of PPP where a significant amount of operating risk can be transferred to the private sector. In addition, under a Concession contract, the private sector can be asked to finance the project, collect user charges (in accordance with the Polluter Pays principle) and accept the risk associated with waste volumes. This is now being widely applied in the UK.

2.3 Public Private Community Partnership and its level of success factors:

According to the paper, 'Public, Private, and Community Partnerships in Ecuador (2012), Ecuador's recent efforts to build innovative partnerships for SMEs between the government, private businesses, and local communities offer an example of how to achieve this. In addition to members of the Ecuadoran government, the event will also feature representatives of

Ecuador's business sector and community leaders that have partnered and created successful businesses.

Sharma (2013), argues that, Public-private community partnerships are effective in ensuring the availability and management of water at the grassroots level. The approach introduces isodynamic, incorporating sustainability, technology, innovation and accountability.

Saei (2012), reargues, policy makers and the academics who are studying the role of the states in 21st century and those who try to bring about the efficiency, development and provision of high quality public services are very interested in public private partnerships. International organizations such as the European Union, the OECD (Organization for Economic Co-operation and Development) and the World Bank have strongly advocated and promoted public private partnerships. According to them public private partnerships can bring about improved efficiency and quality in public services (Osborne, 2000).

According to the paper 'Public Private Community Partnership Agreement, for the Purpose of Leading, facilitating and managing the First Stage of the Stirling City Centre Program.' the greatest benefit of this approach is the scale of the program to achieve sustainable outcomes across three key result areas;

- 1.Environment: Construction of an urban stream that incorporates water harvesting, water re-use and ecological restoration. ii. Investigate and recommend how to remediate the Hertha Road landfill site.
- 2 Social: Maximize the partnership approach across all areas concerning the form and

nature of the existing and future community of Stirling, including Population Health within the Dept. of Health , Exploration of a health-education precinct and provision of housing diversity, particularly affordable housing. 3 Economic: Stage 1 of the program is likely to facilitate approximately \$120 million worth of infrastructure constructed on site, several hectares of government land released for development; a new \$300 million shopping and entertainment complex built; and Over 6000 new jobs during construction. In addition the PPCP is expanding its public and private sector partners to explore additional investment opportunities, including a number of possible Public Private Partnerships.

According to the country paper of Bangladesh, SAARC Workshop on Solid Waste Management (2004), Experience has shown that in developing countries large centralized and highly mechanized composting plants have often failed to reach their target and had soon to be abandoned due to high operational, transport and maintenance costs. In many cases small-scale decentralized community based composting plants have been considered as a suitable option for treating municipal solid waste as they reduce transport costs, make use of low-cost technologies, based mainly on manual labor, and minimize problems and difficulties encountered with backyard composting.

According to 'National 3R strategy for waste management' (2010), Collaboration between public bodies, such as local authorities or central government, and private companies are referred to as a Public-Private Partnership (PPP). Because of the increasing cost of service and deteriorating

standard of service rendered by the official work force for various reasons, the element of public-private partnership is being introduced as recommended by numerous studies of the problem. Private-Public Partnerships is the best way to secure the improvements in public services. Private companies are often more efficient and better run than bureaucratic public bodies. In trying to bring the public and private sector together, the government hopes that the management skills and financial acumen of the business community will create better value for money for taxpayers.

The above strategy paper further argued that, in 1998, with the support from UNDP, Waste Concern in partnership with the Ministry of Environment and Forest (MoEF) of the government of Bangladesh initiated the "Community Based Urban Solid Waste Management in Dhaka" under a project entitled Sustainable Environment Management Program (SEMP). The prime goal of this project is to explore technical and commercial feasibility of labor intensive aerobic composting technique and to promote the principal of 4R's (Reduce, Re-use, Recycle and Recovery of waste) in the urban areas of Bangladesh. This was the first pilot scale initiative where community based approach was undertaken to convert waste into a resource. This pilot initiative was extremely helpful in convincing both public and private sectors about the approach's viability, as well as its acceptance by the citizen. From the project it was proven that with peoples participation waste can be managed within the community, waste can be segregated at source, organic waste can be composted using local technology, compost can improve the soil condition etc.

Moreover, it was found that by converting organic waste one can reduce methane emission, a Green House Gas (GHG) and harness carbon financing. Under this project for the first time in Bangladesh land was given by the public sector (Dhaka City Corporation, Public Works Department etc.) gave land for the waste recycling purpose which can be called an example of Public, Private and Community Partnership (PPCP). This project is being replicated in many cities and towns of Bangladesh as well as in the cities and towns of Asia Pacific countries.

Enayetullah(2005) argues that, an organization called Waste Concern started a community-based composting project in 1995 to promote the concept of the '4 Rs' – reduce, reuse, recycle and recover waste – in urban areas. It is based on the idea that the organic content of Dhaka's household waste, which accounts for more than 70% of total waste, can be efficiently converted into valuable compost. This reduces disposal costs and prolongs the lifetime of landfill sites. It also reduces the harmful environmental impact of landfill sites, because organic waste is responsible for groundwater contamination and methane gas emissions. By turning the organic waste into compost, the soil in urban areas can be improved.

Enayetullah and Sinha (2011) claimed that, currently, 51 replications of this PPCP model have been carried out by other groups (Government, NGOs and the private sector) in 30 Bangladeshi towns. The United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) has recently begun promoting Waste Concern's community- based composting model in

Matale City in Sri Lanka and Quay Nhon City in Viet Nam, scaled up using carbon trading. Still more recently, a number of South Asian countries (such as India and Pakistan) are adapting the methodology (AM0025) developed by Waste Concern and its Dutch partner.

Rahman (2011), claimed that, this social business model has many implications for the economy, society and environment. Its contribution to generating employment will reduce poverty and income inequality in society. It will reduce the waste management cost of the municipalities. Women empowerment, reducing girls' young marriage, reducing birth rate, hygienic and improved living quality may be mentioned as some of the social and health related implications. Environmental implications include cleanliness, reduction in carbon dioxide emissions, reduction in top soil degradation due to the use of chemical fertilizer, reduction in harmful effects on fish, etc.

2.4 Collaboration among the actors of PPCP program: the Government, Private sectors and the Community:

According to the paper 'Public Private Community Partnership Agreement, for the Purpose of Leading, facilitating and managing the First Stage of the Stirling City Centre Program', the PPCP is a "Whole of Government and Community" coordination, collaboration and participation governance framework that focuses on: resolution of complex, multi-stakeholder problems; red tape reduction; and transparent and effective engagement across the three tiers of government, private industry and the community. This

approach is all about the realignment of relationships to create an “Empowered Governance Framework” that effectively deals with complexities by identifying high order mutual objectives that are delivered through ethical leadership. The PPCP provides the required degrees of freedom to achieve better than “Business as Usual” results across many areas. The PPCP incorporates and maximizes the value of key existing and new commonwealth, state and local government legislative powers, policies, plans, budgets and initiatives.

According to the paper ‘India - Public-Private-Community Partnership: The Dungarpur Initiative (2010), the main actors in PPCP program were the government, community and private sector. PPCP was seen as an approach to achieve sustainable development with equitable association of government, private sector and community. Public sector was to provide the regulatory environment and policy support, private sector the technology, skills, managerial efficiency and investible funds. Communities were expected to contribute their skills and resources as well.

Niyas and Muneera (2012) reargued that, in SWM the public sector actors include Local Municipal Governments (LMG) or Local Government (LG) or urban authorities or city cooperation (Ahmed & Ali, 2004). Public sectors in SWM get their responsibility by laws and regulations or by policies related to environment protection or health (Schübeler 1996). The formal private sector includes registered enterprises carrying out SWM services e.g. collection, transport, disposal and recycling. The ‘formal private sector’ can be

define as “private sector corporations, institutions, firms and individuals, operating registered and/or incorporated businesses with official business licenses, an organized labor force governed by labor laws, some degree of capital investment, and generally modern technology” (Furedy, 1990; Klundert & Lardinois, p.3). Private actors: Citizens and Informal sector includes unregistered, unregulated activities undertaken by individuals, families, groups or small scale business waste pickers, itinerant buyers, traders in waste materials and non-registered small-scale enterprises. Informal waste collectors are not regulated or controlled by government agencies (Ahmed and Ali, 2004). Community Based Organizations (CBOs) are also included in the private informal sector. CBOs are formed by community members. In general, some communities which cannot access enough facilities to maintain their environments clean due to large amount of SW tend to form CBOs for their safety. Generally, these people mainly undertake primary collection and street cleaning (Wilson et al. 2006). National or international Non-governmental organizations (NGOs) are also considered as private actors. Geographical dictionary (2005) defines an NGO as “any charity or volunteer association which takes on responsibility for a particular cause often starting on a small-scale and in response to a particular need such as natural disaster”.

Awortwi, (2004), In PPPs, “while the public sector has the ultimate responsibility for providing services, actual delivery becomes the responsibility of the private sector under contractual arrangements” .

Literature shows that the purpose for entering into partnerships with private contractors was to improve service delivery. For example several SWM activities in developing nations show that after the contribution of the private sector SWM facilities have increased.

Saei (2012) reargued that, public private partnership arrangements pave the way to both the public and private sectors to share the responsibilities in providing the services (Cointreau 1995). Public private arrangements can have many forms, but the common distinguishing characteristic is a shared governance structure and decision-making process. Such a partnership, combines the private sector's dynamism with the public sector's responsibility of public interest which makes it work better (Ahmad et al., 2006). Furthermore, a third party—the people—can also play a considerable role in public private partnership. Citizens can contribute significantly to service delivery for instance they can support private sector participation with payment of service charges and also they can play an active role in accountability improvement and service quality of both public and private sector. These kinds of arrangements turn the people's role from passive service receivers to active service partners that in return lead to high quality and efficiency of work (Ahmad et al., 2006, UNESCAP, 2011).

Saei (2012) further argued that, by working in partnership with the private sector, governments can benefit from the strong incentives for private firms to keep costs down. Often, private firms can avoid the bureaucratic problems that plague national and municipal governments, and they can experiment

with new technology and procedures. PPPs allow government to extend services without increasing the number of public employees and without making large capital investments in facilities and equipment. Private sector can often obtain a higher level of productivity from their work forces than can civil service systems, for instance they can use part-time labor where appropriate. Partnering with the private sector gives local governments the ability to take advantage of economies of scale. By contracting with several suppliers, the governments can assure continuity of services. By contracting competitively for services, they can determine the true costs of production and thereby eliminate waste (Gerrard 2001).

According to 'National 3R strategy for waste management' (2010), Collaboration between public bodies, such as local authorities or central government, and private companies are referred to as a Public-Private Partnership (PPP). Because of the increasing cost of service and deteriorating standard of service rendered by the official work force for various reasons, the element of public-private partnership is being introduced as recommended by numerous studies of the problem. Private-Public Partnerships is the best way to secure the improvements in public services. Private companies are often more efficient and better run than bureaucratic public bodies. In trying to bring the public and private sector together, the government hopes that the management skills and financial acumen of the business community will create better value for money for taxpayers.

Chowdhury (2007) stated that, Dhaka City Corporation (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 define 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. He further argues, According to the work order to one of the NGOs working as PO(Private Operators) 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 commercial areas. The following terms were agreed between DCC and POs to establish the partnership:

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 have to initiate massive public awareness campaign before the beginning of their operations on solid waste management;

5. POs have 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 have 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.

People are one of the most important actors in Public private community partnership. Saei(2012) argues that, One of the most important tasks in waste management is waste segregation which without people cooperation cannot be achieved, thus waste awareness campaigns for rising the people`s information to segregate their waste properly at source is extremely important (ICRA, 2008). With keeping these facts in mind Metro Waste Handling private limited has been conducting Slum programs, Street play`s, School assembly sessions student rallies, Posters & banner displays, awareness programs for household segregation at source level, training of operational staff etc. and these campaigns have been proven very useful.

Niyas and Muneera (2012) continued to reargue that, the formal private sectors enter directly into contracts with individuals, neighborhood associations or business establishments for collection services and then buying the waste from them (Schübeler, 1996: Klundert & Lardinois, no date). They especially carry out these activities to continuously generate income. Also generally, the formal private sectors collects reusable or recyclable

goods and try to make something from recyclable or reusable waste (Post et al. 2003). This activity creates a chance to recover valuable materials and to generate more income. Under partnership each of the actors think about benefits, but this does not mean equality among them (Post et al. 2003. p.46). Anyhow, due to their more effectiveness and efficiency, the private sector gets the most benefits in solid waste management by selling waste, transfer, treatment, recycling and disposal (Ibid). “Other fiscal arguments are that if public services are provided by the private sector, governments will be able to reduce subsidies to loss-making public agencies, increase tax revenue from private operators and reduce public borrowing by encouraging the private financing of capital expenditure” (Awortwi, 2004, p.214).

Enayetullah (2005) argues that, the project was so successful that in 1998 the government selected Waste Concern to extend the project to five other communities of Dhaka, supported by the United Nations Development Program. In 1999, partnership agreement was signed between public agencies (Public Works Department and Dhaka City Corporation), private sector (Map Agro) and Waste Concern to implement the project. The Public Works Department (PWD), Dhaka City Corporation (DCC) and Waste Concern have a formal partnership agreement to implement the project. Waste Concern asked government agencies to provide land, water and electrical connections to establish the community-based composting plants. It also built up relationships with private companies to market the compost and recyclable materials. It sets up community waste management committees and provides

technical assistance and training to help them manage, operate and maintain the services. The program has significantly cleaned up communities, created jobs for the urban poor, reduced DCC's waste management costs, and created business opportunities for entrepreneurs. The project has become a model, which several city governments and NGOs are trying to replicate. Till August 2004, twenty cities/ towns in Bangladesh have replicated the model in 38 communities.

Schübeler (1996), the informal private sector carry out their work in unhygienic conditions, they are poor and face economic problems, health hazards and do not get enough health services. Meantime, it is believed that the private informal sector work alongside the public sector in many developing countries. Sometimes informal workers work as recyclers of waste materials. He further noted that, in many developing nations NGOs and donor agencies are directly or indirectly involved in SWM services. NGOs act as intermediaries between the private and governmental realms by providing technical and financial support in order to improve their works or services.

Schübeler (1996, p.21) further argues that NGOs play important roles in waste management contributing to, • “people’s awareness of waste management problems • organizational capacity and the formation of community-based organizations (CBO) • channels of communication between CBO and government authorities, • CBOs voice in municipal planning and implementation processes (decision making), • technical know-how of locally active CBO, and • Access to credit facilities”.

Chowdhury (2007) reargues that, 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, 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.

Niyas and Muneera (2012) reargued that, community Based Organizations' (CBO) have a goal to improve their living conditions. Thus they collect waste and transfer it to the disposal site. Sometimes they directly involve themselves in WM by collecting reusable valuable materials such as bottles and use organic materials directly for their stock (Klundert & Lardinois, no date). In addition to this CBOs hire the formal or informal waste collectors whenever they need them, to transfer their waste to transfer points, or to separate waste at source. As a result they help to protect the communities in which these

CBOs operate and their environment. These activities support the public and private sectors to collect waste easily. Otherwise some waste can be remaining in the city. For their services they get payments from the residents (Kassim, 2009). Some NGOs and CBOs try to improve the livelihood of the unemployed street children (Henry, Yongsheng & Jun, 2006). They try to make self-employment groups. Some of these groups collect recyclable materials and other groups collect composting or organic waste. These activities help them to get some income for example, in Nairobi – Kenya.

Public Private Partnerships are arrangements between public and the private sectors for the purpose of providing public services. Such partnerships are characterized by the sharing of risks, responsibilities and reward between the partners, Saei (2012) argued. But, Enayetullah and Sinha (2011) argues, the project is not a conventional public- private partnership (PPP) because it does not involve a government agency as partner sharing the profits as well as the risks. It may be better categorized as a public- private cooperation project. The participation of the government is through the DCC, which has granted a concession to the private company WWR Bio Fertilizer Bangladesh, Ltd, to collect and process waste. WWR Bio Fertilizer Bangladesh Ltd will self-finance its collection and processing activities. It will procure vehicles to transport waste and build composting plants. There is no investment on the part of the DCC. On the other hand, WWR Bio Fertilizer Bangladesh Ltd has Waste Concern and its Dutch partners – World Wide Recycling BV, FMO Bank and High Tide – as joint venture partners.

