

Chapter 5

Sound Strategies to Improve the Condition of the Informal Sector in Waste Management

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Chapter 5

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1. Introduction

Over the past decades the significant role of the informal sector in managing waste especially in urban cities has been mentioned frequently in the literature. Due to limited resources, particularly in most developing countries, the government has usually failed to provide basic services to the community especially, the proper collection and disposal of waste in the city. Oftentimes, only waste from the commercial establishments and the residences of the middle class who are capable of paying for waste services are collected regularly. Thus, piles of garbage from the rest of the city, especially the slums and inner city areas, are left uncollected and are being dumped illegally in already congested and polluted places. Ironically, the urban poor that the government has been trying to remove from the area are the one who have been carrying out many of the duties that the government is supposed to provide, such as the collection and disposal of waste.

Because of extreme poverty and the lack of work opportunities, most of the urban poor in many cities end up in the so-called “informal sector.” This includes workers such as the street sweepers, vendors, messengers, night guards, and waste scavengers, among others. In this paper, I will focus my discussion on the working conditions of the informal sector whose primary source of living is scavenging, buying, and selling of waste. Previously, this sector was seen as a nuisance in pursuing development and that they should be removed from the waste management system because of their incapability or lack of education to manage waste. Their activities were considered illegal and that their operations were harmful to the environment and to the human health.

However, despite this negative notion on this sector they have continued to operate for many decades. Research findings showed that contrary to the previous statements, this group plays a significant role in the reduction of solid waste generated per day and that they are capable to manage waste if only they can be given support to improve their activities. Also, the informal recycling can be a potential source of income especially to poor urban migrants. But it seems that many governments are not giving much attention to improve the living conditions of this sector and to protect them from the hazards and harassment in doing this activity.

This paper consists of six sections. Section two presents the related literatures on the informal sector, the various definitions of formal and informal sector, and some examples of recent policies acknowledging the importance of the informal sector in waste management. The third section outlines the conceptual framework of this study. It describes the current condition of the informal sector, the proposed strategies to improve the condition of this sector and the elements that have to be considered for the effective implementation of these strategies. Section four deals on the discussion of the selected case studies from the Philippines and other Asian developing countries, which shows the positive impacts of recognizing the important role of this sector in waste management and the benefits of providing support to upgrade their recycling operations. The fifth section provides the conclusion, and the last section presents the policy recommendations on how the condition of this sector and their recycling activities can be improved.

1.1. Research Questions

- a) Why there is a need to protect the conditions of the informal recyclers, specifically their source of livelihood without putting the public health and the environment at risk?
- b) What are the possible approaches to recognize the role of the informal recyclers and to improve their conditions both economically and socially?

1.2. Objectives of the Study

- a) To discuss the significant roles of the informal sector in waste management especially in urban cities;
- b) To identify possible approaches on how the condition of the informal sector can be improved both economically and socially; and
- c) To provide policy recommendations on how to upgrade the condition of the informal recyclers and their material recovery processes.

1.3. Significance of the Study

Based on literature, there are a significant number of informal sector workers in developing countries who are dependent on waste scavenging and waste picking as means of livelihood, so the issue of waste management is also related to poverty reduction. According to the World Bank report, it has estimated that at least 15 million worldwide make a living by recovering materials from waste recycling (Medina, 2009). In the United Nations (UN) Millennium Development Goals, the eradication of extreme poverty and hunger and environmental sustainability are two of the priority goals. In this paper, I will discuss how the upliftment of this informal sector in waste management can contribute in the achievement of these goals. The lessons learned from the experiences of the selected

cases can provide inputs in formulating policies to address both poverty and environmental concerns especially on waste management.

2. Review of Related Literature

2.1. Defining Formal and Informal Sectors

In the general context, the International Labour Organization (ILO), based on its employment mission report on Kenya cited the differences between the informal and formal sectors as follows (ILO 1972: 6 as cited in Bromley 1977: 3):

“informal activities are a way of doing things, characterized by –

- a) ease of entry;
- b) reliance on indigenous resources;
- c) family ownership of enterprises;
- d) small scale of operation ;
- e) labour-intensive and adapted technology
- f) unregulated and competitive markets.

Informal-sector activities are largely ignored, rarely supported, often regulated and sometimes actively discouraged by the Government.

The characteristics of formal-sector activities are the obverse of these, namely-

- a) difficult entry
- b) frequent reliance on overseas resources;

- c) corporate ownership
- d) large scale of operation;
- e) capital- intensive and often imported technology;
- f) formally acquired skills, often expatriate; and
- g) protected markets (through tariffs, quotas and trade licenses”.

In the waste management context, formal sectors refer to those operating with official business license for managing, handling, and utilizing waste. Their activities are regulated by laws, and often use high cost and advance technologies. On the other hand, informal sectors refer to waste scavengers, waste pickers, small buyers and recyclers of waste, in which activities are characterized as labor intensive, unregulated and uses traditional or low cost technology. Also, Medina (2009) cited that the use of terms for waste pickers, etc. varies depending on the local language, on the place they work, and on the materials they collect. However, it is really difficult to draw clear boundaries between formal and informal sectors as many of those working in waste related jobs are operating in the so-called “grey area.” For example, there are some formal organizations that are operating in an informal ways; or there are some members of the informal sector (waste pickers, etc.) who are formed into an organization and got recognized but still doing informal activities.

In the Philippines, the National Solid Waste Management Commission (NSWMC) characterizes the informal sector in waste management as those individuals, families, groups or small enterprises engaged in the recovery of waste materials with revenue generation as the motivation either on a full time or part-time basis; they work without any

formal recognition by any government accreditation, licensing or regulatory agency; they have no social and economic security and work under substandard and unhealthy work conditions, and have limited access to basic services (NSWMC 2009).

2.2. Some of the Early Literatures on Informal Sector and its Activities

Important early contributions to the literature on the informal sector are those of Keith Hart (1971; 1973), Ray Bromley (1977; 1985), Chris Birkbeck (1978), and Ahktar Badshah (1996). Hart's very influential papers (1971; 1973) on urban employment in Ghana divided the economy into an "informal (analogous to traditional) and the formal (analogous to modern) sectors," emphasizing the significance of the informal sector (Bromley 1977: 2). In his paper, Hart describes how the informal activities can act as a buffer against unemployment or as an additional source of income given the inadequacy of the wages from formal employment in the cities especially for the poor migrants (Hart 1973). He analyzes the opportunities of finding supplementary sources of income to address the basic needs of the family or to improve their incomes.

In discussions of the informal sector, street trading is often seen as one of the most typical occupations within the sector. Thus, Bromley uses street trading as a case study to test the nature and significance of informality and to replace it with more exact and meaningful description. Due to their appearance and type of work, urban leaders and the community usually considered street traders as a nuisance in the city, causing problems such as traffic congestion, spreading diseases, and molesting passers-by (Bromley 1977).

