

Environmental Management for Resettlement Sites

Improvement of Comprehensive Community-based Solid Waste Management Education and Training Programme



Beryl F. Baybay

Architect and Environmental Planner
Program Coordinator for Education and Training
TAO-Pilipinas, Inc. (Technical Assistance
Organization), Philippines

Introduction

The Philippines is a tropical country of diverse natural resources, weathers and cultures. The frequent flooding, storms, earthquakes and volcanic eruptions which the country frequently experience made the Filipinos resilient and less anxious of these hazards. But no periodic hazards threaten the people, especially in poor communities, more than the daily hazards they encounter; hazards that badly affect their families' health, security and resources.

Resettlement has been one of the methods of both the public and private sectors in the country to improve the quality of lives of people in vulnerable communities. Households are removed from danger zones, highly dense, unserved¹ and/or unsanitary areas. But the lack of consideration and implementation of post-resettlement activities², including the education and training of the resettlers, pulls

¹ Unserved areas lack the infrastructures and basic services such as roads, drainage, health facilities, water supply and solid waste management needed in the communities

² Post-resettlement activities include livelihood, management and maintenance of the area, formulation and implementation of community policies, operation of housing associations

them back to their old practices and to the blighted state. One of these issues they face everyday is the presence of garbage in their households or surroundings, deteriorating the quality of their environment and causing health hazards.

Instilling the knowledge, attitude, developing the skills and motivating community-led actions on environmental management, particularly in solid waste management at the grassroots level take applicable, creative, comprehensible, flexible topics and teaching methods, long-term skills training and empowerment of the implementers—the community themselves, to sustain and replicate the practice.

1 Shelter Situation Analysis

The Philippines is an archipelagic tropical country in Southeast Asia composed of 7,107 islands clustered into three main island groups: Luzon, Visayas and Mindanao. It has a total land area of 300,000 square kilometres of different topographies from the low-lying areas, valleys up to the mountainous lands.

After being influenced by different conquering nations³, the Philippines gained its independence in the 1940s. At present, the political system is democratic with the national and the local sectors. Its local administrative units are composed of 81 provinces, 136 cities, 1,494 municipalities and 41,995 barangays⁴.

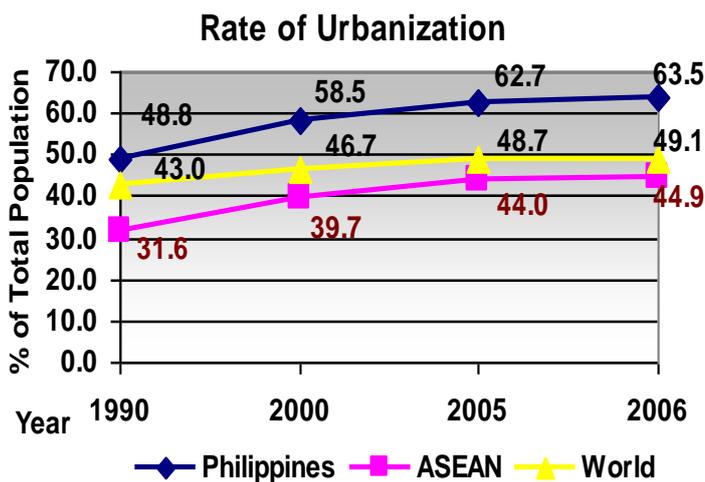


Figure 1: Rate of Urbanization in the Philippines, ASEAN Countries and the World

³ The habitants of the country before were Aetas, Malays & Indonesians. Followed by the Spaniards in the 16th century, the Americans from 1898 to the 1940s, & the Japanese in late 1940s

⁴ Barangay is the smallest administrative unit in the country. A municipality or a city may be composed several or hundreds of barangays.

Demography and Health

As of August 2007, the country has 88.6 million growing at an average 3000 births per day. Despite the decreasing urban population growth, the Philippines' urban population is still high compared to the ASEAN countries and the world (see Figure 1).

There are improvements in health care and facilities that brought down the number of infant deaths and child mortality rate generating a young population where the working age group dominates the children (0-15years) (37%) and the elderly (60 and above) (4%) by 59 percent. But there is still a need to build the consciousness of people in health and environmental protection and management.

Table 1: Philippines Demographic and Health Data.

Indicator	Units	1990	2000	2005	2006
Population	Million	60.7	76.4	83.1	84.6
Population growth	Annual %	2.36	2.0	1.7	1.8
Male Population*	Million		38.7	42.9	
Female Population*	Million		38.2	42.4	
Density	Persons/sq km	202	255	282	288
Urban Population	Ave. Annual Growth Rate	4.4	3.8	3.5	3.3
Health					
Life Expectancy at birth	years	68.7	70.7	72.5	
Crude Birth Rate	Per 1000 population	31.7	29.1	28.1	
Mortality rate, infant	Per 1000 population	57	30	25	

Source: ESCAP Statistical Yearbook for Asia and the Pacific 2007; * National Statistics Office

Economy

In the 1980s, economic zones on the periphery of metropolises and development of new city centres were developed causing the industrial and service sectors to overtake agriculture in terms of output and employment. These caused migration from the rural to the urban areas resulting to the formation of informal settlements in vacant lots, road or waterway easements, or areas prone to floods or landslides. These caused the formation of informal settlements in vacant lots, road or waterway easements, or areas prone to floods or landslides.