2.5 Policy factors affecting the implementation of environmental programs:

2.5.1 Policies, regulations, laws, strategies and technologies:

Brigham and Brown (1980) argue that, Regulation strategies require people to do so under threat of penalties such as fines and imprisonment. This is perhaps the most familiar strategy. Examples of regulation are so numerous that merely listing the agencies involved would take pages. A premise which underlines regulation is that it is important to have universal performance of the behavior. Failure to perform it produces social harm sufficient to merit penalties. For such acts such as murder, there is consensus on that premise. For others, such as prostitution, there is less consensus. Additionally, some rules are unenforceable. The net social utility of formulating such rules may be negative, because it may make look antagonistic to individual interests. Clearly, regulation is for behavior, products, or services that are not considered attractive enough to be done without coercion.

Nath, Hens, Compton and Devuyst (1998) argue that, there are different reasons why authorities choose to use legal instruments in environmental management. It is an approach compatible with health and safety regulations which predate more modern environmental legislation. From this point of view, establishing and using laws is almost the natural management reflex of policy makers. Moreover in many OECD countries, environmental policy was

established during a period in which the steering capacity of the authorities was held in high esteem.

Brigham and Brown (1980) continued that, regulation works through punishment or the threat of it. Generally we use punishment to reduce a specific behavior, not to increase or stimulate it. It is hard to punish someone for not using some device or performing some activity, especially if the device or activity is new or is used /performed in private. At best it may be possible to regulate specific public acts of omission, such as running a stop light or driving without a seatbelt. Punishment can suppress behavior. Its ability to do so, however, varies with numerous factors. Suppression is more likely and greater when the punishment is intense, of longer duration, suddenly introduced and frequently administered. The strongest findings, however, bear on the relationship of punishment to positive reinforcement. These findings suggest several consequences for efficacy for regulation strategies. First punishment can suppress behavior. Second, to be effective punishment must be repeated often and extensive surveillance or monitoring of behavior is also necessary. Third, punishment works best when other factors, especially positive reinforcement, are appropriately manipulated. It is not likely to suppress behavior in the future unless the contingencies that reinforced it have been reduced, removed, or replaced. He further added that, actually work through reinforcement or the judicious application of punishment, whose reduction (negative enforcement) is made contingent upon performance of the desired behavior. Some of the psychological effects of

punishment can be expected, including the need to monitor compliance. What distinguishes a tax from a fine is 1. The stigma attached to the fine and 2. The less sensitive relationship of the fine to behavior required for its application or removal.

Bhuiya (2007) argued that, the existing policies, laws, and regulations in this field are inadequate. The enforcing mechanism is even weaker. However, a waste-management division has been formed very recently in the Dhaka City Corporation (DCC) to look after the management of municipal solid waste along with other activities. There are no specific legislation, regulations, and policies for solid-waste management at the national level, but according to DCC Ordinance 1983, amended in 1999, Article 78, the DCC is responsible for the disposal of solid waste from bin to disposal site and for cleaning the roads and drains.

According to 'National 3R Strategy for Waste Management', 2010. The city administration does not have adequate institutional mechanisms to engage the residents, public organizations, NGO and other stakeholders on a regular basis to assist in decision making and program implementation. The role that these stakeholders can play in educating the masses and mobilizing their communities has not been adequately recognized.

Bhuiya (2007) suggested that, Initiate steps for scientific and organized waste management using GP principles. This includes putting in place the necessary measures to collect, transport, and disposes of or treat solid waste. Despite resource constraints, the government of Bangladesh, as a member of the APO,

has demonstrated a high level of commitment in embracing GP technology. It has taken important measures in terms of policies, plans, and programs to adopt various international initiatives in environmental management and in combating environmental decline. Other important stakeholders, such as NGOs, CBOs, industries, environmental activists, researchers, and the public, have been involved in varying degrees in the country's efforts. However, while Green Productivity provides an opportunity for the country's sustainable development, translating policies and plans into reality poses a challenge. Therefore, the government policies and will of the people will have to work on a concurrent platform to introduce sustainability in Bangladesh. This requires efforts both within the country and internationally by calling for greater cooperation and collaboration among countries of the world, and especially among the members of the APO.

2.5.2 Resources, Budgets and other supports:

Kim (1999) reargued that, resources entails funds, manpower, equipment or incentives, etc. that are crucial to carrying out a policy. Inadequate resources are almost always claimed as a cause of implementation failure (Derkhick, 1972; Hogwood and Gunn, 1984; Van Meter and Van Horn, 1975). In fact certain amount of resources is required in order to fulfill intended goals. In addition to adequate resources, the timing of the funds is often cited as essential to effective implementation in the intergovernmental system (Van Horn, 1979a).

Sangmahachai (1995) stated that, the dedication of resources to implement the policy under the first element must be joined with coordination of the policy with ongoing operations. In other words, a new initiative or agency must not cause excessive competition or disagreement with existing initiatives or agencies.”

Rahman(2010) reargued that, “Our development path has never been smooth,” said Maqsood, the co-founder of Waste Concern. He added “challenges came at every stage of development as waste management as a business was completely new in the country. People don’t want to give land in the city,” said Maqsood.

Niyas and Muneera (2012) reargued that, In general developing nations allocate money for most of the environmental problems such as water pollution and waste management. These nations allocate small amount of their budget for MSWM. Also municipalities get taxes from the general public for their services. On the other hand, the private sector has enough money or investment to carry out the services thereby satisfying public needs.

2.5.3 Incentives and subsidy:

Brigham and Brown (1980) argued that, incentives are thought to be the most efficient intervention strategy, because they leave enforcement to the consumer/beneficiary. Incentive reduces reliance coercion or altruism, both of which are unreliable and costly. Incentives reduce the need for complex information about what is worth what to whom, since producers and

consumers settle that by their transactions. Finally incentive can direct innovation socially desirable directions, by stimulating inventions that conserve scarce resources and fill economic needs. To keep the incentives directed toward desired outcomes, it is preferable to link the deductions or vouchers to them.

Mann (1982) argues that, abstractly, two basic means of control can be identified: 1. Control through direct specification or instruction of the agents behavior (for example put scrubbers on smokestacks); and/or 2. Control through rewards that encourage the agent to behave as principle desires (for example, subsidies that may be used to build pollution control facilities). He added, two basic kinds of incentive relation then exist in regulation: 1. A directive one, in which a direct specification of regulate behavior is backed by negative rewards (for example, coercion), and 2. What I shall term an incentive one, in which positive bias or encourage the regulatee's particular choices of behavior. Analysis of regulatory means for achieving environmental and other social goals can therefore proceed comfortably within a general framework of incentive system.

According to 'National 3R Strategy for Waste Management' (2010) no incentive or support is available from government to promote and support cleaner production practices amongst the industries to manage industrial waste, EMS and CP are the important tools.

Edwards, III (1984) suggested that, although we believe that a general incentive system theory within the framework developed in the paper is

possible, very significant the oriental benefits may be derived simply from the direct application of the model to sort concepts and propositions for specific cases. Our conceptualization of “incentive” as incentive relation directs attention to the relations of elements in control system of this kind. Special case incentive theories built in this framework may indeed contribute to an understanding of important abstract concept and propositions in a general incentive system theory. An incentive system approach like that we offer requires us to think conceptually about implementation in an explicitly organizational context. It is at least apparent that students of implementation have increasingly recognized the need to take theoretic approaches to implementation. In the policy literature, incentives themselves are discussed frequently as policy instrumentalities, whether explicitly as components of policy designs or implicitly as a part of discussion of incentive like mechanisms such as intergovernmental grants. As yet, however, incentive systems have not been offered as a conceptual focus for a lot of what we know about implementation and a route to more systematic theory in the area.

Brigham and Brown (1980) continue that, incentives can misdirect policy analysis in critical ways, despite their importance as policy tools. The incentive approach assumes that, different policy goals has different intrinsic worths to the society but no goal is so overriding as to demand undeviating societal support. In an incentive policy matrix, there are no core social values except those involving continuation of the market system. Policy makes can

maximize certain short-term goals but that effort often degenerates in to concern with what is feasible rather than with what society deems essential.

Enayetullah and Sinha(2011) suggested that, It is essential that the government devise a combination of fiscal incentives and market-based instruments to promote private sector investments in them, for example: Tax holidays: Entrepreneurs setting up a compost plant as part of a joint venture or within the private sector should qualify for a tax holiday of 10 to 12 years and be exempted from customs duty, excise duty, value added tax, sales tax, and other local taxes on equipment, machinery, processing plant, etc. Capital subsidies: Entrepreneurs should qualify for a capital subsidy of up to 50% of the plant cost (if the municipality owns the plant, for example build-operate-transfer (BOT)), and 30% of plant cost (if owned by the private sector). Tipping fees: Tipping fees should be paid by the municipality for each ton of waste processed by the entrepreneur since waste recycling reduces land filling costs. Concessionary rates for utilities: The entrepreneur should be supplied electricity, diesel, and water at the same rates as provided to the agricultural sector or at a concessionary rate, whichever is less. Long term lease of land: Entrepreneurs should be provided land at existing dumpsites on a long term lease, free of cost, for setting up compost, biogas, or RDF plants., Creating parity with chemical fertilizers: It is recommended that funding for the production of compost should be 5 to 10% of annual subsidy to chemical fertilizer., Co-marketing of compost with chemical fertilizers: Fertilizer companies can adopt a 'basket approach', which would entail the co-

marketing of compost with chemical fertilizers. For larger scale compost plants, the use of fertilizer marketing companies for distribution and sale of compost provides a great advantage.

According to the paper of ‘Developing Public-Private Partnerships in Local Infrastructure and Development Projects, a PPP manual for LGUs’(2012), The LGU may provide a project company with a defined cash subsidy in return for some targeted service output. When cash subsidies are tied in this way, they are referred to as output-based subsidies. Essentially, the project company would be required by formal agreement to provide service to a certain segment of the population, under a series of definable annual outputs, at a specified tariff. This type of subsidy is not to be confused with untargeted investment and operating subsidies. For example, a project company for a water supply project is asked to serve a rural barangay that has no capacity to fully pay for the service. The LGU signs an agreement to pay a rebate to the project company after it has installed connections to the agreed number of households.

2.5.4 Market Potential of recycled products:

Nath, Hens, Compton and Devuyt (1998) argues that, ‘Reliance on the market is the answer, and schemes to implement these insights are generally referred to as ‘trading’. Given the baseline of ‘lawful’ emission levels for each plant, each source can choose to reduce its emission to that level by installing control equipment, changing fuels or processes, shutting down, reducing operating levels, or by implementing other strategies; or by buying emission

reductions of the relevant pollutant, not otherwise required by law, which have been achieved, or will be achieved in the future, by other plants capable of reducing emissions more cheaply.

Lipschutz and Conca (1993) argued that, the common assumption, that the state can effectively intervene in this institutions and extract resources from them, often does not hold. This can be seen for example, in the case of markets. The market is not merely an arena of supply, demand and price; rather it is a social network of exchange and commerce and a conduit for natural resources from their rural origins to their final use. The state is not a benevolent or objective hand in market regulation, as neoclassical model cast it, and as it is often viewed in the industrialized world. In my exploration of some of these relations and their effects on the policy process, I will argue, as does that on the state side we are faced with a system in which members of the government can use state resources to cultivate clientele. In short, state controlled resources are allocated through social relations between the market and state for both political and private ends.

Jonson (2003) suggests that, PPP provide a market which provides a wide array of companies, from builders to healthcare operators.

Choudhury (2007) argues that, 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.

2.5.5 Community cooperation, participation and awareness:

Mazmanian and Sebatier(1945) argues, Just a statute can bias the implementation process through design characteristics of implementing agencies, it can also affect the participation of two groups of actors external to those institutions:(1). The potential beneficiaries and target groups of the program and (2).The legislative, executive and judicial sovereigns of the agencies. In most regulatory programs, for example the target group do not have problems with legal standing nor do the generally lack the financial incentives to pursue their case in court if they are displeased with agency decisions. In contrast, the beneficiaries of most consumer and environmental protection legislation individually do not have sufficiently direct and salient interest at stake to obtain legal standing and to bear the cost of petition adverse decisions to judicial and legislative sovereigns.

Mann (1982) suggested that, rulemaking has been complicated by a variety of factors. The most significant of this include: protracted lobbying and public participation; the intervention of events related to hazardous wastes and the attendant impacts public opinion and rulemaking agenda; legislative oversight and executive redirection; the technical, scientific and other dimensions of uncertainty. He continued that, public participation can be an effective tool in

developing support during the implementation process, but it also can be strategically costly. An argument can be made that rather than leading to a consensually derived and legitimated regulatory system, public participation as manifested by intense lobbying on technical/scientific or institutional issue, may have lead to increased polarization and extended political conflict.

Nath, Hens, Compton and Devuyst (1998) reargues that, for Stohr and Taylor (1981) the most approach to environmental planning is planning 'from below; that is planning for the people and with the people. As Carley and Christi (1992) point out, environmental issue must be fully integrated in to socio economic planning and involve public participation at all levels- individual, community and global. Faludi (1987) also refers to planning as team work, in which discussion should not be limited to the chief planners and the politicians but should involve all sections of the community. He sees participation as a means furthering criticism, thereby expanding the range of options considered. Ryding (1994) also suggest that, at the individual level, people should assist in environmental organizations.

Ryding(1992) continued, "Public awareness about the deterioration of our environment is growing steadily. Therefore, public concern about the state of the environment must be one of the main factors considered in establishing environmental policies. Public participation has several dimensions because of the different roles a citizen plays in a society: as a worker, consumer, polluter and voter.

Mass media has great influence on creating public awareness and in implementing policy. Mazmanian and Sebatier (1945) stated that, the mass media are important in implementation process for at least two reasons. First they are crucial intervening variable between changes in socioeconomic conditions and perception of those changes by the general public and to a lesser extent, political elites. This is particularly true for events beyond the local political arena, where most individuals have little direct experience. Second the tendency of most television and newspaper stations and newspapers to play an issue to the hilt and then go on to something else is a real obstacle to the constant infusion of political support from the very diffuse beneficiaries of most environmental and consumer protection programs.

Nakamura and Smallwood (1980) opine that, because the media can influence different groups, it has the capacity to exercise tremendous leverage on the implementation process. On the positive side, the press can perform the role of helping to keep implementers honest in a variety of ways. First, aggressive reporting can smoke out inflated reports of program accomplishments that implementers might foist onto the public, or their superiors, in an effort to gloss over mediocre performance. Second, the press can sound an early alarm on potential program difficulties that implementers might try to disguise in the hope that improvements are just around the corner. Third, the press can dramatize legitimate accomplishments in order to enhance support for successful implementation programs. Because of the media's influence, most implementers go to great efforts to build and maintain strong media image.

2.6 The relationship of policy factors with PPCP for Solid waste management:

2.6.1. Relationship of the legal instruments with partnership for Solid waste management:

Barnier (2003) argues the effectiveness and impact of a PPP depends, to a large extent, on the regulatory mechanisms used to influence and guide the parties and in particular the private sector decision making process. Because of these critical interactions it is preferable to ensure the development of effective legislative and regulatory provisions before developing PPP relationships. In this area the Commission, can provide valuable policy contributions particularly in the current situation of regulatory transition associated with the accession process and reform of legal and operating structures in the CCs.

Inadequate National Policy support also impedes the implementation of the PPCP project which are as follows according to the 'National 3R Strategy for Waste Management' (2010), At present there is no guideline or rules available for management of solid waste in the country. Present national policy and rules are not adequately harmonized with the needs and capabilities of the local governments and industries. Coercion without assistance will not help deliver the goods.

Bhuiya (2007) argues that, 'Even though a legal framework has been established and some rules have been implemented, the lack of incentives and

enforcement has led to an aggravation of the waste problem. There is also a perceptible risk to the health of the population because of the absence of regulated disposal facilities, which leads to open collection and dumping.’