Aside from this misjudgment about the street traders, Bromley describes how this group has been “exploited and marginalized” by the existing system. Due to lack of capacity to generate their own capital for trading, they become dependent on their suppliers of merchandise and most often on moneylenders. Their work involves low and unstable levels of remuneration, and frequently they often involved in activities classified as illegal. However, despite their hard work, a majority of workers in the sector remain in poverty, and experience economic and job insecurity, problems with authority, and continued dependence on suppliers of merchandise and capital. Thus, Bromley recommended the provision of cheap credit, technical training, and assistance to improve the conditions of this sector both socially and economically (*Ibid.*).

The role of the informal sector in managing waste especially in urban centers, is also shown in its contribution in reducing the volume of waste generated per day through recycling activities. Garbage picking is the oldest type of recuperative system in Cali, Colombia (Birkbeck 1978). Birkbeck describes the garbage pickers in Cali as a “self-employed proletariat” because they are “little more than casual industrial outworkers, yet with the illusion of being self-employed. They may be in a position to decide when to work and when not to, but the critical factor is control over the prices of the recuperated materials, and that control definitely lies with the industrial consumers. They are self employed yet in reality sell their labour power” (Birkbeck 1978: 1174).

Birkbeck noted that garbage pickers are “not unskilled, unorganized, unproductive or un-enterprising,” and that their work not only provides income for this sector but it also gives valuable inputs for the industries (Birkbeck 1978: 1184). He also mentioned how a

group of waste pickers organized themselves to work in the garbage dump in such a way that they managed “to defend their right to work” but seemed hesitant to do anything to improve their working conditions (Birkbeck 1978: 1173).

In addition, the type of payment system in garbage picking was based on “piece rates.” It passed through various intermediaries in such a way that it created a big difference in the amount paid by the factory for recycled materials, and the amount paid to the waste pickers. Also, since the waste pickers did not control the price, the buyers were able to bully and take advantage of them. Thus, even though the pickers worked hard, they still remained poor. Recognizing the significant contribution of the garbage pickers in managing waste in the city, Birkbeck recommended policies or programs that would stabilize their work, raise their income, enable them to have better access to sources of garbage, negotiate to get better prices for the recycled materials, and improve their productivity through the use of simple machinery (Birkbeck 1978).

The experience of the Zabbaleen, a group of garbage collectors in Cairo, Egypt is a good example of how the lives of workers in this sector were improved through the provision of training and support from the different sectors of the community. The project primarily organized the workers in this sector, provided them with opportunities to turn the collected materials into marketable products, and assisted them in upgrading their living conditions. This experience has demonstrated the importance of developing the existing informal systems and human resources and making them adaptable to the new conditions and challenges instead of discarding the system and investing in expensive technological solutions (Badshah 1996). In addition, contrary to the view in the past that the informal

sector is a nuisance or burden on society, this case showed that if only the informal sector workers could be given opportunities they are also capable of solving their own problems and can prove their worth both to society and the protection of the environment.

The findings of the Egyptian study are similar to those of the earlier ILO Kenya report (1972) which showed the important role of this sector in the employment in developing countries (ILO 2002). The group of waste-pickers or waste scavengers helped to save resources by recycling raw materials, reducing the cost of waste disposal by collecting the recyclable wastes, producing cheaper goods from recycled materials, and alleviating poverty through the creation of jobs to the poor (*New Straits Times*, 5 January 1997).

In discussing about the activities performed by the informal sector, another important issue that needs to be addressed is the accompanying negative impact of their operations not only to waste workers themselves but also to the surrounding environment. Most of these workers especially in developing countries are not protected from direct contact and injury. The extent of this problem has become more intense with the increasing volume of hazardous waste that needs special handling and treatment. To cite an example, in the case of electrical and electronic waste, Greenpeace International reported that in all stages in the processing of this type of waste, it has the potential to release substantial quantities of toxic heavy metals and organic compounds to the workplace environment and to surrounding soils and water courses (Brigden et al. 2005). Despite of the hazards posed by this type of waste, many informal recyclers have continued to engage in this activity because of higher profits. Thus, it is also important to study on how to encourage the

informal recyclers of hazardous and toxic waste to upgrade their operation in such a way that their activity can be both beneficial to the workers and to the community.

Despite of some problems and challenges involved in the activities of this informal sector, previous studies still show that informal recycling can be a potential source of income especially to poor urban migrants if only they can be properly supported. But it seems that many governments are not giving much attention to improve their living conditions. Even though, there have been various studies of this sector in the past, it seems that the policy regulators have not placed much importance on it until recently, when the problems and hazardous effects of inefficient waste management becomes disturbing and led to the emergence of social pressure from various environmental NGOs and other concerned groups. Increasingly, governments have also realized that solid waste management is a very challenging task, especially in developing countries where there are scarce technical and financial resources.

2.3. Examples of Recent Initiatives/Policies that Recognized the Need to Improve the Condition of the Informal Sector in Waste Management in Some Countries

Recently, some countries have started to recognize the significant roles of the informal sector in waste management. They have initiated some programs that specifically included this sector in their waste management policy and have provided some interventions on how to improve their conditions. To give some examples, in the Philippines the NSWMC and the Solid Waste Management Association of the Philippines (SWAPP) in collaboration with other international organizations has just recently formulated the “National Framework Plan for the Informal Sector in Solid Waste

Management.” It envisages the informal waste sector as an empowered and recognized partner of the public and private institutions, organizations and corporations in the promotion and implementation of the 3Rs (reduce, reuse, recycle) in the country with the end view of alleviating poverty. In doing so, it hopes to integrate this sector in the solid waste management system by “providing them with a favorable policy environment, skills development and access to a secured livelihood, employment and social services” (NSWMC 2009: 34).

To cite another example, the National Environmental Policy 2006 in India also cited to “give legal recognition to and strengthen the informal sector systems of collection and recycling of various materials. In particular enhance their access to institutional finance and relevant technologies (Section 5.2.8.iii.e).

Although many countries do not have a policy yet as of this time for the informal sector in waste management, but most of them have started to recognize the significance of this sector and are on the process/ planning stage of policy formulation.

3. Conceptual Framework

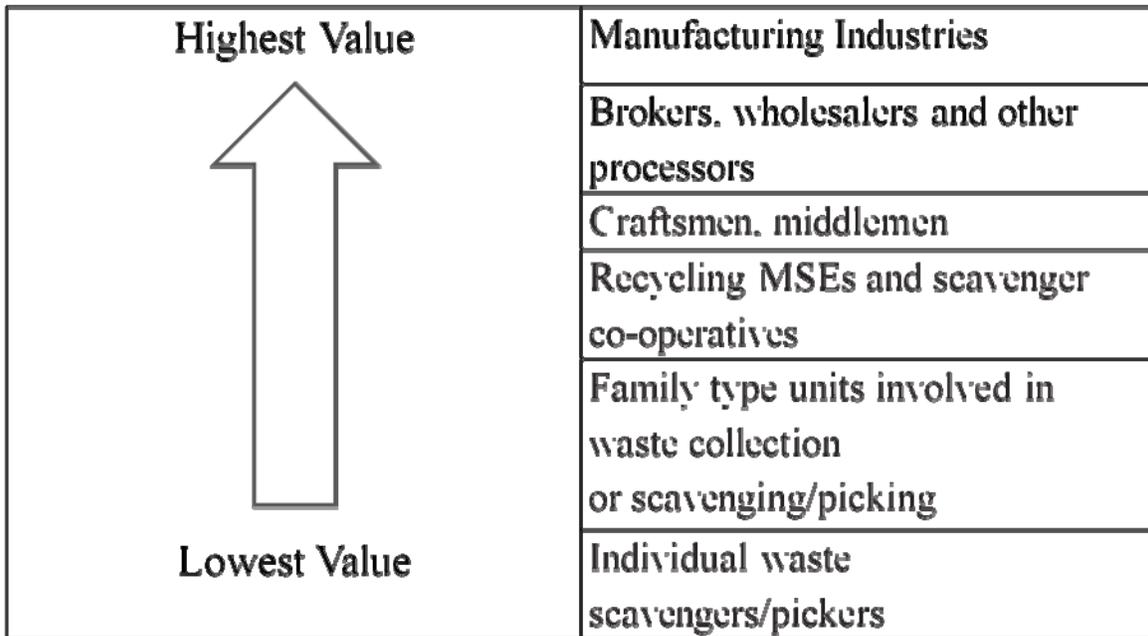
3.1. Scenario Building: The Current Condition of the Informal Sector

For the past decades, many literatures have mentioned the significant roles of the informal sector in waste management. However, their condition remains unchanged and or even gets worse. They continue to operate in an unstable condition wherein their income is

dependent on the prices of recyclables and their activities are often repressed by government regulations. With the economic crisis that hit the world, this sector is also greatly affected as the prices of recyclables has been reduced to 50% and thus their income too. In addition, as their activities are often considered illegal, they are prone to harassment by authorities, middlemen, and even the community. Despite of their significant contribution in the reduction of solid waste especially in the urban city, they are not often recognized as their “technology” is considered backward and that they are incapable to do the job due to their lack of education and technical skills. They are even considered as nuisance to development and that their operation has hazardous effects both to the environment and to the human health. Due to extreme poverty and lack of other available options for them, they continue to engage in this kind of job despite of their unsafe working environment.

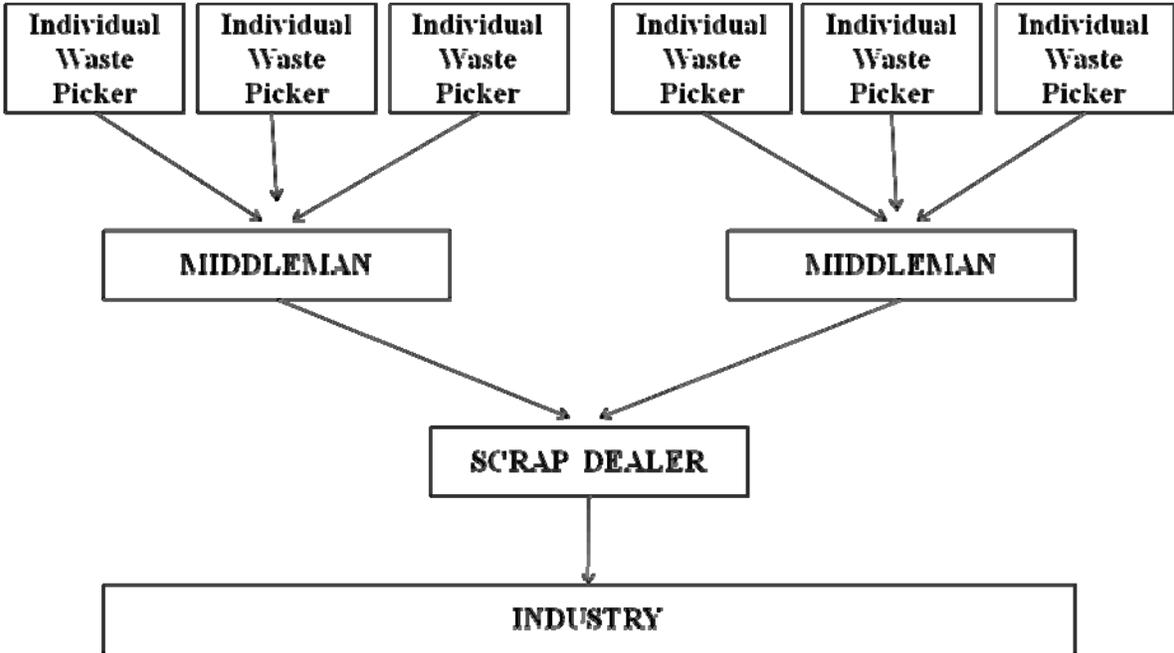
As shown in Figure 1, the less organize the informal sector the lower their capability to process the recyclable waste and the weaker their trading power too. Since most industries demand large volume of processed materials, they usually do transactions with middlemen and not directly from individual waste pickers (Figure 2). This condition makes the middlemen to earn much profits while waste pickers remains in poverty (Medina 2009). Figure 3 illustrates the typical power relations in waste scavenging in developing countries and the negative impacts of this condition to waste scavengers (*Ibid*). Thus, organizing the informal recyclers and providing them trainings can be an effective way to improve their ability to increase the value of their collected materials (Haan *et al.*, 1998 as cited in Wilson *et al.*, 2006).

Figure 1. Hierarchy of Informal Sector Recycling



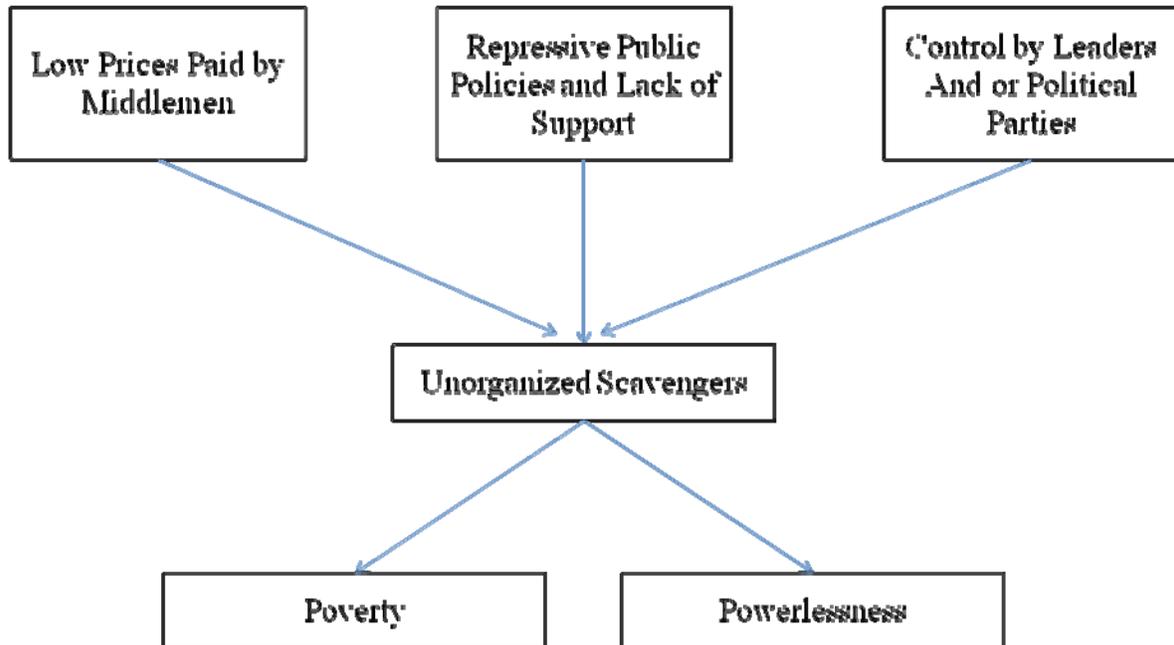
Source: Wilson, D.C., C. Velis, and C. Cheeseman. 2006. "The Role of informal sector recycling in waste management in developing countries," *Habitat International*, 30 (2006): 797-808.