Barnier (2003) continues that, Experience has shown that early development of conducive and consistent national legislative and regulatory structures greatly facilitates the identification, development and implementation of PPPs. A particular requirement is to establish the roles and responsibilities of all parties and ensure that effective systems are in place to regulate and monitor PPPs to derive the desired value for money and necessary transparency in implementation.

Dass Ravi (2004-05) argues, lack of expertise and legal provisions, skepticism and slow decision making process are the principle policy impediments, ‘Solid-waste management practices in developing countries like India are far from satisfactory, and the associated problems are due to a lack of technical expertise, financial constraints, and legal provisions. Generally, state and municipal governments consider solid waste a low priority, and consequently give less budgetary support to this field. Slow decision-making processes in the municipalities create an additional hindrance.’

According to the ‘National 3R Strategy for Waste Management’, (2010), the country does not have a waste management strategy. As a result, waste management is viewed solely as an engineering responsibility for collection and disposal. Waste management is no more a technical issue. It needs social, fiscal and administrative solutions as well. Most of the cities’ current

approach to waste management system is conventional i.e. end of pipe solution. Its stress is on collection and disposal and not on reuse and reduction.

Sinha (2012) suggested that, the co-ordination among the Ministries for the implementation of solid waste management; The Local Government Division (LGD) under the Ministry of Local Government Rural Development and Cooperatives (MoLGRD&C) at the national level is responsible for overall planning, identification of investment projects, monitoring and observance of rules governing urban local bodies. All the Pourashavas and City Corporations work under Local Government Division (LGD). All the rules and regulations, acts, ordinances and government orders regarding the issues of Pourashavas and City Corporations are prepared and then disseminated by LGD. In general, Ministry of Environment and Forests (MOEF) is a nodal ministry responsible for preparing and enforcing a country's environmental rules and regulations. Ministry of Agriculture (MOA) is the nodal ministry for developing and enforcing compost standards for soil application and registration and certification of compost. Ministry of Finance (MOF) is a key player in deciding the levels of financial support and subsidy from the central government to be provided to develop waste recycling projects. Ministry of Information (MOI) plays an important role in promoting source segregation of waste via awareness campaigns in national media.

Dass (2005) argues that, the government is to formulate a strategic SWM plan for at least the next 20 years and accordingly municipalities are also to formulate their detailed action/implementation plan as well as their

monitoring plan. There should have periodic environmental audits of the MSW activities of each municipality are to be conducted by independent third party auditors. The central government is to provide fiscal incentives and encourage the recycling industry by adopting the appropriate technology through Green Productivity.

2.6.2 Relationship of the resources, budgets, other supports with the partnership and private entrepreneurship in SWM:

Ryding (1992) argued that, a lot of people would probably agree that environmental protection requires increased allocation of resources throughout the world, irrespective of the system they might advocate for solving today's environmental problems. This is true in the most cases of the whole area of waste management, particularly regarding hazardous waste management, which in many respects has been neglected in the industrial society.

Barnier (2003) argues, before a tender is issued, the national authority needs to determine or refine the project's budget. In many cases, this is completed by determining what the project would cost if it were built strictly by the public sector. This process is used for a number of reasons: • It will determine if a PPP will actually save money for the public sector. Unless a proponent's solution is innovative and would result in a significant improvement in service or cost savings, it is unlikely that a national authority will participate in a PPP arrangement. • It will provide potential partners with a "benchmark" on which they need to improve in their proposals. Again, if the proposal comes in at a

higher cost than proposed by the national authority, the expectation is that the private partner will provide an improvement in quality of infrastructure or service for users. • It will determine if the national authority can afford to be involved. If it cannot build a much-needed project on its own, assistance from the private sector may be required.

Ahmed and Ali (2004) argued, public actors face problem of funding to manage SW. This means their income is not enough to provide SWM services. Due to this special reason they fail to manage SW in entire cities or have limitation in meeting public demand.

Niyas and Muneera. (2012) argued, several workers engage in SWM services in the developing world. SWM need more workers to work in offices to make plans, to collect, to recycle, drive the vehicles and repair the vehicles. Before collecting the waste these workers have to sweep the roads. Municipalities employ some people specifically to sweep roads. The waste collectors and sweepers are not well educated and work without any training. Due to economic problems labors in SWM are people without skills. Further most of their work depends on human resources. This means generally many processes in SWM, carried out in developing countries are partly or completely manual processes such as road cleaning and waste collecting.

Levine (1994) reported that in developing nations several municipalities have one mechanic for 10 – 15 vehicles. It is difficult to repair around 15 vehicles by one mechanic and if the municipality wants to buy a spare part for vehicles they have to wait until they get permission from an upper manager. Therefore,

many vehicles take about 2 – 6 days for minor repairs. The writer further noted that, if the spare part for the vehicle has to be ordered from a foreign supplier, then it takes 3 – 6 months to repair and due to these reasons nearly 25 – 50 percent of the vehicles remain in disrepair for long time in developing nations. Accordingly municipalities fail to collect the waste properly. According to ‘National 3R Strategy for Waste Management’, (2010), Local government bodies have been struggling to find suitable land for sanitary land filling. Due to high population density in a highly urbanized region, finding large extents of land away from main habitations is difficult. A large part of the country consists of low-lying areas which are generally active flood plains. As a result suitable landfill sites are not available within the city.

According to the country paper: Bangladesh on SAARC Workshop on Solid Waste Management (2004), generally in most of the urban local bodies have insufficient number of staff involved in waste management activities. In addition to the shortage of personnel, the staffs are handicapped with relatively small amount of resources available to them for management of solid waste in their particular area of operation.

Horen, (2004) noted that, in general, government appoints several laborers for SWM but due to lack of skills and training the public sector still does not have a good workforce. As a result municipalities face problems to handle the problems and have to appoint more skilled workers in SWM, for example, the Colombo Municipal Council (CMC). In Sri Lanka, 22.9 percent of the total municipality workers of 10,715 worked in SW department in early 2000.

Niyas and Muneera. (2012) reargued that, public sector workers work with inadequate equipment. They have to work slowly with old vehicles and equipment. Most of the vehicles are very difficult to operate, maintain (Zurbrugg, 2003) and in bad condition or old. Generally municipalities encounter many problems to buy new vehicles and they also face problems to repair old or broken vehicle. Availability of vehicles and conditions of the vehicles are also some of the reasons why waste remains uncollected in public places. This means collectors cannot follow the collection schedule due to lack of vehicles or conditions of the vehicles (Kassim & Ali, 2006). Kasseva and Mbulungwe (2005) found out that many SW collection trucks in Dar es Salam city, Tanzania are in bad condition. Even in Sri Lanka it has been observed that the collection trucks are not in good condition. Jayaratne (no date) noted that Colombo Municipal Council, in Sri Lanka has 38 compactor trucks, 50 tractor and trailers, 323 loaders and handcarts and several waste compactors, bull dozers, tippers and skip hoist trucks but Colombo municipality face problems to collect waste effectively in entire city due most vehicles are in bad condition. Due to Local governments' (LGs') lack of budgetary allocation for SW the public sector cannot improve their service delivery with new technologies and train staff. Lack of vehicles or bad conditions of the vehicles and old equipments lead the public sector to collect waste from selected areas or sides. They also do not have finances for experimentation along this line. So they have to do most of their works manually such as street sweeping, loading and unloading and drain cleaning

and public sector have to provide the service with lots of workers (Ahmed & Ali, 2004).

According to the paper of 'Developing Public-Private Partnerships in Local Infrastructure and Development Projects, a PPP manual for LGUs'(2010), It is imperative that a person or organizational unit within the LGU be given the responsibility for project management, and be equipped with all the necessary manpower and logistical support to supervise project implementation. Lines of authority and responsibility should also be clearly defined. For some PPP projects, which tend to be large in scale, the demands on existing structure of the LGUs may exceed their capabilities. Planning for project implementation and operation should be flexible enough to include private sector inputs later on, but comprehensive enough to pinpoint relationships with other implementing agencies. Also important is the appraisal of operational aspects which considers non-quantifiable but equally important factors that may impinge on the project's implementation and operations.

'National 3R Strategy for Waste Management'(2010), argues that, the City Corporations/Pourashavas claim that they lacks financial and human resources to address waste issues effectively. Undoubtedly, a human resource issue is affecting the efficiency and effectiveness of the waste management team of the City Corporations and Pourashavas. Under the present circumstances, they have had very little opportunity to expand their knowledge horizons and

enhance the technical know-how. They need exposure to modern waste management applications.

2.6.3 Relationship of Incentives and subsidy with PPCP in solid waste management:

Mann (1982) further argued that, four schemes that use economic incentives to control pollution are commonly discussed: 1. Effluent charges, 2. markets, and 3. Bubbles and 4. Noncompliance penalties. Economists generally consider effluent charges to be the best of those tools for reducing pollution. The underlying logic-“polluters pay principle” – is simple and compelling. The government determines the damage caused by different concentrations of pollution, and the polluter, through some mechanism, has to pay for damage. The government for example can set a price equal to the marginal damage caused by a unit of pollution. The Polluters then would have an incentive to decrease pollution up to the point where the marginal cost of reducing pollution up to the point was less than the price of discharging.

Nath, Hens, Compton and Devuyt (1998) argued that, the Philosophy underlying the use of economic instruments in environment management is basically two fold. First there is the financial revenue aspect: in their search for money to finance mainly the effect directed instruments, authorities decided to tax different aspect of waste, air and water pollution. Most of the taxes not only have financing capacity, but in a more or less pronounced way are also intended to change the attitude of the tax payer to creating pollution. To this regulatory character may be added the element that environmental

quality might become a competitive advantage. Essentially underlying the market oriented approach is the use of money and /or the creation of an artificial market (of taxes subsidies, permits, etc.)

Ahmed and Ali (2006) found in their research on PPP in SWM in developing nations that, the public sector does not have the skills or incentive to change the traditional mode of service delivery and build partnership with the private sector and citizens.

Rahman(2010) argued that, lack of availability of low interest credit facilities for piloting the initiatives, and problems linked to marketing the compost is the constrains of developing waste management as a business. Absence of proper regulatory framework, large volume of paperwork, negative attitude of the officials created unnecessary delays in implementing the projects.

Enayetullah and Sinha(2011) suggested that, It is essential that the government devise a combination of fiscal incentives and market-based instruments to promote private sector investments in them, for example: Tax holidays: Entrepreneurs setting up a compost plant as part of a joint venture or within the private sector should qualify for a tax holiday of 10 to 12 years and be exempted from customs duty, excise duty, value added tax, sales tax, and other local taxes on equipment, machinery, processing plant, etc. Capital subsidies: Entrepreneurs should qualify for a capital subsidy of up to 50% of the plant cost (if the municipality owns the plant, for example build-operate-transfer (BOT)), and 30% of plant cost (if owned by the private sector). Tipping fees: Tipping fees should be paid by the municipality for each ton of

waste processed by the entrepreneur since waste recycling reduces land filling costs, Concessionary rates for utilities: The entrepreneur should be supplied electricity, diesel, and water at the same rates as provided to the agricultural sector or at a concessionary rate, whichever is less. Long term lease of land: Entrepreneurs should be provided land at existing dumpsites on a long term lease, free of cost, for setting up compost, biogas, or RDF plants., Creating parity with chemical fertilizers: It is recommended that funding for the production of compost should be 5 to 10% of annual subsidy to chemical fertilizer., Co-marketing of compost with chemical fertilizers: Fertilizer companies can adopt a 'basket approach', which would entail the co-marketing of compost with chemical fertilizers. For larger scale compost plants, the use of fertilizer marketing companies for distribution and sale of compost provides a great advantage.

Government of Haryana (GoH) recognizes that “provider-charges” and the “user-pays” principles are crucial to the success of PPPs in physical infrastructure. The Government would, where necessary and appropriate, consider levying user charges (fees, tariffs, cess etc.) to cover costs of infrastructure provisioning and create a stable and dedicated financial source for construction / redevelopment / rehabilitation / replacement of project assets and their ongoing operations and maintenance. The focus would be to provide efficient, sustainable and high quality services at affordable prices to users.

The above report 'Developing Public-Private Partnerships in Local Infrastructure and Development Projects, a PPP manual for LGUs' (2010) continues that, the government support shall be provided by means of a transparent process. It should be noted that any PPP project requiring support must be subject to competitive tender and, therefore, sole source uncontested contracts should not be eligible for government support. Where financial support is required, a clear description of the nature of that support is required, and the amount of required support becomes one of the project ranking criteria.

According to the paper, 'Public Private Partnership, in Haryana,' GoH would look at the option of better utilization of existing assets before considering new investments. Focus would be on integrated infrastructure development. GoH recognizes that 'social' projects may not always be viable on PPP. In such cases Government would use other mechanism of compensation such as provision of Viability Gap Funding (VGF) or annuity payments or 'shadow' (usage/ availability based) payment. It will be the endeavor of the GoH to create a conducive environment for attracting investment to infrastructure sector through the PPP mode. Accordingly, the State Government may formulate sector-specific policies, from time to time, for providing specific viability gap funding, incentives and also for establishing mechanism for tariff setting, pricing, dispute resolution mechanism, arbitration, guarantees, safety and operational standards etc. It also envisages coordination across infrastructure sectors. Considering that infrastructure projects require

special considerations in view of long gestation period and risks on return and other factors, GoI has provided incentives and support in terms of tax holidays, tax exemptions, Viability Gap Funding (VGF). These would be available for all PPP projects of the State.

2.6.4 Relationship of ‘market potential of recycled product’ with the rate of recycle of solid waste:

There is a great importance in the policy of creating market demand for the recycled product. Hsiao-Hsin Huang (2004) argues that, all kinds of waste for recycling need to take into account the market demand for recycled products. If the demand for reuse is high, the waste can be recycled smoothly and quickly. Consequently, that kind of waste will end up as zero-waste. However, if the demand is less than anticipated, the economic benefits—even if the government provides lots of incentives—of waste recycling will not work.’

The strategy paper ‘National 3R strategy for waste management’ (2010) argued that, Composting is a means of recapturing value from waste through the utilization of natural biodegradation process to convert organic materials into soil additives. It has the potential to reduce the cost of waste disposal, minimize large scale public health risk, produce a clean and readily marketable finished product and help to increase the recovery rate of recyclable materials.

Marketing of recycled product is crucial to sustain the PPCP program. Enayetullah (2005) argues, marketing of the compost was an important

feature of this partnership program. The program is only financially possible if a market exists. A lot of time and effort was invested in developing relationships with private companies to market the product.

Ryding (1992) stated that, the production and consumption of goods is closely tied to the generation to the waste. Waste production is an inevitable consequence of our lives, and of industrial activities. Valuable raw materials are usually transformed in to relatively short lived products and long lived product wastes. Today, waste generation is increasingly thought to be antagonistic to our production-and consumption oriented economic system. Despite improved production technologies; there must also be adequate waste management technologies.

According to ‘National 3R strategy for waste management’ (2010), Composting (recycled product) is a means of recapturing value from waste through the utilization of natural biodegradation process to convert organic materials into soil additives. It has the potential to reduce the cost of waste disposal, minimize large scale public health risk, produce a clean and readily marketable finished product and help to increase the recovery rate of recyclable materials.

2.6.5 Relationship of Community cooperation, participation and awareness with the implementation of Community partnership/PPCP in SWM:

Ryding (1992) argued that, Public Participation can be important when developing environmental control programs, particularly with regard to those areas connected with recreational use. Many individuals may have their own experiences with environmental problems, or else may have been exposed to media coverage of such problems. Appropriate media for public information purposes include the press (newspapers, television and radio) and popular scientific publications. In view of nontechnical background of the average citizen, general information is often the most understandable. Greater public awareness about the environmental issues can usually be developed by presenting details of new control programs (and expected improvement in environmental quality) available to the public.