Figure 2. Typical Supply chain for Recyclable Materials



Source: Medina, 2009. "Global Chains in Chinese and Indian Industrialization: Impact on Waste Scavenging in Developing Countries."

Figure 3. Typical Power Relations in Scavenging in Developing Countries



Source: Medina, 2009. “Global Chains in Chinese and Indian Industrialization: Impact on Waste Scavenging in Developing Countries.”

3.2. Proposed Strategies to Improve the Condition of the Informal Sector in Waste Management

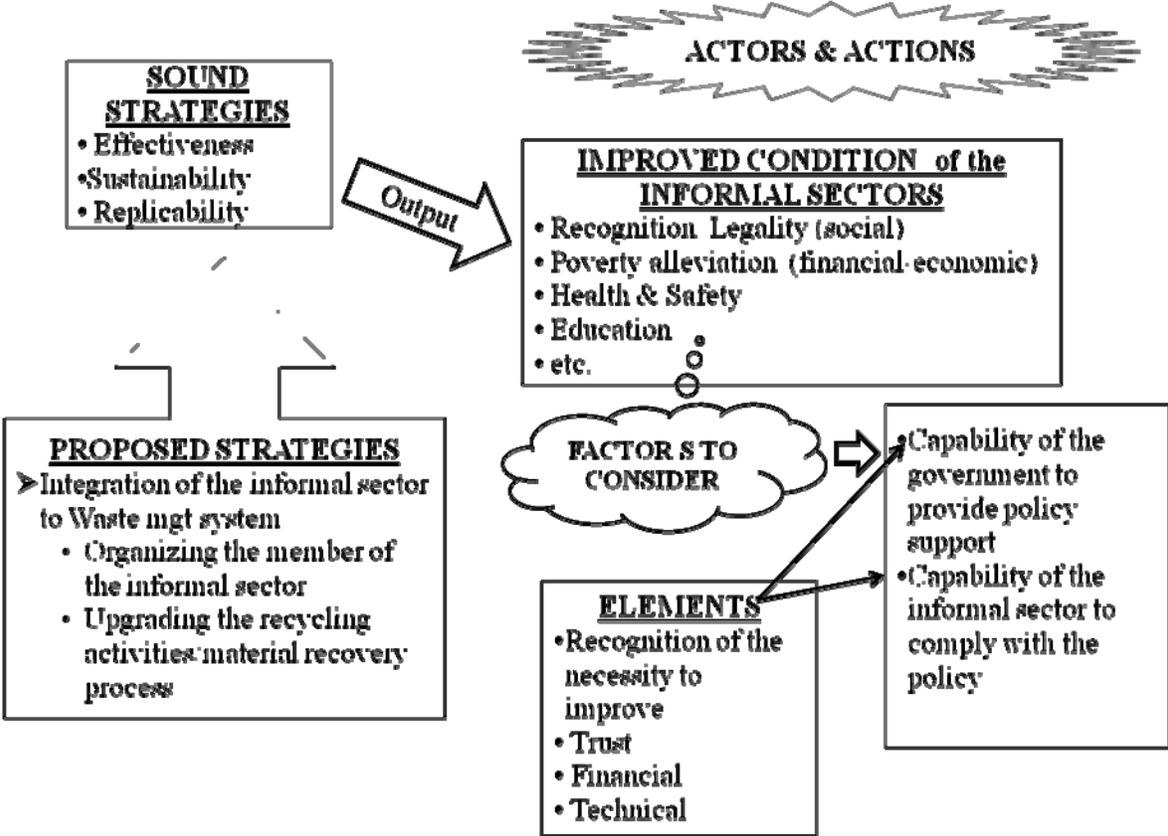
This study shows how an economic base for waste disposal can be created through the development of micro-enterprises among waste disposal workers. Through turning these workers into stakeholders in the waste disposal process, not only can their incomes and standard of living be increased, but the waste disposal process can be made more sanitary and efficient. This win-win situation can become a model for other communities in the Philippines and other countries with similar economic and social conditions. The

experience of the Zabbaleen in Cairo is one of the best examples of how the project was able to balance its concern for the environment with its concern for income generation and enterprise development (Badshah 1996).

As mentioned in the previous section, another important issue that has to be dealt with is the increasing number of informal recyclers of hazardous and toxic waste especially in this era of urbanization and modernization. Even with the implementation of various policies such as the Basel Convention and other regulations to control the handling and trading of hazardous waste, many informal recyclers have continued to operate in illegal ways and unsafe manners. The lack of awareness about the hazards of their activities and of the existing regulations, and the absence of or limited support from the government in both technical and financial aspects are some of the common reasons why many of these recyclers have remained in the informal sector. Also, the high economic potential from this activity has motivated these informal recyclers to engage in this work despite of the hazards in dealing with this type of waste. This condition poses a great challenge to the government on how to encourage this sector to shift from informal to formal recycling and or to upgrade their material recovery processes.

Given the above-mentioned condition of the informal sector and the pressing problems on waste, I will discuss some of the possible strategies on how the condition of this sector can be improved and at the same time address the waste management problems especially in the urban cities. Using the case study approach, I will also present the benefits for applying these strategies (Figure 4).

Figure 4. Sound Strategies to Improve the Condition of the Informal Sector



3.3. Factors/ Elements for the Effective Implementation of the Proposed Strategies

For the effective implementation of these strategies, there are some important factors that have to be considered (Figure 4). These include the following: the capability and willingness of the government to provide policy support to encourage and enable the informal sector to be organized and to formalize their activities; and the capability and the willingness of the informal sector to comply with the policy or regulations. In the first factor, the decision of the government is important while in the latter one, the decision of the informal sector is important.