Mann (1982) suggested that, rulemaking has been complicated by a variety of factors. The most significant of these include: protracted lobbying and public participation; the intervention of events related to hazardous wastes and the attendant impacts public opinion and rulemaking agenda; legislative oversight and executive redirection; the technical, scientific and other dimensions of uncertainty. He continued that, public participation can be an effective tool in developing support during the implementation process, but it also can be strategically costly. An argument can be made that rather than leading to a consensually derived and legitimated regulatory system, public participation as manifested by intense lobbying on technical/scientific or institutional issue, may have led to increased polarization and extended political conflict.

People can participate in environmental program not only by cooperating that program getting involved in it but to pay charges as polluters. Faure and Skogh (2003) argued, Article 174(2) of the EC Treaty states that community policy on the environment shall be based on principle 'that the polluter should pay'. The Polluter pay principle has an obvious intuitive appeal- it is the wrong doer who is responsible and should pay. In economics the pollutes pay principle is well established, but also questioned. It is common knowledge of economics that, prices inform buyers and sellers about opportunity cost, the resources required to produce goods and services on the market. The parties in the markets are thereby, and the decisions are coordinated via prices. If the prices do not include compensation of all involved, there is an imperfection or lack of internalization of costs and benefits, that is, an external effect in the economy.

Saei(2012) argues that, one of the most important tasks in waste management is waste segregation which without people cooperation cannot be achieved, thus waste awareness campaigns for rising the people's information to segregate their waste properly at source is extremely important (ICRA, 2008). With keeping these facts in mind Metro Waste Handling private limited has been conducting Slum programs, Street play's, School assembly sessions student rallies, Posters & banner displays, awareness programs for household segregation at source level, training of operational staff etc. and these campaigns have been proven very useful.

Sinha(2012) suggested that, Ministry of Information (MOI) plays an important role in promoting source segregation of waste via awareness campaigns in national media. The MOI can raise awareness of the positive impacts of compost application to crops. It can also instruct print media to provide factual information regarding source segregation, as well as encouraging the use of organic waste products as part of corporate social responsibility

According to the ‘National 3R Strategy for Waste Management’ (2010), the average resident and industrialist views waste management as a City Corporation’s or Pourashava’s responsibility. The public carries a negative perception of the role played by the local body mainly because of the conspicuous quantities of waste lying uncollected on city roads for days.

According to the country paper: Bangladesh on ‘SAARC Workshop on Solid Waste Management’, the ‘Community Initiative’ that is based on primary solid waste collection by CBOs and NGOs, ‘Community Initiatives’ of house-to-house waste collection in neighborhood started due to lack of satisfaction with solid waste management service

According to the report, ‘Sustainable Partnership for the provision of Essential Services in Maseru’, The evaluation found that whilst the project contributed to greater awareness of and knowledge about PPPs within the municipality and amongst stakeholders, more work needs to be done to create the desired enabling policy and regulatory environment. It is therefore recommended that: 1. Efforts should be continued to build knowledge

about and awareness of PPPs in key national ministries and in the MCC and an overarching and MCC-specific policy and legislative framework should be established; and 2. that the guidelines and regulations for PPPs for the MCC should be operationalized in the management of all future PPPs.

According to the paper 'Public Private Community Partnership Agreement, for the Purpose of Leading, facilitating and managing the First Stage of the Stirling City Centre Program, major consequences of the participatory approach to date have been: • The achievement of community acceptance, support and engagement; • Heightened political interest as an approach that is worth supporting and exploring; • Strong belief and involvement by the private sector as an approach that could provide certainty of outcome and reduction in red tape; and High level support from other state agencies, including Water Corporation, Western Power, Department of Health and Department of Education.

Schübeler (1996) argues that, NGOs play important roles in waste management by contributing to people's awareness of waste management problems • organizational capacity and the formation of community-based organizations (CBO) • channels of communication between CBO and government authorities, • CBOs voice in municipal planning and implementation processes (decision making), • technical know-how of locally active CBO, and • Access to credit facilities".

Niyas and Muneera (2012) argued that, community Based Organizations' (CBO) has a goal to improve their living conditions. Thus they collect waste

and transfer it to the disposal site. Sometimes they directly involve themselves in WM by collecting reusable valuable materials such as bottles and use organic materials directly for their stock (Klundert & Lardinois, no date). In addition to this CBOs hire the formal or informal waste collectors whenever they need them, to transfer their waste to transfer points, or to separate waste at source. As a result they help to protect the communities in which these CBOs operate and their environment. These activities support the public and private sectors to collect waste easily. Otherwise some waste can be remaining in the city. For their services they get payments from the residents (Kassim, 2009). Some NGOs and CBOs try to improve the livelihood of the unemployed street children (Henry, Yongsheng & Jun, 2006). They try to make self-employment groups. Some of these groups collect recyclable materials and other groups collect composting or organic waste. These activities help them to get some income for example, in Nairobi – Kenya.

Asian Development Bank, Heather Skilling and Kathleen Booth, (2007), householders are the main actors in generating waste. The general public generates waste and to manage the waste they have to separate it at source. Also they must put this waste in proper places at appropriate times. Then it would be very easy to collect it and this would help to keep the neighborhoods clean. The household have the responsibility to pay for the services when it is needed. Participation in SWM by paying taxes or service fees helps the private or public sectors to mitigate their budget constraints and to improve their services to the people.

(Kassim & Ali, (2005), argued that, this participation and good relationship between the households and contractors suggest that an improvement of the service would be better through communications with the households themselves as the service recipients. Also, it would provide a reliable means of identifying bottlenecks in the service.

3. RESEARCH METHODOLOGY

This research was intended to examine different policy related factors including administrative, management and legal issues and economic instrument on how to include the community of Dhaka city under essential service coverage and look for options on how to improve the Solid Waste Management condition through appropriate partnership between local governments and non-governmental organizations. This survey was conducted in randomly selected five locations of Dhaka city, namely Mirpur, Banani, New market, Shahbagh, and Tejgaon.

3.1. 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.

3.2.1. 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.

3.2.2 Local Government: Dhaka City Corporation is the local government in Dhaka City. The Awami League government on 29 November 2011 dissolved the Dhaka City Corporation by the Local Government (City Corporation) Amendment Bill 2011 passed by the Parliament of Bangladesh after being placed in the Parliament on November 23. The city corporation has been spitted into two corporations, North and South, with the southern wing holding more territory than the north. Each corporation is a self-governing entity, thus giving the city of Dhaka two mayors. Dhaka North City Corporation (DNCC) consists of 36 wards covering the thanas of Mirpur, Mohammadpur, Sher-E-Bangla Nagar, Pallabi, Adabor, Kafrul, Dhaka Cantonment, Gulshan, Banani, Badda, Uttara & some others. Dhaka South City Corporation (DNCC) consists of 56 wards covering the thanas of Dhaka Kotwali, Motijheel, Sutrapur, Ramna, Bangsal, Wari, Gendaria, Chwokbazar, Lalbagh, Hazaribagh, Dhanmondi, Shahbagh, New Market, Khilgaon, Kamrangirchar & some others.

3.1.3. 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.

3.2. Research instruments:

This research made an attempt to analyze the policy issues to implement PPCP for Solid Waste Management which required primary and qualitative data from service providing organizations, local government institutes and

direct beneficiaries. Quantitative data were also collected from secondary sources.

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 from three key stakeholders namely city dwellers, non-governmental organizations (N.G.O.'s) and Dhaka City Corporation (D.C.C.). The survey for this research used the following two instruments to collect information:

3.2.1. Questionnaire survey: The study used a single questionnaire which was designed to collect information from Dhaka city dwellers, Dhaka City Corporation Ministry of environment and non-governmental organization. The questionnaires were mainly filled by the graduate students of Public Administration, Public Policy, Government and politics and environmental science of university of Dhaka and Jahangirnagar University, who are the dwellers of Dhaka city as well.

Questionnaire designed for survey in Dhaka city area was used to collect perception on existing situation regarding to the environment and solid waste management and policy factors, including financial and legal instruments, and community participation which influences the partnership between government and non- government organizations and the community in Solid Waste management initiatives. It also designed to collect information about the policy suggestions to intensify the partnership initiatives and community awareness and participation.

3.2.2 Direct interview: Direct interview was conducted with top officials of Ministry of Environment, Dhaka City Corporation and nongovernmental organization.

In case of in case of D.C.C. (south) the officials at the rank of Superintending Engineer and Chief waste management officer, Executive engineer (machine) of D.C.C. (North) and Deputy Secretary of Ministry of Environment and Forest and in case of non-governmental organizations executive director was interviewed. In all cases, the officials were interviewed followed by the questionnaire survey mentioned above.

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 20 minutes in Dhaka city areas. Each interview session with Dhaka City Corporation and non-governmental organization needed between 30-60 minutes.

3.3 Sampling method and sample size:

The sample for the research was selected based on the discussion with different officials Ministry of Environment, Dhaka North City Corporation (D.N.C.C.), Dhaka South City Corporation (D.S.C.C) and from NGOs from 20 August to 28 August, 2013. The size of the samples could not be larger due to shortage of time and funds.

The sample size of the questionnaire was 150, where 5 different wards of Dhaka city was selected randomly from 92 wards and 25 questionnaires

were filled from each randomly selected ward which constitute 125, and rest 25 were collected from the officials of government and non-government organization . For interviewing, one official from each of Ministry of Environment, D.C.C. and non-government organization was selected on a random basis.

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 policy issue of partnership and participation surfaced as important its effectiveness.

3.4 Data sources and collection method:

This research made an attempt to identify the policy 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 secondary sources.

Primary data (survey and interview) were collected from the graduate students from Dhaka and Jahangirnagar University who resides in Dhaka city, officials of D.C.C., Ministry of Environment and Forestry and non-governmental Organizations. 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. He was a graduate student of government and politics. Same questionnaire was used to conduct field surveys.

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, National 3R strategy, Country report of SAARC workshop on Solid Waste Management, Report of Asian Productivity of organization survey on Solid Waste Management, PPP manual for LGU, Japan International Development Agency (JICA) and the technical documents of Waste concern assisted the study with some key documents. 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.

3.5 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 and tabulation of quantitative data. Qualitative analysis took the form of content analysis of interviews, discussions and documents, while quantitative analysis took the form of descriptive

statistics such as frequencies, percentages, etc. with the aid of Microsoft excel software. Data interpretation was done mostly by the use of graphs, charts and tables. Graphs and Tables were derived from processed questionnaires.

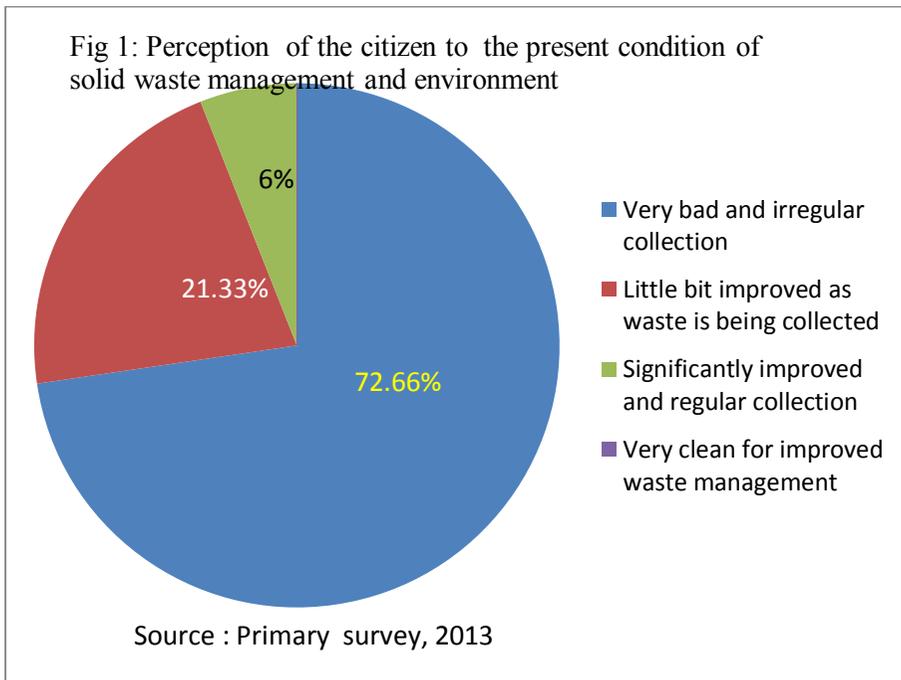
The data and information collected from Dhaka city dwellers were used to analyze the perception about the present condition solid waste management in Dhaka city, the policy/ regulations needed to create the opportunities partnership model in Dhaka city, policy suggestion to promote the private entrepreneurship in this model, policy suggestion about the finance in this system, perception about the subsidy on the recycled product in this model, policy to enhance the community participation in this PPCP model, suggestions to increase the 'market demand' of the end product(compost), suggestion about the specific goal of this PPCP program in SWM by which the participation of the community people can be motivated to enhance. Data and information collected from D.C.C., Ministry of Environment and Forestry, non-governmental organizations and were used to identify key policy issues, which are needed to improve present partnership model in solid waste service delivery to the city dweller.

4. RESEARCH FINDINGS AND ANALYSIS

(SURVEY)

The aim of this survey is to design the pragmatic policies to enhance to opportunity of partnership in Solid Waste Management. For this, some data about the present environment and SWM condition were presented from different sources (both primary and secondary) to understand the problems in depth. Other primary (survey and interview) data about legal and economic instruments and citizens' participation was collected to shape some policies to boost up the PPCP program in SWM in Dhaka city.

In Dhaka, 3,500 tones of waste are generated per day, of which 80 per cent is organic. However, Dhaka City Corporation (DCC) collects only 50 per cent of the waste. The rest remains on roadsides, in open drains and in low-lying areas. At this rate, it is unable to take care of additional increases in the city's waste. This has a negative impact on the city's environment. It is estimated that the population of Dhaka will be 19.5 million by 2015. It will become very difficult to find sites to bury the waste as the city expands, and transport costs to transfer the waste will increase. The volume of waste needs to be reduced to a sustainable level. (Enayetullah and Sinha, 2011, Enayetullah, 2005)



From the above chart we can see that a line share of respondents (72.66%) of Dhaka city think that the condition of solid waste management and overall environmental condition is very bad, 21.33% respondents think that the condition has little bit improved due to collection of waste. Some respondent (6%) including the government and private officer think that due to regular collection of waste by CBO and partnership program, the condition of environment and solid waste has improved significantly.

The above result reveals that, giant numbers of people are not satisfied with the present condition of environment and solid waste management in Dhaka city. It makes sense that, solid waste management has become a burning question in Dhaka city which needs pragmatic policy in no time.

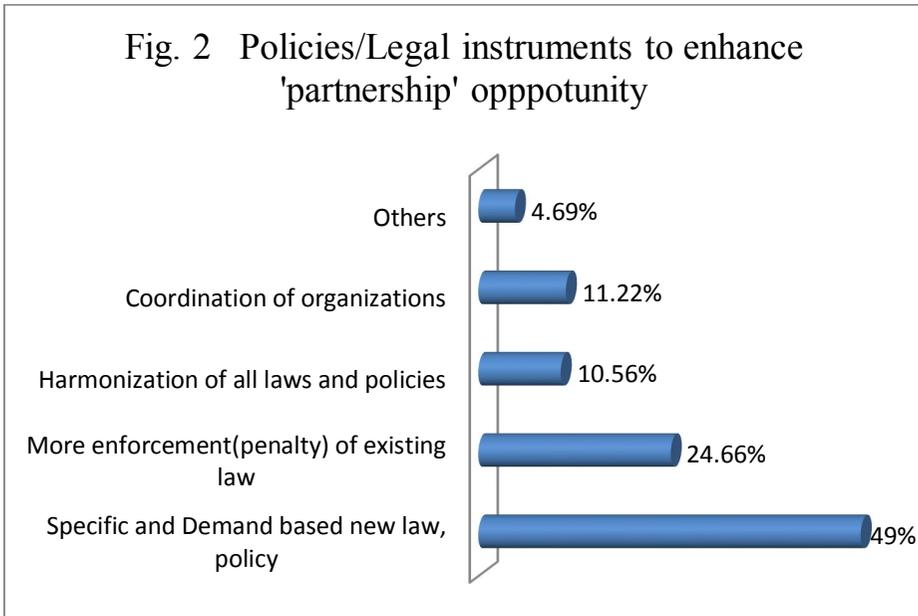
In 1998, with the support from UNDP, Waste Concern in partnership with the Ministry of Environment and Forest (MoEF) of the government of Bangladesh initiated the "Community Based Urban Solid Waste Management in Dhaka" under a project entitled Sustainable Environment Management Program (SEMP). The prime goal of this project is to explore technical and commercial feasibility of labor intensive aerobic composting technique and to promote the principal of 4R's (Reduce, Re-use, Recycle and Recovery of waste) in the urban areas of Bangladesh. This was the first pilot scale initiative where community based approach was undertaken to convert waste into a resource. This pilot initiative was extremely helpful in convincing both public and private sectors about the approach's viability, as well as its acceptance by the citizen. From the project it was proven that with peoples participation waste can be managed within the community, waste can be segregated at source, organic waste can be composted using local technology, compost can improve the soil condition etc. Moreover, it was found that by converting organic waste one can reduce methane emission, a Green House Gas (GHG) and harness carbon financing. Under this project for the first time in Bangladesh land was give by the public sector (Dhaka City Corporation, Public Works Department etc.) gave land for the waste recycling purpose which can be called an example of Public, Private and Community Partnership (PPCP). This project is being replicated in many cities and towns of Bangladesh as well as in the cities and towns of Asia Pacific countries. From the experience gained from this project, a large scale carbon financing based investment was possible using Clean Development Mechanism (CDM)

in Bangladesh. Due to lack of co-ordination between ministries and lack of capacity, the approval and implementation process was delayed. Currently, 51 replications of this model have been carried out by other groups (Government, NGOs and the private sector) in 30 Bangladeshi towns.

Opportunities for developing partnerships between the government and stakeholders in waste management (who will engage in composting or recycling to reduce waste) are not explored because of the absence of a waste management policy. Waste reduction, reusing, recycling, and segregating waste at source or at the household level are not commonly practiced. The government practice of promoting compost but offering no subsidy while providing a subsidy for chemical fertilizers distorts the market. Other obstacles include a 5 year tax holiday for compost projects (a green project), while other green projects, such as wind and solar, benefit from a 15-year tax holiday. Another market distorting factor is that, while the municipality pays a tipping fee for land filling of waste, the government does not pay a tipping fee for recycling of organic waste in Dhaka. These fiscal policies, instead of providing incentives to invest in organic waste recycling projects, actually discourage potential investors. This issue should be addressed by the national government.

4.1 Policy or Legal instrument to enhance the opportunity of partnership:

'Partnership' in Solid waste management has been proved to be an effective policy in Dhaka city, but there is no adequate and conducive policy for the Partnership in SWM. Even there is no separate law for SWM and partnership in this field. So, survey was done to ascertain the need for the policy to enhance the opportunity of partnership in this field.

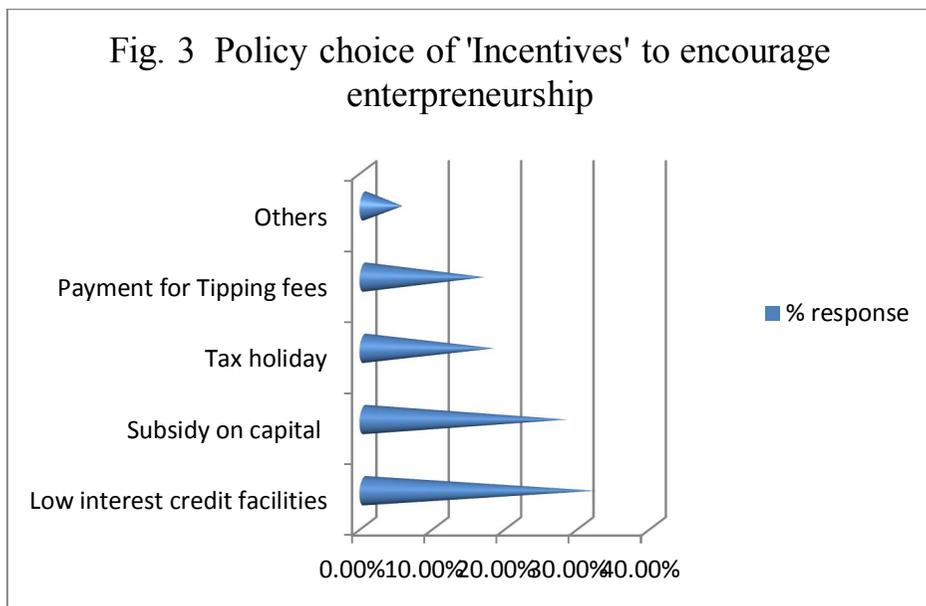


From the above graph we can see that, most of the respondents (49%) demand a specific and demand based new law for solid waste management and conducive policy to encourage the partnership in this SWM. One forth (24.66%) of the total respondents thinks that existing law is enough for it but it needs more enforcement or penalty system. Some(11.22%) of the respondents supported that there should have harmony in all existing laws and policies while some (10.56%) thinks that all concerned ministries should have coordinated approach to boost us the opportunities of partnership.

Others respondents claimed that there should have combination of two or more policies above and clarification of responsibilities of different agencies in the policy is required for this.

4.2 Policy suggestion about the ‘incentives’ to encourage the private entrepreneurship:

Different NGOs demanded that, there should have incentives from the government to the local private entrepreneurs to establish and sustain solid waste recycle business. This survey has performed to know the feasibility of ‘incentive system’ and the type of incentive should be provided by the government.



Source: Primary Survey, 2013

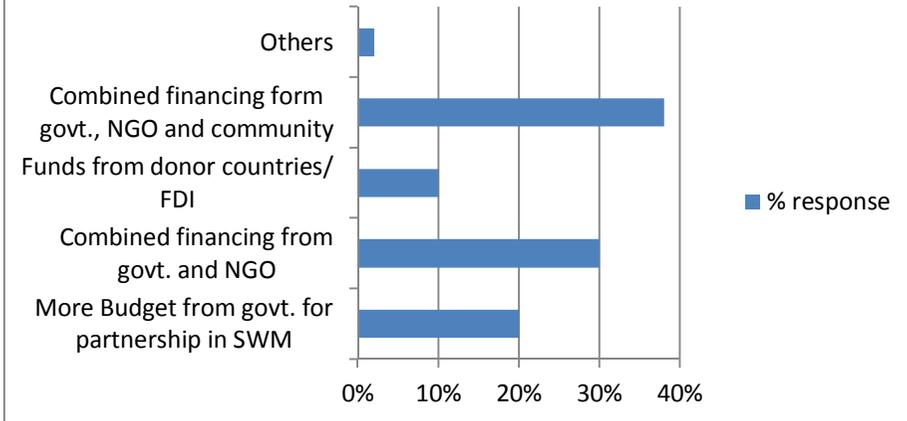
About one third(32%) of the respondents think that, Low interest credit facilities can be provided by the government bank to pilot the initiative. 28% of the respondents supports the subsidy to the capital and plant cost to start the business. Some (18%) suggest the tax holiday for setting up the recycle plant and some think that payment of tipping fees to the private entrepreneurs. Others respondents suggested that, combination of two or more incentives are necessary to establish the recycle business.

4.3 Source of financing for PPCP in SWM:

Lack of budget or finance to establish a composting facility is a significant barrier to encourage the private entrepreneurship in the Partnership program of Solid Waste Management (SWM). It is very difficult for the DCC to spend a lot of money for SWM due to its budget constraints.

But as it is a mammoth project, it needs lots of funding. This survey was done to know the source of financing for the Public Private Community Partnership in Solid Waste Management.

Fig. 4 Source of Financing for PPCP in SWM



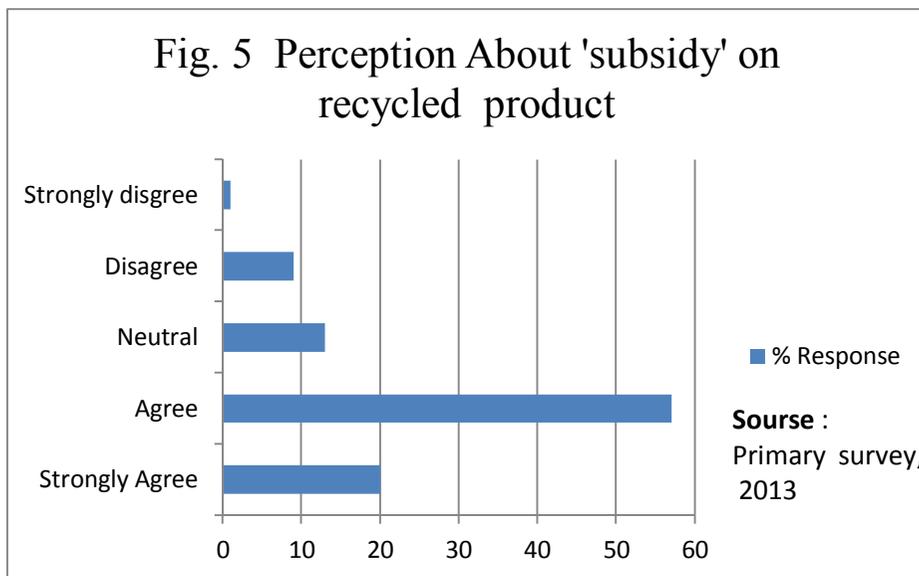
.Source: Primary Survey, 2013

The above graph depicts that, lion's share of the respondents(38%) supported the combined financing form government(DCC), NGOs in partnership and community, which indicates that the city dweller are willing to participate in this partnership program by providing service charge.

Some (30%) suggests the combined financing from the government and NGOs, One fifth of the respondents think that, government should allocate more budgets for the partnership in this SWM. Around 10% of the respondents suggested that fund can be obtained from the donor agencies and by inviting FDI. Others (2%) prescribed that it can also be taken from the citizens by introducing polluters pay principle in this project for funding.

4.4 Perception about the ‘subsidy’ on recycled product of solid waste:

Subsidy to the recycled product will make the business more profitable and sustainable will increase its competitiveness in the market with the other subsidized products. The survey was conducted to know the degree of perception about the subsidy on the recycled product (e.g. compost, plastic products)



The above graph disclose that, most of the respondents(60.66%) are ‘agree’ with providing subsidy to the recycled product, while other respondent suggested to provide the subsidy to the association of the community or businessman or group of entrepreneur. Other respondents especially from the government offices disagreed and strongly disagreed to the policy of subsidy as they think that it cannot be a good option to solve this problem.

4.5 Policy to increase or create ‘market potential’ of recycled product:

Increasing the ‘market demand’ of recycled product (e.g. compost) will bring quicker and smoother recycle of the solid waste. This survey conducted to ascertain the policy of creating ‘market demand’ of recycled product.

Sl. No.	Policy to create ‘market demand	% Responder
a.	Approaching Private Marketing company	12%
b.	To motivate the end users or buyes	20.66%
c.	Economic instrument to control price	27.33%
d.	Govt., NGO, and Media's combined promotion	36%
e.	Others	4%

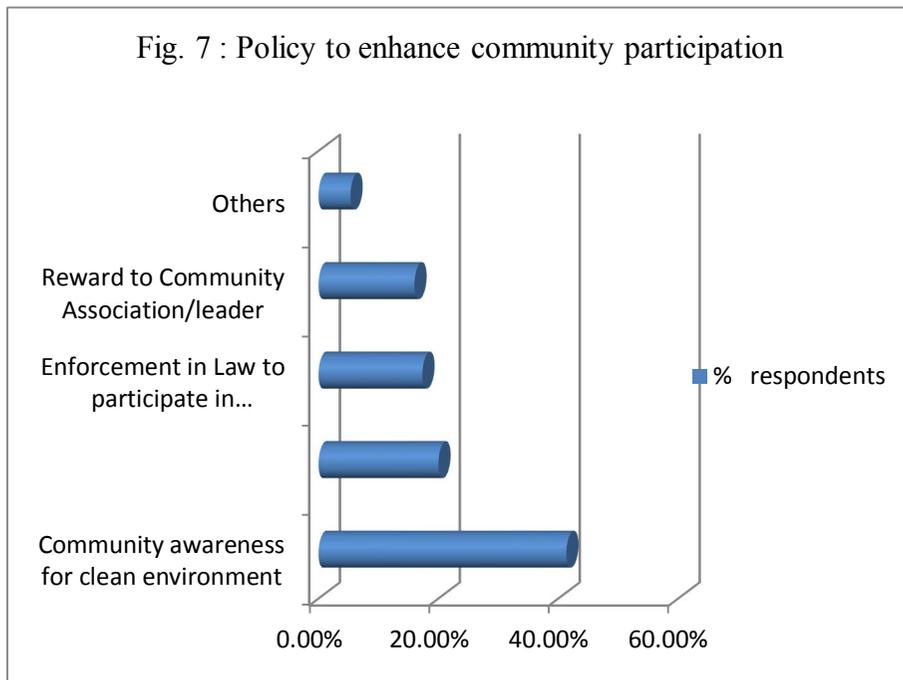
Fig. 6: Policy to create market demand of recycled product.

From the above table we see that, highest number of respondents (36%) suggested the promotion of recycled product by the government and non government organization and with media (print and electronic). Some (27.33%) prescribed that; government can use economic instruments to control its price for making it affordable and popular for the buyers. More than 20% respondents suggested the motivation work to the end users and to approach private marketing companies by the officials of public or private organizations or researchers to make it acceptable for them. Others (4%) suggested the combination of using economic instrument and combined

promotion with media and public private organization, coordination of all ministries to promote the recycled product from waste.

4.6 Policy to enhance the community participation in PPCP program:

The Participation of community people is integral in the Public Private Community Partnership. This program will not be able to successful without the spontaneous participation of the community people. This survey was conducted to design the policy to encourage the community participation.

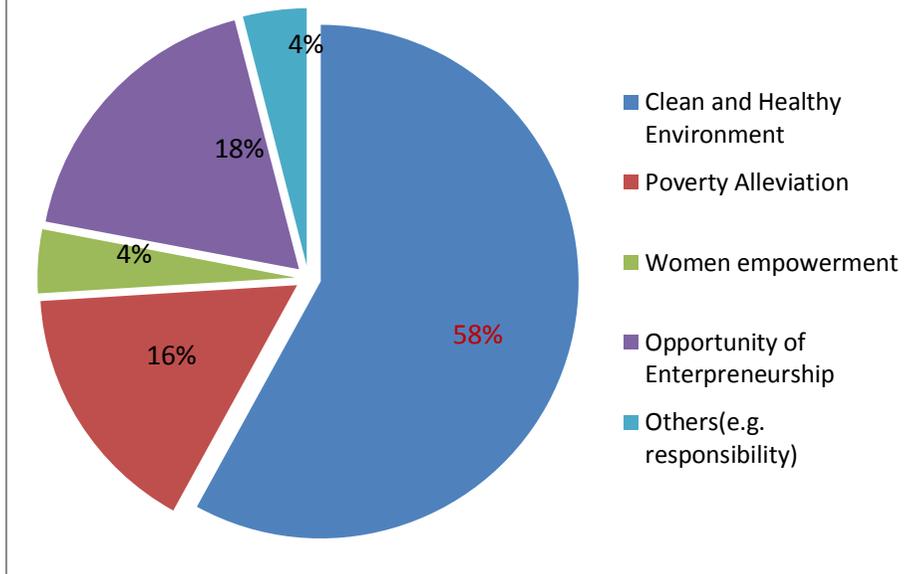


The above graph draws the picture that, highest (41.33%) number of respondents prescribed the policy of creating community awareness to ensure

a clean environment by the local government. One fifth respondents suggested that, the community people should be motivated to participate in partnership program by the officials by arranging some programs e.g. seminars, workshops, by forming and patronizing local leaders and community associations. Some suggested that, there should have enforcement in policy/regulation to participate in PPCP program in SWM. Other respondents suggested using all policy above at a time and combination of community awareness and reward policy, while prescribed that, formation of association in every locality which can organize and motivate the community.

Motivation and creating awareness among the community is the best way to encourage the community boost up participation of the community. However a survey was conducted to fix the policy goal by which the community people can be motivated.