In addition, there are other elements that contribute for the decision of these major actors, the government and the informal sector to improve the condition of the latter and its activities. First of all, both parties have to recognize the necessity or the benefits of upgrading the recycling operations of the informal sector in waste management. Also, the element of trust is also very important. Aside from the recognition of the significant role of the informal sector, the government has to believe that this sector has a great potential to manage the waste in the cities more effectively and efficiently only if they would be given support both in financial and technical aspects. On the other hand, the informal sector has also need to trust the government that upgrading their operations can really be beneficial to them by providing legal recognition and access to other benefits such as training, financial support, health services, among others. But these pre-conditions seem to be very difficult or nearly impossible to happen if these expectations are to be done only by these two actors. Both of them have their own limitations, thus their willingness is not the only consideration but also their capability to provide or to comply with the policy for proper or improved recycling. Thus, the participation and or collaboration with other stakeholders such as the NGOs, business sector, and other public and private organizations are deemed necessary.

3.4. Attributes of Sound Strategies for an Improved Condition of the Informal Sector

The soundness of the above mentioned proposed strategies can be assessed by using the following parameters:

- Effectiveness. This refers to the positive impacts of these strategies both to the informal sector, to the municipality and to the environment. This is manifested through improved and safe working condition of the informal sector, social recognition and poverty alleviation, effective waste collection and recycling, monetary savings for waste collection and disposal, cleaner environment, and others.
- Sustainability. This refers to the benefits of applying these strategies to address not only the present condition of this sector but also its potentials to meet the needs of this sector in the long run. This includes profitability, political and administrative support of the government, social acceptability, and others.
- Replicability. This refers to the characteristics of these strategies that can easily be replicated or adapted in other areas or regions experiencing similar conditions. As Badshah (1996) has noted, “In these times of severe resource constraints, citizens need to discover new ways to learn from each other’s successes and to multiply the impact of policies, programmes and projects that work. It is through cross-cultural learning, replication and adaptation that effective urban practices can have a significant and sustainable impact on our cities” (Badshah 1996: 16).

4. Discussion of Selected Cases

As discussed in the earlier sections of this paper, the informal sector contributes a lot in the reduction of waste especially in the cities. This activity also contributes to the reduction of the waste management cost such as the collection fees, extends the lifespan of

landfill, among others. Also, informal recycling is a source of livelihood to many especially poor urban migrants. However, until this time this sector remains unchanged and has continued to live in poverty. Also, some of the recent regulations in waste management have caused a negative impact to the condition of the informal sector and its activities.

To cite an example in the Philippines, the most recent and considered to be the most comprehensive law in solid waste management, the “Ecological Solid Waste Management Act of 2000”, also known as the Republic Act 9003 (RA 9003) was enacted in January 26, 2001. This law mandates all, and specifically the local government units (LGUs) “to adopt a systematic, comprehensive and ecological solid waste management program.” Two of the important regulations cited here that affects the informal sector are the mandated “closure of dumpsites” and the “segregation at source.” Section 37 prohibits the establishment and operation of new open dumpsites upon the implementation of the act. It also mandates the closure of all open dumpsites and their conversion instead into sanitary landfills as a final disposal site. Section 27 states that the collection, segregation and recycling of biodegradable, recyclable, compostable and reusable wastes is the responsibility of the barangays¹. On the other hand, the collection of residual and special wastes is the responsibility of the municipalities and cities, except in Metro Manila where disposal is within the mandate of the Metro Manila Development Authority (MMDA).

Although, this policy of the state aims to protect the public health and the environment, this has also caused a negative impact to the lives of the informal sector who are depending their livelihood in scavenging and selling waste. For example: In Payatas,

¹ Barangay is a smallest political unit in the Philippines.

Quezon City, before an individual scavenger could earn about ₱200.00–~~₱300.00~~² per day, but after the implementation of waste segregation at source they can only earn about ₱150.00 per day (*Personal Interview with Luis Sabatera, 25 August 2009*). This means that although this regulation may solve the environmental problem, but it may also creates another problem which is increasing poverty especially in the cities. This paper does not indicate that the mandated closure of dumpsites and the waste segregation at source should not be done. I agree that these initiatives are proper and necessary; however the government should not also ignore welfare of the significant number of informal sector depending in waste picking and scavenging for livelihood.

This situation is just one of those possible scenarios that call for the need to protect this sector and to recognize their contribution in managing waste especially in urban cities. Thus, the question is, “how to protect this informal sector especially their source of livelihood without putting the public health and the environment at risk?” This paper recommends to integrate (instead of removing) this sector in the waste management system and to improve their condition by: a) Organizing the members of the informal sector into an organization and or cooperative; and b) Upgrading the recycling activities/ material recovery processes.

In the succeeding pages, I will discuss the experiences of the selected case studies showing the benefits of integrating this sector in the waste management system. For the formation of the informal sector into an organization or cooperation, the cases will be from the selected cities in the Philippines: the experiences of the KILUS Foundation

² ~~₱~~50.00=1\$.

Environmental Multi-purpose Cooperative in Barangay Ugong, Pasig City of Philippines; the Los Baños Solid Waste Organization (LB-SWO) of Los Baños, Laguna; the Payatas Alliance Recycling Exchange (PARE) Multi-purpose Cooperative and the “Linis Ganda” (Clean is Beautiful) Multi-purpose Cooperative of Quezon City. For the upgrading of the recycling activities or the material recovery processes, I will use the following cases: the Multi-Hanna Kreasindo of Indonesia; and the TexCycle of Malaysia.

4.1. Forming the Informal Sector into an Organization or Cooperative: The Philippine Experience

4.1.1. The KILUS Foundation Environmental Multi-purpose Cooperative, Barangay Ugong, Pasig City, Philippines

The first case that I am going to discuss is the experience of the KILUS Foundation Multi-purpose Cooperative of Barangay Ugong in Pasig City. Although the members of this cooperative are not formerly in the informal waste sector, I decided to include this case because their experience has provided a good example on the potentials of waste as a resource for alternative livelihood and the benefits of formalizing the waste recycling activities. This cooperative composed of women members was registered in the Cooperative Development Authority (CDA) in 2001 (KILUS 2009). Previously, most of these women belong to the jobless sector of the community, thus days passed for them without accomplishing anything.

In continuous search for livelihood, the then Barangay Chairman Alejandro Santiago initiated the development of various products from doypacks. Doypacks bags

used for artificial juices are made of triple laminated cello foil. It is non-biodegradable and it is not bought in junkshops for recycling, thus it commonly ends up in dumpsites or sanitary landfills (APFED 2009). With doypacks and colored magazines as raw materials, the workers of the Cooperative turned them into fashionable products such as bags, shoes, office and school supplies, necklaces and other accessories. There are 7 Departments/Sections: Production, Slashing, Sewing, Beads, Sorting, Box-making, and Quality Control (Classic and Weaving).