Fig. 8 : Policy goal to motivate the community to participate in PPCP



Above pie chart, revealed that, most of the respondents (58%) suggested that the policy goal should be to ensure ‘Clean and Healthy environment’. Other policies suggested by the respondents are, ‘Poverty alleviation’, because it creates employment opportunity for the people, opportunity of the private entrepreneurship and woman empowerment, as it may involve mostly women as its principle.

Others respondents suggested, both clean environment and private entrepreneurship united or responsibility as a citizen.

5. RESEARCH FINDINGS AND ANALYSIS

(INTERVIEW)

Interviews were taken from three concerned officials, from the Ministry of Environment and, Dhaka North City Corporation (DNCC), and from the Executive Director of a Non-Government Organization named 'Waste Concern'. In this chapter the interviews of the officials of government and Non-government organizations was discussed with comparison and contrast with their own views.

According to an NGO official, Executive Director of 'Waste Concern' about the present condition of solid waste management and environment of Dhaka city was, "At present the overall management of solid waste is not satisfactory. Recently, DCC area generates 4,200 tons of waste every day. However, Dhaka City Corporation (DCC) collects only about 50 per cent of the waste. The present management of waste by DNCC and DSCC (previously was DCC) is based on traditional method of collection-transportation and crude dumping of waste. This management of waste is focused on landfill, the concept of 3R (reduce, reuse and recycling) is missing. Apart from a small pilot source separation of waste project using Climate Change Trust Fund (CCTF) of the government, there is no large scale initiative by the city to promote segregation and recycling of waste. There is only one official controlled landfill site at Matuail and rests of the landfills are unhygienic crude dumpsites. At present waste collection and transportation is partially

contracted out to private sector which is based on transportation of waste at the dumpsites. At present the city spends more than US\$ 40/ ton for collection-transportation and disposal of waste and by spending this tax payers money waste is managed in a crude manner thus creating pollutions. As a result, more uncollected waste is piled up on the roadsides or dumped into open drains and low-lying areas, further deteriorating the environment and the quality of life. There is a lack of awareness of the people on proper SWM, lack of incentives for the private sector to invest in this sector.”

On the other hand, according to the government officials, the present solid waste management condition has become improved in present days due to the regular collection of solid waste. Recently Dhaka City Corporation (North and South) has made partnership with some small NGOs and CBO (Community Based Organizations) for door to door primary collection of solid waste. But DCC is has still lacking in the partnership with secondary collection from primary collection site to the landfill. There is a partnership with an NGO named ‘waste concern’, but it is mainly working in vegetable markets, e.g. Karwan Bazar, Shakhari bazar, but it is very insufficient in comparison to the demand of the city. Anyway, the overall solid waste management and environment has improved from past.

5.1 Policy/ Legal instrument to enhance the opportunity of partnership

Official from NGO claimed, “to create more opportunities of partnership It is essential that, the government devise a policy with the combination of fiscal incentives and market-based instruments to promote private sector investments in them. By effectively implementing ‘the National 3R Strategy’ the government can improve the partnership”

We need a complete law for Solid Waste management which will be not only guideline, but will enforce and encourage people and other stakeholder to participate in this partnership program. There should have clarification of responsibilities of different government and non-government organizations in the government policy in this partnership program, and then there should have proper coordination of different concerned ministries and NGOs, a DNCC official said, not only policy is enough, there should have congenial atmosphere for policy implementation.

5.2 Policy suggestions about the ‘incentives’ to encourage private entrepreneurship:

‘I suggest that, the government should give some incentive, for example, tax holidays to the entrepreneurs setting up compost plant, payment of tipping fees to private operators, Concessionary rates for utilities e.g. electricity,

diesel, and water etc., Co-marketing of compost with chemical fertilizers, and subsidy to the capital and compost as well.’ the NGO head claimed.

But the government officials gave the negative opinion about the ‘incentive’ system, “Incentive can create another problem in this field as imperfect knowledge and unintended consequences can make incentives much more complex than the people offering them originally expected, so it can not be supported”. Another official opines, the government should search the viable NGOs as a partner in this program in terms of their cost effectiveness. He further said, as the land is essential but scarce factor in Dhaka city, so land and other logistic support should be provided to the private entrepreneurs to boost up partnership program.

5.3 Source of financing in PPCP:

According to the executive director of NGO (Waste concern), ‘Waste Sector should have a sector based approach. Firstly, the potential of waste sector for private investment should be assessed and for this updated national information/database is required. Any private sector before a long term investment in waste sector will be needing baseline information on the quality and quantity of waste for the preparation of a business plan.

Lack of soft loan, land for establishing recycling facility, and free delivery of waste to the facility is a barrier to establish a composting/recycling facility. It is also true that government has limitations, but the government can promote a new opportunity for foreign direct investment using the Clean Development

Mechanism (CDM) of the Kyoto Protocol. The government should also provide sufficient budget allocation for giving subsidy and other incentives to the entrepreneurs in this sector.’

Not only FDI or local investment should be encouraged, but the financing should come combined from the Public private and also community, on government official said. For getting finance from the community, ‘Polluters Pay Principle’ should be introduced where the citizens responsible for pollution the natural environment will be responsible for paying for the damage of natural environment.

5.4 Perception about the subsidy on recycled product of waste:

The government officials were disagreed to strongly disagreed with the subsidy system in this field as the government has budget limitations. Another govt. official said, this subsidy can be given to the association of a certain product (e.g. plastic association, compost association etc.).

“At present on-site (at factory level) enrichment of compost with micronutrients is not permitted by law in the country. Field level experience shows that the demand for compost (end product of recycled waste) by the users is increasing rapidly for its positive impact on the improvement of soil quality.” Head of the NGO, Waste Concern said.

He further argued, 'Subsidy to the compost should be given by the government to create parity with chemical fertilizers. I suggest that funding for the production of compost should be 5 to 10% of annual subsidy to chemical fertilizer. Not only that, the entrepreneurs should qualify for a capital subsidy of up to 50% of the plant cost.'

5.5 Policy to increase or create 'market potential' of recycled product:

NGO head opines, "Standard of recyclable products or compost should be formulated by the government to ensure quality and positive impact of recycling. Recently the Department of Agriculture Extension (DAE) of the Ministry of Agriculture established a standard for compost and license is required to market compost after field trial, which is based on proper quality control. To create market demand of the compost, firstly, the government should use economic instruments by devising a combination of fiscal incentives and market based incentives to control its price. There is need for level playing field for compost product against heavily subsidized chemical fertilizer. To ensure utilization of the fertilizer and to sustain this system, contacts and negotiates with fertilizer companies to purchase and nationally market the compost. This process also assists communities in marketing the product. Fertilizer companies can adopt a 'basket approach', which would entail the co-marketing of compost with chemical fertilizers.

Public officials argued that, the government can use economic instrument to manipulate its price so that the buyers can buy the product in affordable price. Government department can also play role to promote the recycled product, e.g. DAE (Department of Agricultural Extension) can motivate the farmers to use organic compost and can encourage organic farming. It can also make demonstration plot in the farmers' field. The Ministry of Information can also promote the advantages of using the end product (e.g. compost) to the users. Depending on the utility of the product, the government can take measures to make the business competitive and profitable. Moreover, there should have a coordinated approach with all the concerned ministries to create the market demand of the end product from solid waste.

5.6 Policy to enhance and encourage the community participation in PPCP program:

It is very much necessary to motivate the community people to participate in this Public Private Community Partnership program, the DNCC official argued, "I think that, in every locality, there should an association which will be able to organize the community for this purpose. The government will give recognition and some other support to this association and will work develop the leadership in this association. The successful association can be rewarded by the government and encouraged by the media."

The NGO official opined, 'The challenge of proper waste management remains at the source of waste generation. Separation of waste at source is still

a challenge due to lack of guidelines by the city and awareness of the people. A major portion of the waste can have better economic value, if they are not soiled with other waste. At present a large number of communities in Dhaka city are paying a service charge for the house-to-house collection of waste. With the promotion of source separation, more recyclables from waste can be extracted as a result more value can be derived from waste and littering will be minimized. The 'National 3R Strategy' launched in 2010, if properly implemented can improve community participation significantly for SWM.

According to the head official of Waste concern, to ensure the community participation in SWM, it is needed to stimulate the behavior changes in urban communities, who have begun to appreciate the value of waste, and also among professionals, who learn how to orient communities towards waste management. There is also a need to raise awareness within government and the private- sector about CDM and carbon-trading activities to boost up the partnership.'

The NGO personnel continues, "Improper management of waste, lack of awareness at the community level has a number of negative externalities: increased littering of waste, reduction property value due to unmanaged waste disposal sites & waste collection points, environmental pollution, create health hazards for the community, reduce the value of recyclables. I think, we can motivate the people to participate in this program by promoting the concept of waste as a resource."

A government official of DCC (North) argues, “We can encourage the citizen by saying that, it is their responsibility as a citizen to participate in this partnership program to make a clean and healthy environment. In addition to that, we can motivate the community people towards a quality life with clean and healthy environment and free of poverty.”

5.7 Overall suggestion(s)/opinion concerned to the policies of PPCP in SWM in Dhaka city

‘With the proper implementation of 3R Strategy, the city can properly reduce the volume of waste to be disposed and reduce the pollution and need for land for disposal waste. With proper incentives and policies private sector can make investment and create value from waste with an inclusive approach of involving all the actors (community, private sector, informal sector, NGOs, manufacturers and research bodies). Some of the recommendations can be as shown below:

1. Need for one stop center to provide information and encourage investors to invest in waste related projects.
2. Clear-cut policy package, incentives, guidelines needs to be promoted for waste related 3R projects in the country.
3. Appropriate Technologies are expensive, which should be subsidized by rich developed countries (for example technology transfer in CDM projects).

4. Easy financial support should be promoted by bank/ financial organizations and incentives should be extended to waste related project related to 3R.
5. Capacity building training programs and research on waste management and recycling required for all the related stakeholders.
6. Role of Media needs be promoted to inform people and raise mass awareness on 3R.
7. Public-Private-Community Partnership needs to be promoted to bring in investment in 3R projects.
8. Informal sector should to be given special attention in 3R initiatives.’

Government official argues that, the capacity of the manpower in DCC should be developed with proper training and modernization with high technology equipment. It is high time that, government should prioritize the environment, the control of its pollution and management of waste. The policy makers must take this issue seriously. Moreover, there should have a social acceptance of ‘waste as a resource’

6. DISCUSSION ON RESEARCH FINDINGS

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.

The survey about the condition of Solid Waste Management presented is important to know the background of the study for designing the policies. This part depicted the burning situation of urbanization in Dhaka city followed by the emerging problem of waste generation and the necessity of

solid waste management. The findings about the perception of the Dhaka city dweller depicted a serious picture that, about three fourth population of Dhaka city thinks that the environment and the solid waste management conditions are very bad which has given us another signal that, solid waste management is a burning question for the Dhaka city dwellers and it is high time to take necessary initiative to cope the situation.

On the other hand mixed opinion came from the interviews of the concerned officials of government and Non-government organization. The government officials claims that, the condition was significantly improved due to introduction of partnership CBOs and small NGOs in primary collection , while the NGO officials thinks, that the overall management condition is not satisfactory as lion's share of the solid waste remains uncollected by the Dhaka City Corporation. It indicates that, the secondary collection is very much irregular due to lack of manpower in City Corporation and lack of 'partnership' to remove the waste from primary landfill places.

6.1 Policy/ Legal instrument to enhance the opportunity of partnership:

The research finding of survey in this part show, most of the respondents (49%) think, a specific and demand based new law and conducive policy to encourage the partnership in this SWM. It indicates that, there is no specific demand based law which can enforce or no specific policy which can encourage the partnership in SWM. So it the government should design that

partnership friendly policy or can enact a law in the parliament. Though some suggested that, there should be more enforcement of the existing law or policies which must be implemented.

The interview finding depicted that, NGO head suggested to create more opportunities of partnership, it is essential that, the government devise a policy with the combination of fiscal incentives and market-based instruments to promote private sector investments in them. Whereas, the government officials demanded conducive policy with the clarification of the responsibilities of different concerned agencies. It also indicates the necessity of new specific policies.

So, specific and demand based new law which also can enforce the stakeholders to participate in this program with clarification of responsibilities of different agencies and combination of fiscal and market based instruments to promote this partnership program.

6.2 Policy suggestion about the ‘incentives’ to encourage the private entrepreneurship:

The survey finding of this part shown that, highest number of respondents suggested to provide low interest credit facilities by the government bank to pilot the recycle plant and to establish new entrepreneurship. Though the Other respondents prescribed the subsidy to the capital and plant cost to start the business, but I think the first one is the better option than others as subsidy spends bigger revenue of the government.

Interview result indicates the diverse results from the government and non government organizations. When the NGO officials demand different incentives to encourage the private entrepreneurs, the government officials are totally opposed to the incentive system. This portrays the conflicting situation between the two partners and can be a barrier to make policies.

According to the Wikipedia, incentive structures are notoriously trickier than they might appear to people who set them up. Human beings are both finite and creative; that means that the people offering incentives are often unable to predict all of the ways that people will respond to them. Thus, imperfect knowledge and unintended consequences can often make incentives much more complex than the people offering them originally expected, and can lead either to unexpected windfalls or to disasters produced by unintentionally perverse incentives. Also there is the tradeoff of short term gains at the expense of long term gains or even long term company survival.

From the above discussion we can decide that, we can take a policy to give low interest rate credit facilities to establish new credit facilities to launch a new waste recycle business in limited extent, but it is not wise to provide this in the long term as it may create further problem.

6.3 Source of funding in PPCP in SWM:

Survey findings of this part depicted that, biggest portion of the respondents (38%) supported the combined financing form government (DCC), NGOs in partnership and community, which indicate two things, firstly it is the main

concept of Public Private Community Partnership; i.e. sharing the finance from all three parties, and city dwellers are ready to accept this PPCP concept and secondly, the city dwellers are ready to participate in this partnership programs in SWM.

Interview result depicts that, the NGO official suggested that, the government can promote a new opportunity for foreign direct investment and increased allocation of government budget, while government officials calls for Polluters pay principle.

According to Wikipedia, the polluter pays principle is enacted to make the party responsible for producing pollution responsible for paying for the damage done to the natural environment. In effect, it internalizes the cost of waste disposal into the cost of the product, theoretically meaning that the producers will improve the waste profile of their products, thus decreasing waste and increasing possibilities for reuse and recycling

6.4 Perception about the subsidy to the recycled product of waste:

Research result depicts that, most of the respondents supported to provide subsidy to the recycled product of the waste which indicates that, it is necessary for establishment of this recycle business.

The interview result gives the idea that, While the NGO official demanded subsidy to promote the recycled product, the government officials were

disagree to strongly disagree with the subsidy system in this field as the government has limitations another govt. official suggest to provide this subsidy to the association of a certain product. This also indicates a conflicting situation in this policy making.

According to Myers, N. (1998), James, A.N.; Gaston, K.J., and Balmford, A. (1999) and Robin, S.; Wolcott, R., and Quintela, C.E. (2003), the detrimental effects of perverse subsidies are diverse in nature and reach. They are expensive to Governments directing resources away from other legitimate priorities, acts as a further brake on economies, tend to benefit the few at the expense of the many, and the rich at the expense of the poor, undermine investment decisions reducing the pressure on businesses to become more efficient. Over time the latter effect means support becomes enshrined in human behavior and business decisions to the point where people become reliant on, even addicted to, subsidies, 'locking' them into society. Consumer attitudes do not change and become out of date, off target and inefficient, and furthermore, over time people feel a sense of historical right to them. Despite Governments being responsible for the creation and (lack of) termination of subsidies, it is ironic that perverse subsidies are not tackled more rigorously, particularly as the above highlight their contradiction to the majority of Governments' stated policies... When cuts are suggested many argue that it will disrupt and harm the lives of people who receive them, distort domestic competitiveness curbing trade opportunities, and increase unemployment.