As a beneficiary of the Philippines' Technical Education and Skills Development Authority (TESDA), KILUS can borrow tools and equipment from this organization. Also, with the loan granted by Mayor Eusebio's Cooperative Assistance Project and other financial loan from Senator Biazon, they were able to purchase additional high speed sewing machines to improve their operations (KILUS 2009). At present KILUS provides livelihood for more than 200 families. For in-house worker, the average salary is ₱2,000.00 per week (₱250– ₱300 per day); for those working at home, the income ranges between ₱3,000.00– ₱5,000.00 per week because other members of the family also help so they can produce more. They are also doing outreach livelihood program to neighboring barangays in Pasig. Their participation to some international trade shows has also helped them to have network with foreign markets. Most of their products are exported in about 17 countries: London, US, Japan, Australia, Belgium, Italy, Switzerland, etc. (*Personal Interview with Gina Santos, 26 August 2009*).

4.1.2. The Los Baños Solid Waste Organization (LB-SWO), Los Baños, Laguna

Just like in other communities, the members of the informal waste sector in Los Baños, Laguna was previously not recognized and they were operating in unsystematic and unsafe working condition. But in 2004, through the initiative of the Philippine Society for the Study of Nature, Inc. (PSSN) and with the implementation of its project funded by the Philippine-Australia Community Assistance Program (PACAP), the members of this sector was formed into a people's organization and their significance to the community has been recognized. This activity was in collaboration with the School of Environmental Science and Management- University of the Philippines Los Baños (SESAM-UPLB) and the Local Government of Los Baños.

The membership was open to every official resident of Los Baños whose main source of livelihood is waste picking, scavenging and buying of waste. After the necessary processes and criteria for selection, 54 beneficiaries became official members of the Los Baños Solid Waste Organization (LB-SWO). They were given an official ID signed by Mayor Perez and the LB-SWO president, and they were formally introduced to the different sectors of the municipality as the official waste collectors. By integrating the work of this sector in the solid waste management system, they are not negatively affected by the implementation of the waste segregation at source. With the recognition given to them, they have become official collectors of recyclable waste from households and establishments, and they can also operate in new areas to which they could not go before (Atienza 2009). The project also gave seed money amounting to ₱60,000.00, official uniforms, and pedicabs to the members of the LB-SWO. Members were given the right to borrow up to ₱1,000.00 from the seed money as starting capital for trading in wastes (PSSN 2005).

Through this activity, they were able to increase their income, their significant contribution was acknowledged by the community and they are now active partners of the local government in the implementation of the solid waste management programs in the municipality.

4.1.3. The Payatas Alliance Recycling Exchange (PARE) Multi-purpose Cooperative, Quezon City

After the Payatas dumpsite collapsed in July 10, 2000, that killed about 300 people mostly scavengers, the dumpsite was ordered to be closed by the National Government. But the waste scavengers conducted rallies to re-open the dumpsite. To address this concern, the alternative approach was to convert it as a Controlled Disposal Facility (CDF). Since November 2000, the Payatas Operations Group (POG) has implemented various measures and systems to improve the operations in CDF. About 2000 scavengers were organized into 13 associations and assigned them to designated dumping areas. They are given 20-30 minutes to pick through the garbage, thus only residual waste are being dumped at the facility (Jaymalin 2008).

However, with the implementation of the waste segregation at source, the volume of waste disposed to the dumpsite also decreased. This has also caused reduction in the daily income of scavenger from about ₱300.00 to about ₱150.00 (*Personal Interview with Luis Sabatera, 25 August 2009*). Given this condition, POG facilitates the development of networks to enable this sector to earn additional income and venture in alternative livelihood. Through the collaborative efforts of the government and NGOs, the Payatas

Alliance Recycling Exchange (PARE) Multi-purpose Cooperative was duly registered with CDA, through which scavengers can collectively obtain available assistance, whether financial or skills training, and other livelihood opportunities (Jaymalin 2008).

4.1.4. The “Linis Ganda” (Clean is Beautiful) Multi-purpose Cooperative Inc., Quezon City

The Metro Manila Linis Ganda Multi-purpose Cooperatives Inc. is an organized cooperative of junkshop dealers which aims to enhance recycling activities of junkshops and itinerant waste buyers (SWAPP 2006). As of now, there about 100 member junkshops (out of about 1,000 junkshops) in Quezon City and about 2,000 member junkshops in the whole National Capital Region (NCR), and each has their own eco-aides. Every morning, eco-aides are given capital for buying waste by junkshop owners. But they have to sell their waste to that junkshops and whatever profit they can earn from it in a day will be their income. (*Personal Interview with Michelle Cao, 28 August 2009*). Some of the benefits of being a member of the cooperative are the following: access to loan to be used as capital, avail of emergency loan with interest, and opportunity to participate in trainings for operating junkshops such as accounting and recording, entrepreneurship, etc. (SWAPP 2006). Through this activity, Linis Ganda also contributes to divert waste from the waste stream. Based on the data submitted by 50 active members in Quezon City, Linis Ganda is able to divert 2,779.85 tons of waste from January to June 2009.

4.1.5. Analysis: Benefits of Forming the Informal Sector into Organizations and or Cooperatives

- To Informal Recyclers

By forming the members of the informal sector into an organization and or cooperative, their activities have become more systematic, safer and more efficient and therefore have resulted to higher income. In addition, since they are now recognized workers in waste management they are protected from harassment and abuse from authority and other members of the community. With the recognition bestowed unto them, they can also access technical and financial support from the government and other organizations to enhance their skills and capabilities to improve their condition. Other social benefits include improved self-esteem and exposure to other opportunities and networks for a more sustainable livelihood.

- To the Municipality

With a more efficient and systematic waste collection and recycling performed by the members of the informal sector, the Municipality can also reduce its waste management cost by lesser collection trips and therefore more savings. The increase volume of waste diverted for disposal can also lengthen the lifespan of landfills. Since the members of the informal sector are now organized it is easier for the municipality to manage them. Also, they can also be partners in addressing waste management problem especially in urban cities.

- To the Environment

Unlike before when the activities of this sector had caused pollution to the working environment and nearby community, their operations are now systematic and conducted in

a safe manner. Their effective handling and recycling of waste has also contributed for having a more beautiful and healthy environment.

4.2. Upgrading the Recycling Activities/ Material Recovery Processes: Selected Cases from Asian Developing Countries

The first four cases discussed above exemplify the potentials of waste as a resource and as an alternative source of livelihood if only the members of the informal sector engaged in this kind of work can be organized and be given support to upgrade their operations. For the non-hazardous waste, it is quite simpler or easier to manage. But for the toxic or hazardous waste, the handling and operation requires special skills and needs more capital intensive technologies. The next two cases are example of companies which formerly belong to the informal sector but have decided to shift to become a formal organization. The common question is, “*How to encourage informal recyclers to shift from informal to formal recycling, and or to upgrade their recycling operations?*” To answer this question, I will try to provide some analysis based on their experiences. With actual observation of their operations and conduct of open-ended interviews with some key informants, I looked on the *contributing factors* that affect their decisions to get formalized; and the *actors* involved and the *actions* done that motivated them to formalize or improve their recycling activities. Before I discuss the results of my findings, I would like to provide a brief background about these companies and their operations.