6.5 Policy to increase or create ‘market demand’ of recycled product:

Survey result reveals that, highest number of respondents suggested the promotion of recycled product by the government and non government organization and with media (print and electronic). It indicates that, with the combined effort of the government and non government organizations media can play great role to create the popularity of the recycled product.

The interview finding expresses that, NGO head opines, “Standard of recyclable products or compost should be formulated by the government to ensure quality and positive impact of recycling. The government should use economic instruments by devising a combination of fiscal incentives and market based incentives to control its price. This process also assists communities in marketing the product. Public officials also agreed with the private officials that, the government can use economic instrument to manipulate its price so that the byers can bye the product in affordable price. The Ministry of Information can also promote the advantages of using the end product (e.g. compost) to the users. Depending on the utility of the product, the government can take measures to make the business competitive and profitable and to take coordinated approach with all the concerned ministries to create the market demand of the recycled product from solid waste.

So the above discussion reveals that, there should have combined approach from the government, NGOs and media to promote the recycled product

where the government would formulate the standard of recycled product and will use the economic instrument and ministry of information will promote the advantages of the recycled product along with the proper coordination among the concerned ministries and NGOs.

6.6 Policy to enhance the community participation in PPCP program:

Biggest (41.33%) number of respondents prescribed the policy of creating community awareness to ensure a clean environment by which more participation of the community can be ensured. In another survey most of the respondents (58%) suggested that the policy goal should be 'Clean and Healthy environment' by which we can motivate or create awareness among the citizens.

In interview findings about the policy to enhance community participation in this program, government official suggested that, there should have association in every locality which could be formed and patronized by the government and encouraged by the media to implement this program. The NGO official emphasized to aware the citizens about the source segregation of waste. They must be motivated to implement the national 3R strategy to enhance the community participation.

About fixing the policy goal as a tool of motivation, the government official opines to motivate the community people towards a quality life while the private organization officials suggested motivating the people to participate in

this program by promoting the concept of waste as a resource. Though there is some difference in the opinion, but make sense that all want to work to enjoy a clean and healthy environment and it should be considered in designing the policy in this field.

7. CONCLUSION

7.1 Summary of the major findings:

Rapid urbanization of the Dhaka city is creating gigantic waste generation and making solid waste management as a burning question. Three people out of four in Dhaka city perceive that, the environment and solid waste management is very bad. So this problem must be addressed seriously in no time.

1. From the survey result of policies and legal instruments to enhance the opportunities of partnership in solid waste management, depicted in chapter 4.1 and from the result of the interview shown in the chapter 5.1 and the discussion in 6.1 we can conclude that, a specific and demand based new law and conducive policy to encourage the partnership in this SWM with the clarification of responsibilities of agencies and including fiscal incentives and market-based instruments is needed to be enacted or designed to boost up the partnership in SWM.

2. The survey result of ‘incentive policy’ to encourage private enterprise in solid waste management, depicted in chapter 4.2 and the result of the interview shown in the chapter 5.1 and the discussion in 6.1 provide the resolution that, incentives especially low interest credit facilities and land can be provided to the entrepreneurs but can be limited to the viable NGOs who are able to make profit and positive outcomes.

3. From the survey result of about source of financing for the partnership program of solid waste management, depicted in chapter 4.3 and the interview outcomes shown in the chapter 5.3 and the discussion in 6.3 we can conclude that, combined financing from government (DCC), NGOs in partnership and community should be the source of the funding of PPCP in SWM, which also indicate that, community is really eager to accept PPCP policy in SWM. Secondly government can promote a new opportunity for foreign investment (FDI) using the clean development mechanism (CDM) of the Kyoto Protocol. Moreover, 'polluters Pay principle' can be introduced for getting finance from the community.

4. From the survey result of the perception of citizens and concerned officials about the subsidy on the recycled product, depicted in chapter 4.4 and from the result of the interview shown in the chapter 5.4 and the discussion in 6.4 we can conclude that, subsidy should be given on the recycled product which was supported by lion's share of the respondents, but it can not be the permanent solution and government has budget constraints and other social problems. This subsidy can be given to any association of waste recycling to encourage the formation of association and to boost up the competitiveness of that product.

5. From the survey outcomes of the policy of increasing the 'market potential' of recycled product from the solid waste, depicted in chapter 4.5 and from the result of the interview mentioned in the chapter 5.5 and the discussion in 6.5 we can conclude that, The combined promotion of recycled product by the

government (Ministry of Information) and non-government organizations and with the assistance of media is necessary to create ‘market demand’ of that recycled product. The government can use economic instruments along with the coordinated approach with all concerned ministries.

6. From the survey finding of the policy to enhance the community participation in Public Private Community Partnership Program in Solid waste management, depicted in chapter 4.6 and from the result of the interview mentioned in the chapter 5.6 and the discussion in 6.6 we can conclude that, the policy of creating community awareness to ensure a clean environment and motivating them to be involved in this program is the most efficient way to enhance more participation of the community.

7. From the survey result of the policy of fixing the specific goal of Public Private Community Partnership Program in Solid waste management in order to motivate the community people to participate in this PPCP program, depicted in chapter 4.7 and from the result of the interview mentioned in the chapter 5.7 and the discussion in 6.7 we can conclude that, ‘clean and healthy environment’ should be the ultimate objective of this PPCP project which was supported by most of the respondents by which we can motivate the community to participate in this partnership project. In addition to that, community can be motivated by introducing the concept of ‘waste as a resource’ and can be allured towards a ‘quality life’.

7.2 Implication of findings:

It was revealed in the previous researches that, Public Private Community Partnership is an effective policy in Solid waste management and the barriers in this program, but present research focuses on the policy factors to face the problems of partnership and to boost up the partnership. However, research finding about the specific law or demand based policy will give the direction to the policy makers of Bangladesh to design new policy or enact new law and to pave the way of better implementation. The findings about the incentives will give another dimension of thinking for the policy makers not only to choose the correct incentive policy or restrict it. The findings about the subsidy are another issue which creates not only indication for the policy makers but also will create a debate in this matter and will provide further scope of doing research. Research result about the source of funding will grease the decision making and ease to design policy for boosting up this partnership program. As community participation is integral in this program, the finding about the way to motivate and creating awareness of the community will provide a policy option to encourage more partnership. Moreover the finding will enable the direction not only of designing the policies but to implement those. This policy result will show a great path towards clean and healthy environment and a quality life as well.

7.3 Limitations and scope of the study.

This study does not claim to be representative. It was impossible to select the minimum number of palaces among the existing 92 wards within Dhaka to make the data representative. Moreover, the questionnaires were not filled by the common people of Dhaka city, but collected from the educated and minimum graduate citizens and students of the public administration, public policy, Environmental science and government and politics form renounced Universities of Dhaka. Due to lack of time, the survey questionnaire was simple and contained less number of questions.

It was desired to conduct comprehensive research on the source segregation in households and polluters pay principle in Dhaka city, but it could not be possible for time constrains. But, this research work and result will pave the way to work further on community participation and increased involvement, source segregation in house hold. There is further scope to conduct research on 'polluters pay principle' in Dhaka city. Moreover, this research work will encourage conducting further research on making and implementing policies to boost up Public Private Community Partnership policy in Solid Waste Management.

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Appendix A

Questionnaire

Name:

Occupation:

Address (only place, e.g. Kalyanpur, Dhaka):

A survey is being carried out on Dhaka city dwellers, and concerned officials of public and private organizations to see the effect of ***Policy factors affecting the solid waste management through Public-Private-Community Partnership (PPCP) in Dhaka city*** and the policy suggestions. Please tick (✓) the best one you think.

01. What do you think about the present environmental and solid waste (House hold waste, vegetable market waste) management condition in Dhaka city?

a. It is very bad due to dumping of solid waste beside streets, not collected regularly, creates bad smell and health hazard.

b. The condition is little bit improved than before due to regular waste collection.

c. significantly improved due to regular collection of waste.

d. Very clean due to improved waste management system.

02. Solid Waste pollutes the environment and serious health hazard for the city dwellers if it is not managed properly. 'Partnership' with private organization along with community participation is an effective policy to implement the solid waste Management in Dhaka city. But, we do not have adequate/conductive policies for the partnership in Solid Waste Management (SWM). What is your suggestion to create more opportunities of partnership in this regard?

- a. Specific and demand bases law should be enacted or policy should be taken.
- b. More enforcement of existing laws or policies instead of new law.
- c. Existing national policies should be adequately harmonized.
- d. Proper coordination of all concerned ministries for implementing the existing policies.
- e. Others(if any, please mention):

03. The government has made ‘partnership’ with some private organizations who are investing in this project for making compost after door to door collection of solid waste and want to sell the compost to the farmers. ‘Lack of incentive’ in composting is one of the barriers to encourage the private entrepreneurship.

What is your policy suggestion to promote the private investments?

- a. Low interest credit facilities for piloting the initiatives promoted by banks.
- b. Subsidy, on compost similar to chemical fertilizer.
- c. Tax holidays, and exemption from VAT on compost.
- d. Payment for tipping fees to provide operations or collecting organic waste.
- e. Others (if any, please mention):

04. Lack of budget or finance to establish a composting facility is a significant barrier to encourage the private entrepreneurship in the Partnership program of Solid Waste Management (SWM). What is your policy suggestion in this regard?

- a. There should be more budget allocation for Solid Waste Management (SWM).
- b. There should have specific budget allocation to the partnership in SWM.

c. Funds can be raised from donor agencies.

d. There should be combined finance both from the government and community people.

e. Others (if any, please mention):

05. Subsidy to the end product or compost(which is enriched by adding micronutrients) will enhance its competitiveness with subsidized chemical fertilizer. Do you agree with the statement,

a. strongly agree.

b. Agree

c. Neutral.

d. Disagree

e. strongly disagree.

06. The participation of community people is integral in the public private community partnership. What policy do you suggest to ensure the community participation in SWM?

a. To create the community awareness to ensure a clean environment.

b. To motivate the community people to participate in partnership program.

c. There should have enforcement in policy/regulation to participate in PPCP program in SWM.

d. There should have 'reward policy' in the community participation in SWM.

07. Increasing the 'market demand' of recycled product (compost) will bring quicker and smoother recycle of the solid waste. How this market demand can be increased? Please suggest.

a. Concerned dignified officials of government, private organization, donor agencies or scientist can be used to popularize the

product to the other private marketing organizations by seminars, workshop .

b. Ministry of Agriculture and Department of Agricultural Extension can work to motivate the farmers to use this organic compost and can encourage organic farming and can make demonstration plot in farmers' field.

c. The government can use economic instrument (e.g. subsidy to the compost) so that it can be reached to the farmers in affordable price and can be popularized to them.

d. Ministry of Agriculture, Ministry of information and the concerned private organizations and can take advertisement and motivation program and also can take the help of electronic and print media for the promotion of this product(compost).

e. Others(if any, please mention):

08. Which specific goal/objective of the Public Private Community Partnership (PPCP) program in SWM can motivate the community people most to participate in this program?

a. Clean and healthy environment.

b. 'Poverty alleviation' as it creates employment opportunity for the local people.

c. Woman empowerment, as it involves mostly local women.

e. Opportunity of the private entrepreneurship for the local youth.

f. Others(if any, please mention):

Thank you for taking the time to fill in this questionnaire. If you have any other comments /suggestions, please add them below:

Signature with date:

Appendix B

01. Citizens' perception about the Solid waste management and overall environmental condition in Dhaka city.

Citizens' perception	Frequency	Percentage
Very bad and irregular collection	109	72.66%
Little bit improved as waste is being collected	32	21.33%
Significantly improved and regular collection	9	6%
Very clean for improved waste management	0	0%

02. Policy about regulations to enhance the opportunities of partnership:

Policy	Frequency	% response
Specific and Demand based new law, policy	74	49%
More enforcement(penalty) of existing law	37	24.66%
Harmonization of all laws and policies	16	10.56%
Coordination of organizations	17	11.22%
Others	7	4.69%
Total	150	100.00%

03. Type of incentives suggested for encouraging entrepreneurship.

Policy	Frequency	Percentage
Low interest credit facilities	48	32.00%
Subsidy on capital	42	28.00%
Tax holiday	27	18%
Payment for Tipping fees	25	16.66%
Others	8	5.33%
Total	150	100%

04. Policy suggestion about the source of fund for Partnership in SWM.

Policy	Frequency	Percentage
More Budget from govt. for partnership in SWM	30	20%
Combined financing from govt. and NGO	45	30%
Funds from donor countries/ FDI	15	10%
Combined financing form govt., NGO and community	57	38%
Others	3	2%
Total	150	100%

05. Perception about the 'subsidy' on the end product of recycled waste.

Perception about subsidy	Frequency	percentage
Strongly Agree	27	20%
Agree	91	57%
Neutral	16	13%
Disagree	12	9%
Strongly disagree	4	1%
Total	150	100%

06. Policy to ensure more participation of community people in PPCP program.

Policy to ensure community participation	Frequency	Percentage
Community awareness for clean environment	62	41.33%
Motivation to participate in Partnership	30	20.00%
Enforcement in Law to participate in partnership	26	17.33%
Reward to Community Association/leader	24	16%
Others	8	5.33%
Total	150	100%

07. Policy to create and enhance the market demand of recycled product.

Sl. No.	Policy to create 'market demand	Frequency	Percent
a.	Approaching Private Marketing company	18	12%
b.	To motivate the end users or buyers	31	20.66%
c.	Economic instrument to control price	41	27.33%
d.	Govt., NGO, and Media's combined promotion	54	36%
e.	Others	4	4%
	Total	150	100%

08. 'Policy goal' of PPCP program in SWM to motivate the community people to participate.

Policy goal	Frequency	Percentage
Clean and Healthy Environment	87	58%
Poverty Alleviation	24	16%
Women empowerment	6	4%
Opportunity of Entrepreneurship	27	18%
Others(e.g. responsibility)	6	4%
Total	150	100%

Appendix C

1. Interview with a Government officer

This interview was carried out on concerned official of Dhaka City Corporation(North), Mr. Ali Hasnat, Executive Engineer, Waste Management Department, to see the effect of Policy factors affecting the implementation of Public-Private-Community Partnership (PPCP) policy for Solid Waste management in Dhaka city and the policy suggestions. Please give your kind opinion.

01. What is your personal opinion about the solid waste management and environmental condition in Dhaka city at present?

Ans.: I think, the present solid waste management condition has become significantly improved in present days due to the regular collection of solid waste. Recently Dhaka City Corporation (North and South) has made partnership with some small NGOs and CBO (Community Based Organizations) for door to door primary collection of solid waste. But DCC is has still lacking in the partnership with secondary collection from primary collection site to the landfill. There is a partnership with an NGO named 'waste concern', but it is mainly working in vegetable markets, e.g. Karwan Bazar, Shakhari bazar, but it is very insufficient in comparison to the demand of the city. Anyway, the overall solid waste management and environment has improved from past.

02. 'Partnership' of the DCC with private organizations along with community participation is an effective policy to implement the solid waste Management in Dhaka city. But, you claim that, we do not have adequate/conductive policies for the Partnership in Solid Waste Management (SWM). What is your suggestion to create more opportunities of partnership in this regard?

Ans: We need a complete law for Solid Waste management which will be not only guideline, but will enforce and encourage people and other stakeholder to participate in this partnership program. There should have clarification of responsibilities of different government and non government organizations in the government policy in this partnership program, and then there should have proper coordination of different concerned ministries and NGOs. Not only policy is enough, there should have congenial atmosphere for policy implementation.

03. Private organizations (e.g. waste concern) involved in composting from waste, claimed that, 'Lack of incentive' in composting is one of the significant

barriers to encourage the private entrepreneurship. What is your policy suggestion?/ what type of incentive do you suggest promoting the private investments?

Ans.: Incentive can create another problem in this field as imperfect knowledge and unintended consequences can make incentives much more complex than the people offering them originally expected, so it cannot be supported”.

The government should search the viable NGOs as a partner in this program in terms of their cost effectiveness. He further said, as the land is essential but scarce factor in Dhaka city, so land and other logistic support should be provided to the private entrepreneurs to boost up partnership program.

04.Lack of budget or finance to establish a composting facility is a significant barrier to encourage the private entrepreneurship in the Partnership program of Solid Waste Management (SWM). What is your policy suggestion in this regard?

Ans: Not only FDI or local investment should be encouraged, but the financing should come combined from the Public private and also community. For getting finance from the community, ‘Polluters Pay Principle’ should be introduced where the citizens responsible for pollution the natural environment will be responsible for paying for the damage of natural environment.

05. ‘Subsidy to the recycled product will enhance the opportunity for the private entrepreneurs. Do you agree with this statement?

Ans: The government officials was disagree to strongly disagree with the subsidy system in this field as the government has budget limitations. Another govt. official said, this subsidy can be given to the association of a certain product (e.g. plastic association , compost association etc.).

06. The Participation of community people is integral in the Public Private Community Partnership. What policy do you suggest to ensure the community participation in SWM?

Ans: It is very much necessary to motivate the community people to participate in this Public Private Community Partnership program. I think that,

in every locality, there should be an association which will be able to organize the community for this purpose. The government will give recognition and some other support to this association and will work to develop the leadership in this association. The successful association can be rewarded by the government and encouraged by the media.

07. Increasing the 'market demand' of recycled product (compost) will bring quicker and smoother recycle of the solid waste. What policy can be taken to increase the 'market demand' of compost? Please suggest.

Ans: Public officials argued that, the government can use economic instrument to manipulate its price so that the buyers can buy the product in affordable price. Government department can also play a role to promote the recycled product. For an example, DAE (Department of Agricultural Extension) can motivate the farmers to use organic compost and can encourage organic farming. It can also make demonstration plot in the farmers' field. The Ministry of Information can also promote the advantages of using the end product (e.g. compost) to the users. Depending on the utility of the product, the government can take measures to make the business competitive and profitable. Moreover, there should have a coordinated approach with all the concerned ministries to create the market demand of the end product from solid waste.

08. Which specific goal/objective of the Public Private Community Partnership (PPCP) program in SWM can motivate the community people most to participate in this program?

Ans. We can encourage the citizen by saying that, it is their responsibility as a citizen to participate in this partnership program to make a clean and healthy environment. In addition to that, we can motivate the community people towards a quality life with clean and healthy environment and free of poverty.

09. Do you have any other suggestion for the better implementation of this program?

Ans.: Government official argues that, the capacity of the manpower in DCC (Dhaka City Corporation) should be developed with proper training and modernization with high technology equipment. It is high time that, government should prioritize the environment, the control of its pollution and management of waste. The policy makers must take this issue seriously. Moreover, there should have a social acceptance of 'waste as a resource'

2. Interview with an NGO Official

This interview was carried out on the founder and The Executive Director of Waste concern, Mr. A. H. Md. Maqsood Sinha, to see the effect of Policy *factors affecting the implementation of Public-Private-Community Partnership (PPCP) policy for Solid Waste management in Dhaka city* and the policy suggestions.

01. 'Waste concern' started a community based composting project in 1995 and made partnership with DCC in 1998 for solid waste management. But this 'partnership' could not play significant role in improving environmental condition in Dhaka city as there was lack of congenial atmosphere for partnership. What was the most significant policy related barrier to establish efficient partnership in SWM?

Ans. In 1998, Waste Concern established a partnership with the Dhaka City Corporation (DCC) to establish a community based composting project under the Sustainable Environment Management Program (SEMP), a project implemented by the Ministry of Environment and Forests of the Government of Bangladesh (GoB) with the support from UNDP. Waste Concern was the Sub-Implementing Agency. Under this project DCC gave land for composting plant and Waste Concern provided all the technical support to implement and operate the project. Local community took part in the source separation of waste and House to house collection of waste and service fee collection. This was the first waste recycling project in Bangladesh where public sector, private sector and community jointly worked in a partnership. This experience helped both Waste Concern and DCC to go to the next level for large scale investment project.

After successful completion of the project under SEMP, in 2008, Waste Concern initiated a larger scale 130 Tons/day capacity composting project in Boolta, Roopganj, Greater Dhaka which is based on Clean Development Mechanism (CDM) using PPP approach. This first large scale composting and recycling project in Bangladesh based on public private co-operation. We call it co-operation because DCC is not sharing the risk or profit from the project. Under this co-operation DCC

only allowed Waste Concern to collect organic waste from the selected large vegetable wholesale markets of DCC area for 15 years. Under this agreement, Waste Concern is collecting waste with its own cost from the markets and processing the waste in its own facility in Bulta established in its own land. Experience shows that by diverting waste from the landfill DCC can save land needed for waste disposal and save waste management cost in a significant way.

At present the government has developed 'The National 3R (Reduce, Reuse and Recycling) Strategy' has been developed to improve the recycling situation. Importance of public private partnership has been given priority. The draft 'Solid Waste Management Handling Rules' has been developed but yet to be enforced. Waste Concern assisted the government to prepare these policies. Unfortunately these policies are not properly implemented.

The most important barriers to improve PPP in waste sector is lack of effective policy, lack of incentives (availability of land, soft loan, reduction of TAX, VAT, import duty etc.) from the government to encourage private sector to make long term investment in this sector. .

02. 'Partnership' of the DCC with private organizations along with community participation is an effective policy to implement the solid waste Management in Dhaka city. But, you claim that, we do not have adequate/conductive policies for the Partnership in Solid Waste Management (SWM). What is your suggestion to create more opportunities of partnership in this regard?

Ans. To create more opportunities of partnership It is essential that, the government devise a combination of fiscal incentives and market-based instruments to promote private sector investments in them. By effectively implementing 'the National 3R Strategy' the government can improve the partnership.

03. Private organizations (e.g. waste concern) involved in composting from waste, claimed that, 'Lack of incentive' in composting is one of

the significant barriers to encourage the private entrepreneurship. What is your 'policy suggestion'/ what type of incentive do you suggest to promoting the private investments?

Ans. I suggest that, the government should give some incentive, for example, tax holidays to the entrepreneurs setting up compost plant, payment of tipping fees to private operators, Concessionary rates for utilities e.g. electricity, diesel, and water etc., Co-marketing of compost with chemical fertilizers, and subsidy to the capital and compost as well.

04. Lack of budget or finance to establish a composting facility is a significant barrier to encourage the private entrepreneurship in the Partnership program of Solid Waste Management (SWM). What is your policy suggestion in this regard?

Ans. Waste Sector should have a sector based approach. Firstly, the potential of waste sector for private investment should be assessed and for this updated national information/database is required. Any private sector before a long term investment in waste sector will be needing baseline information on the quality and quantity of waste for the preparation of a business plan.

Lack of soft loan, land for establishing recycling facility, and free delivery of waste to the facility is a barrier to establish a composting/recycling facility. It is also true that government has limitations, but the government can promote a new opportunity for foreign direct investment using the Clean Development Mechanism (CDM) of the Kyoto Protocol. The government should also provide sufficient budget allocation for giving subsidy and other incentives to the entrepreneurs in this sector.

05. 'Subsidy to the end product or compost (which is enriched by adding micronutrients) will enhance its competitiveness with subsidized chemical fertilizers. Do you agree with this statement?

Ans. At present on-site (at factory level) enrichment of compost with micronutrients is not permitted by law in the country. Field level experience shows that the demand for compost by the users is increasing rapidly for its positive impact on the improvement of soil quality.

Yes, of course, subsidy to the compost should be given by the government to create parity with chemical fertilizers. I suggest that funding for the production of compost should be 5 to 10% of annual subsidy to chemical fertilizer. Not only that, the entrepreneurs should qualify for a capital subsidy of up to 50% of the plant cost.

06. The Participation of community people is integral in the Public Private Community Partnership. What policy do you suggest to ensure the community participation in SWM?

Ans. The challenge of proper waste management remains at the source of waste generation. Separation of waste at source is still a challenge due to lack of guidelines by the city and awareness of the people. A major portion of the waste can have better economic value, if they are not soiled with other waste. At present a large number of communities in Dhaka city are paying a service charge for the house-to-house collection of waste. With the promotion of source separation, more recyclables from waste can be extracted as a result more value can be derived from waste and littering will be minimized. The 'National 3R Strategy' launched in 2010, if properly implemented can improve community participation significantly for SWM.

To ensure the community participation in SWM, it is needed to stimulate the behavior changes in urban communities, who have begun to appreciate the value of waste, and also among professionals, who learn how to orient communities towards waste management.

There is also a need to raise awareness within government and the private- sector about CDM and carbon-trading activities to boost up the partnership.

07. Increasing the 'market demand' of recycled product (compost) will bring quicker and smoother recycle of the solid waste. What policy can be taken to increase the 'market demand' of compost? Please suggest.

Ans. Standard of compost or recyclable products should be formulated by the government to ensure quality and positive impact of recycling. Recently the Department of Agriculture Extension (DAE) of the Ministry of Agriculture established a standard for compost and license is required to market compost after field trial, which is based on proper quality control. To create market demand of the compost, firstly, the government should use economic instruments by devising a combination of fiscal incentives and market based incentives to control its price.

There is need for level playing field for compost product against heavily subsidized chemical fertilizer.

To ensure utilization of the fertilizer and to sustain this system, contacts and negotiates with fertilizer companies to purchase and nationally market the compost. This process also assists communities in marketing the product.

Fertilizer companies can adopt a 'basket approach', which would entail the co-marketing of compost with chemical fertilizers.

08. Which specific goal/objective of the Public Private Community Partnership (PPCP) program in SWM can motivate the community people most to participate in this program?

Ans. Improper management of waste, lack of awareness at the community level has a number of negative externalities: increased littering of waste, reduction property value due to unmanaged waste disposal sites & waste collection points, environmental pollution, create health hazards for the community, reduce the value of recyclables. I think, we can motivate the people to participate in this program by promoting the concept of waste as a resource.

09. What is your personal opinion about the solid waste management and environmental condition in Dhaka city at present?

Ans. At present the overall management of solid waste is not satisfactory. At present, DCC area generates 4,200 tons of waste every day. However, Dhaka City Corporation (DCC) collects only 50 per cent of the waste. The present management of waste by DNCC and DSCC (previously was DCC) is based on traditional method of collection-transportation and crude dumping of waste. This management of waste is focused on landfill, the concept of 3R (reduce, reuse and recycling) is missing. Apart from a small pilot source separation of waste project using Climate Change Trust Fund (CCTF) of the government, there is no large scale initiative by the city to promote segregation and recycling of waste. There is only one official controlled landfill site at Matuail and rest of the landfills is unhygienic crude dumpsites. At present waste collection and transportation is partially contracted out to private sector which is based on transportation of waste at the dumpsites. At present the city spends more than US\$ 40/ ton for collection-transportation and disposal of waste and by spending this tax payers money waste is managed in a crude manner thus creating pollutions. As a result, more uncollected waste is piled up on the roadsides or dumped into open drains and low-lying areas, further deteriorating the environment and the quality of life.

There is a lack of awareness of the people on proper SWM, lack of incentives for the private sector to invest in this sector.

10. If you have any other suggestion(s)/opinion concerned to the policies of PPCP in SWM in Dhaka city, please mention.

Ans.: With the proper implementation of 3R Strategy, the city can properly reduce the volume of waste to by dispose and reduce the pollution and need for land for disposal waste. With proper incentives and policies private sector can make investment and create value from waste with an inclusive approach of involving all the actors (community, private sector, informal sector, NGOs, manufacturers and research bodies). Some of the recommendations can be as shown below:

- ✓ Need for one stop center to provide information and encourage investors to invest in waste related projects.
- ✓ Clear-cut policy package, incentives, guidelines needs to be promoted for waste related 3R projects in the country.
- ✓ Appropriate Technology is expensive, which should be subsidized by rich developed countries (for example technology transfer in CDM projects).
- ✓ Easy financial support should be promoted by bank/ financial organizations and incentives should be extended to waste related project related to 3R.
- ✓ Capacity building training programs and research on waste management and recycling required for all the related stakeholders.
- ✓ Role of Media needs be promoted to inform people and raise mass awareness on 3R.
- ✓ Public-Private-Community Partnership needs to be promoted to bring in investment in 3R projects.
- ✓ Informal sector should to be given special attention in 3R initiatives.

국문초록

다카시 고형폐기물 관리의
공공-민간-공동체
파트너십집행에
영향을 미치는 정책요인에 관한
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방글라데시 수도 다카시(Dhaka city)는 급격한 도시화의 결과로서 폐기물이 급증하고 있어서 이를 관리하는 것이 정부의 현안이 되었다. 다카시 정부는 제도적 역량 및 예산이 부족하기 때문에 폐기물 문제를 관리하는 해법을 찾아낼 수 없었다. 때문에 공공-민간-공동체 파트너십(PPCP)이 이 문제에 대응할 수 있는 중요한 대안이 되었다. 그러나 고형폐기물 처리에 있어 PPCP 도입에도 불구하고 다카시의 폐기물처리와 환경개선에 있어서 괄목할만한 성과를 거두지 못했다. 이러한 파트너십 프로그램을 집행하기 위해서는 실질적인 정책이 필요한데 매우 제한적으로 실시되었고 집행에 장애요인들이 존재했기 때문이었다. 따라서 본 연구는 정책이슈들을 연구하고 폐기물처리 파트너십(PPCP) 프로그램의

집행에 영향을 미친 요인들을 조사함으로써 정책의 성공적 집행을 위한 대안을 제시하고자 했다.

본 연구는 서비스 제공 조직, 지방정부기구 그리고 직접적인 수혜자로부터 일차적인 질적자료를 수집하였고, 이차 자료로부터 양적자료를 수집하였다. 다카시 거주자들과 다카시 환경부 및 시민사회단체로부터 정보를 수집하기 위해 단일한 설문지를 통해 서베이를 하였고, 환경부, 다카 시정부, 시민사회단체 각 조직에서 한 명씩 인터뷰를 실시하였다. 설문조사의 표본은 150 명인데, 다카시의 92 개 구(ward) 중 무작위로 5 개 구를 선정하였고 각 구에 25 개씩의 설문지를 배포하였다. 또한 25 개 설문지를 정부 공무원과 시민사회단체에 배포하였다. 수거된 설문지로부터 신중하게 코딩을 수행하였다. 질적자료를 분석하기 위해서 인터뷰, 토론 및 문서 자료에 대한 내용분석을 실시하였다. 양적자료는 기술통계를 이용하여 빈도수와 백분율에 대한 설명을 하였고 그래프와 그림 및 표 등을 이용하여 해석하였다.

연구결과에 따르면, 다카시 인구 4 명 중 3 명은 환경과 폐기물 처리가 열악한 상황에 처해 있다고 인식하고 있었다. 따라서 공공-민간-공동체 파트너십 프로그램 집행을 증진시키기 위한 정책을 제안하였다. 구체적이고 수요에 기반한 새로운 법과 정책이 필요한데, 기관의 책임을 명확히 하고, 재정 인센티브를 포함해야 하며, 시장기반 정책을 수행하되 우수 기업에 대해서는 낮은 금리로 신용을 제공하는 인센티브를 주어야 한다. 또한 다카시 정부, 파트너십을 체결한 NGO 와 공동체를 결합하여 재정지원을 해야할 것이다. 재활용 상품에 대해서는 보조금을 제공하고 정부, NGO, 언론등이 재활용품 사용을 장려하여 시장수요를 창출해야 한다. 공동체는 깨끗하고 건강한 환경의 중요성을 인식할 수 있도록

노력해야 하며 이는 궁극적인 정책목표인 동시에 더 많은 참여를 이끌어내게 하는 요인이 될 것이다.

이러한 연구결과에 기반하여 결론에서는 정책을 제안하였다. 정부는 파트너십 프로그램의 장애요인들을 제거할 수 있도록 적극적인 노력을 기울여야 할 것이다. NGO 와 민간기업들이 더 많이 참여할 수 있도록 하는 정책을 추진해야 할 것이다. 또한 시민들의 인식을 높이는 것 뿐만 아니라 실질적으로 참여할 수 있도록 하여 그들의 삶의 질을 높이도록 하는 정책이 실행되어야 할 것이다.

주요어: 공공부문, 공공-민간-공동체 파트너십, 고형폐기물 관리, 다카시 정부, 공동체 참여

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