4.2.1. Multi Hanna Kreasindo, Indonesia

The Multi Hanna Kreasindo, Indonesia is engaged in waste management utilization since June 1997 (PT Multi Madya Niaga Miratama). The institution was formal but they were doing “informal activities.” When the Indonesian government regulation came in 2000, they have shifted to formalize or upgrade their operation. On Sept 2004, the PT Multi Hanna Kreasindo was established; in 2006 it has completed environmental assessment; and in Sept 2007 it has obtained permission to utilize waste.

Its main activities includes collection, transportation and utilization of waste, reuse/recovery/recycle contaminated metal, reuse contaminated oil, thinner, solvent and dirty oil as substitute of alternative fuel. The certification by the International Standards Organization (ISO) is still on process.

4.2.2. Texcycle, Malaysia

The TexCycle in Malaysia started its operation in 1984, but it was only a small shop lot in Klang. They collected contaminated rag, gloves and wipes from 5 printing industries. In 1987, it started business with Singapore however in 1992, it encountered problems at Customs Malaysia about the legalities of their operation. With their desire to continue their operation, they communicated with the Department of Environment (DOE) on how they could legalize their activities and improvised their system. From 1992- 1997, they had conducted continuous Research and Development (R&D) activities to upgrade their system.

At present, the company has 1700 customers nationwide. It specializes in recycling and recovering scheduled waste (decontaminating rags, wipes and gloves for reuse). They are also doing “triple rinse system” container decontamination system; waste water

treatment; developed new reusable products such as absorbent booms, pillows and wiper clothes. It has licensed collectors/transporters and uses GPS tracking system to monitor location and status of activity to assure their customers and the surrounding community about the safety of their operations.

In 2003, it has obtained ISO 14001 certification by SIRIM Malaysia and successfully implemented 90% of recovered waste from their operation for reuse in their process. They have received numerous awards and recognition such as the Selangor Environmental Award in 2004; listed in the Kuala Lumpur stock exchange, and was awarded the Special Prime Minister's Hibiscus Award for SME and Notable Achievement for overall in 2005; and received the Silver Award by The Canadian Business Council for Professional Services in 2006.

4.2.3. Analysis: Shifting from Informal to Formal Recycling

- Informal and Formal Sector Definition

In terms of definitions, both companies considered themselves as “informal” before because they were doing their recycling operations in a purely business manner and without careful consideration to the negative impacts of these activities to the environment and human health. Now, they considered themselves as “formal” because their activities are more controlled and regulated, and they are using improved and safe recycling technologies.

- Motivating factors

The strict enforcement of the law on waste management and proper recycling is one of the primary reasons why they have decided to formalize and or improved their

operations. They have been doing the recycling business for many years but it is only recently that they have become aware of the existing regulations on waste management and the hazardous impacts of improper waste recycling. The potentials for higher profits of this type of business and the aspiration for a more sustainable operation have also motivated them to improve their recycling activities. They have realized that having a legal recognition is one of the important factors to move forward and or to compete in the business in a more sustainable manner.

- Struggles encountered

Based on their experience, getting formalized was not that easy. They had to go through tedious process in complying with the licensing requirements. Also, aside from the lack of financial and technical support from the government, they still had to convince or lobbied to the government about the possibility and safety of their operations before they could obtained the license. In addition, even now that they are considered legal recyclers of waste they still experience competition with informal recyclers.

- Advantages and Disadvantages

With regards to the advantages and disadvantages, I would like to cite first the disadvantages. The two main disadvantages or difficulties that these companies encountered for getting formalized are the need for high capital investment and at the same time the competition with the informal sectors. Since they have invested a big amount of money for recycling facilities and for other operating expenses, their buying price for recyclables are usually lower than those in the informal sectors. However, they have been able to overcome these difficulties because of their legal recognition which enable them to

operate in a broader scope in terms of activities and customers. Also, since they have been operating in an improved and safe manner, they have been able to win the trust and confidence of the customers especially of the big companies. Thus, in the long run they can have more sustainable and higher profits. In addition, their legal recognition also protects them from harassment by authorities and from the pressures by the members of the community.

- Factors for Success

The success of these companies can be attributed to the following factors: legal recognition or acceptance by the government and members of the community; safe handling of waste or improved recycling operations and therefore avoid or lessen pollution to the surrounding environment; and conduct of continuous R&D activities for improved and sustainable operation.

- Benefits

Although shifting from informal to formal recycling or improved operations required tedious process and high investment, it is more beneficial in the long run in terms of safety of its workers, reduction of hazards to the environment, more effective recovery of resources, and higher profits.

4.3. Attributes of Sound Strategies for an Improved Condition of the Informal Sector

Using the experiences of the cases presented, I will discuss the soundness of the proposed strategies based on the following attributes:

- Effectiveness

In terms of effectiveness, the cases show that these strategies are effective as manifested in its economic, environmental, and social benefits both to the members of the informal sector and to the community (as discussed in IV-1-5; and IV-2-5).

- Sustainability

The cases show that if only this sector can be given adequate support in both technical and financial aspects and due recognition, their recycling activities can be a sustainable source of livelihood for this sector.

- Replicability

Although these approaches seem difficult, the cases show that it is possible if only there is a strong participation and collaboration among the different stakeholders such as the government, business, NGOs, and other public and private organization. Since most developing countries are experiencing similar conditions, these strategies can also be shared and replicated in their municipalities.

5. Conclusion

Based on the experiences of the cases discussed, this study shows the positive contributions of forming this sector into organizations and or cooperatives not only on the condition of the informal sector but also to the municipality and to the environment as well. Thus, instead of trying to remove their activities from the solid waste management stream, the local government and other concerned groups should create livelihood opportunities to improve their conditions through provision of trainings and financial support, to protect

them from health hazards while dealing with waste, and to protect them from further exploitation and abuse.

Although encouraging the informal sector to shift from informal to formal recycling is really a big challenge both for the government and for the informal sectors, but as shown in the cases discussed, there is a possibility despite of some difficulties along the way. The strict enforcement of the law and the awareness of both the negative impacts of improper recycling and the benefits of improved recycling play a very important role in deciding to shift from informal to formal recycling, and or to improve their operations.

Also, these cases show that waste recycling has a big potential livelihood opportunities and environmental benefits if only the processes could be properly regulated and conducted in a safe manner. Thus, policy support of the government and the collaboration with other stakeholders (training and financial/ funding institutions, business sectors, research institutions, etc.) should be strengthened.

6. Policy Recommendations

- *Policy support to integrate the informal recyclers in the solid waste management team*

Since this sector depend on waste for their livelihood, trying to remove it from them without providing alternative source of livelihood will only cause increased poverty and will also force them to engage in illegal operations. Thus, instead of removing this sector from the waste management system, the cases show that it is more beneficial if they can be

given support and recognition. Also, since they have the first hand experience in handling waste they can also be effective partners in managing waste in the cities.

- *Formation of the informal sector into organizations and or cooperatives*

As an organized group, they are easier to manage compared than dealing with them individually. The cases show that forming this sector into organizations makes their activities more systematic and efficient. In addition, as a group they can increase their “buying power” and can easily access other privileges such as trainings and financial support.

- *Provision of financial and technical support (linking them to financial and training institutions, financial incentives/ tax reduction, etc.)*

Since the members of this sector belong to the most marginalized sector of the community, most often they are incapable of supplying their own capital for buying waste. They have ended up in debt to businessmen or middlemen and have had to sell their waste to them at much lower prices. As a consequence, even though they do all the “dirty work,” they remain poor while the middlemen become increasingly rich. Therefore, the government should do something to protect this sector from further exploitation and abuse by middlemen, through the provision of cheap credit and other technical assistance to support their operations.

With regards to handling hazardous and toxic waste that requires special skills and high investment to purchase advance technologies, the government should provide policy support such as tax reduction and other financial support to encourage informal recyclers to get formalized and upgrade their operations

- *Continuous protection of the informal recyclers from health hazards*

Since these workers are often exposed to infection from vectors and bacteria, they should be given health protection while dealing with waste through provision of masks and gloves, regular health check-ups, and access to medical support.

- *Policy support for education and other skills capability development activities*

To help this sector to really improve their living condition, they should also be given support to develop or explore their other skills through provision of trainings. In addition, the children involved in this activity should be protected and should be given support for their education.

- *Strict Law Enforcement*

One of the important for the policies to be implemented well is for the policy implementers to act consistently with what is written in the law. It is said that it is easy to formulate good policies but it is difficult to put them into practice. Sad to say, many of the lawmakers in most developing countries are also the lawbreakers. As shown in the cases, most members of the informal sector have decided to belong in an organization or cooperative, and or to upgrade their operations because of the strict implementation of waste management regulations in their countries.

- *Strong Information, Education, and Communication (IEC) Campaigns*

The conduct of information and education campaigns not only brings awareness but it also empowered the members of the community. This campaigns should not only deals on the negative impacts of improper waste recycling but also the benefits and potentials of recycling industries for alleviating poverty and for protecting the environment. Various

means of promoting information should also be utilized such as television, radio, and newspaper, among others.

- *Continuous R&D on waste recycling technologies*

As shown in the cases, the conduct of various R&D activities is vital for an improved and sustained operation of the recycling industries.

- *Promotion of recycled products (creating a demand or market for recycled goods)*

The people's preconception that recycled goods comes from waste and their preference for branded goods hinders for the successful marketing of these products. Thus, the government should provide policy support to promote and create market for these products through information campaigns and provision of trainings to enable recyclers to make their goods competitive with other products.

- *Participation of the different stakeholders in the national, regional and international conferences, seminars, and other waste management related activities*

The participation of the different stakeholders such as the policy regulators, businesses, and other relevant stakeholders in various waste management related activities is very important to promote sharing or exchange of information, for capacity development and establish networks. This also helps to avoid repeating mistakes done by others in the past. In addition, participation in these activities can make the different stakeholders to keep abreast with the recent technologies and developments in the recycling industries.

References

- Asia-Pacific Forum for Environment and Development (APFED). 2009. "APFED Good Practice Database," <<http://www.apfed.net>> (accessed 13 August 2009).
- Badshah, Akhtar A. 1996. *Our Urban Culture: New Paradigms for Equity and Sustainability*. United States of America: Zed Books Limited.
- Brigden, K., I. Labunska, D. Santillo, and M. Allsopp. 2005. "Recycling of Electronic Wastes in China and India: Workplace and Environmental Contamination." Netherlands: Greenpeace International. <<http://www.greenpeace.org/raw/content/international/press/reports/recyclingelectronicwasteindiachinafull.pdf>> (accessed 3 June 2009).
- Bromley, Ray. 1977. "Organization, regulation and exploitation in the so-called urban informal sector: The street traders of Cali, Colombia." A paper presented at the Institute of British Geographers, Developing Areas Study Group, one day conference on "The urban informal sector in the third world", School of Oriental and African Studies, University of London, 19 March 1977.
- Haan, H.C., Coad, A., Lardinois, I. 1998. Municipal waste management: Involving micro-and-small enterprises. Guidelines for municipal managers. Turin, Italy: International Training Centre of the ILO, SKAT, WASTE. <<http://www.skat-foundation.org/publications/waste.htm>>.
- Hart, Keith. 1971. "Informal income opportunities and urban employment in Ghana." Paper presented during the conference on "Urban Employment in Africa" at the Institute of Development Studies, University of Sussex, September.
- International Labour Office (ILO). 1972. "Employment, Incomes and Equality: A Strategy for Increasing Productive Employment in Kenya." Geneva: I.L.O.
- Jaymalin, Roberto M. 2008. "Management of the Informal Sector at the Payatas Dumpsite."
- KILUS. 2009. "The official website of the KILUS Foundation," <<http://www.kilus.org>> (accessed 13 August 2009).

Medina, 2009. "Global Chains in Chinese and Indian Industrialization: Impact on Waste Scavenging in Developing Countries." Paper presented during a "UNU-MERIT, UNU-WIDER and UNIDO International Workshop, Maastricht, The Netherlands, 22 October 2009.

Multi Hanna Kreasindo: Industrial Waste Solution (Company Profile). Unpublished.

National Solid Waste Management Commission (NSWMC 2009). "National Framework Plan for the Informal Waste Sector in Solid Waste Management." May 2009.

Philippine Society for the Study of Nature, Inc. (PSSN). 2004. "Enhancing the Role of the Informal Sector in Solid Waste Management in Los Baños, Laguna, Philippines: Midyear Progress Report," (February 1, 2004- July 31, 2004), Los Baños, Laguna. Unpublished.

_ 2005. "Enhancing the Role of the Informal Sector in Solid Waste Management in Los Baños, Laguna, Philippines: Terminal Report," (February 1, 2004- January 31, 2005), Los Baños, Laguna. Unpublished.

Republic of the Philippines, RA 9003. "Ecological Solid Waste Management Act of 2000." <<http://eia.emb.gov.ph/nswmc>> (accessed 19 April 2008)

TexCycle Official Website. <www.texcycle.com.my> (accessed 15 January 2010).

Wilson, D.C., C. Velis, and C. Cheeseman. 2006. "The Role of informal sector recycling in waste management in developing countries," *Habitat International*, 30 (2006): 797-808. <www.elsevier.com> (accessed 12 January 2010).

Personal Interviews and Email Communications

Ho Siew Choong, Director, TexCycle. SDN. BHD. “Personal Interview.” 18 January 2010, Selangor, Malaysia.

Husin Shahab, Operational Director, Multi-Hanna Kreasindo. “Email Communication/Interview”. 10 February 2010.

Nur Syahira Bte Sharifuddin, SHE Executive. TexCycle. SDN. BHD. “Personal Interview.” 18 January 2010, Selangor, Malaysia.

Sabatera, Luis. “Personal Interview,” 25 August 2009, Payatas, Quezon City.

Santos, Gina. “Personal Interview,” 26 August 2009, Ugong, Pasig City.

S. Perry, Managing Director, TexCycle. SDN. BHD. “Personal Interview.” 18 January 2010, Selangor, Malaysia.