In 2006, about 27 million or one out of four families (33 percent) is living below the poverty threshold. The country's GDP cannot cope up with inflation and the income growth just like what happened from the years 2000 to 2003 wherein there is a low growth of family income at 2 percent and of the GDP 3.7 but a high inflation rate of 13.9 percent. The challenges of making economic growth felt by the poor and providing additional sources of income are present.

Table 2: Philippines Economic Data.

Indicator	Units	1990	2000	2005	2006
Economy					
Annual GDP	(1990 US\$ in million)	4431	59115	74364	78357
GDP	(1990 US Dollar) growth rate	2.2	3.7	4.7	5.4
GDP annual per capita	(1 US\$ is PhP24.7 1990)	724	776	879	908
Ave. Annual GDP	per capita growth rate	-0.1	1.5	2.5	3.3
GNI, Atlas method	per capita(current US\$)		1060.0	1290	1420
Poverty Threshold	Annual per Capita	300	320	346	367

Access to Shelter

Public and private sectors provided around 73.6 percent of the targeted 1.2 million housing units in 2004. Resettlements, slum upgrading, core housing and medium-rise building constructions are continually implemented to take the homeless and the informal settlers out of danger areas, decongest proclaimed housing sites, provide housing for those who were displaced by calamities and to decongest overcrowded metropolis. But because of the estimated annual backlog and projected new households, a total of 3,756,072 housing units are still needed by 2010.

An average of 15.2 percent of a family's expenditure goes to monthly housing expenses including the rent, electricity, water and minor maintenance. It is almost seven times higher in the urban areas (\$107) than in the rural (\$15). A member of a family of five barely has a dollar to spend for food and other non-food needs per day. Informal businesses such as small stores and selling junks or recyclables have been a means of the poor households to supplement their earnings.

To assist the poor in land security tenure and socialized housing packages access, the government implements the Community Mortgage Program (CMP) through the Social Housing Finance Corporation (SHFC) where each family pays low monthly amortizations of PhP750-PhP2,000 (\$18-\$49) in 25-30 years. While private organizations provide housing units and/or low cost monthly amortizations by asking for the beneficiaries' counterpart, such as sweat equity, as full payment or subsidies for the housing packages. The limited availability pricey land and high-cost of multi-storey construction still drive the housing providers to construct resettlement sites in far-flung areas where most of the time, basic services are scarce.

Occupancy and Floor Area

In 2000, around 23.4 percent of the 14.9 million occupied units have 10-19 sq meters of floor area while 17.5 percent has less than 10 square meters. Around 16.6 percent has 30-49 square meters and 3.2 percent has 90-119 square meters of housing units.

Housing providers use the minimum sizes per housing unit set by the socialized housing guidelines in the Philippines called the Batas Pambansa 220 (National Law) to produce more housing units. A row house unit has a floor area of 20 square meters, duplex units have 22.25 sq.m. and single detached units have 22.5 square meters.

Access to Basic Services/Infrastructure

The access to safe drinking water and sanitary toilet facilities slowly increased from 1990 to 2004. Agencies like the World Bank works with Philippine organizations to assist in providing toilets for the 20 percent of the population who lack them or use closed-pit toilets.

Table 3: Distribution of Households by Tenure in Urban Philippines, percent 2000

Indicator	Values	
	1990	2004
Water, Population w/ access to safe and improved water supply	87	85
Sanitation, households w/ sanitary toilet facility	57	72

Often the relocation sites are located in far-flung and unserved areas, lacking provisions for health, security, transportation and education services including the above mentioned basic services while in-city resettlement sites rely on the existing sources of basic services.

Education

Both men and women have equal rights to education. The literacy rate have grown from 84 percent in 1994 to 92.6 percent in 2000. Education in public schools are free with very minimal expenses. Elementary participation have grown from 85 percent in 1990 to 94 percent in 2005 but few students are able to attend secondary schools as they are forced to drop-out of school due to the high cost of transportation, school supplies and meals. The Department of Education provides adult education and more vocational courses with subjects credited in bachelor courses.

Environment

Poorly managed urbanization and rapid population growth in the Philippines have contributed to the fast depletion of the natural resources and the deterioration of the environment. In the National Capital Region⁵ alone, an individual is estimated to produce half a kilo of garbage a day. An estimated 6,700 tons are generated per day

⁵ The National Capital Region or Metro Manila is composed of 17 cities with the highest densities of almost 16,600 persons per square kilometer

and only 720 tons are recycled or composted. The remaining 6,000 are hauled to dumpsites that will soon reach their capacity to accommodate the accumulating wastes. Around PhP3.8 billion a year are spent for hauling and disposal. This cost is equivalent to around 7,220 socialized housing units a year.

To address the problems of pollution, different laws have been passed and are progressively implemented. A few are the Clean Air Act, the Clean Water Act and the Ecological Solid Waste Management Act of 2000. Ozone-depleting substances are gradually phased out, the use of alternative wastewater treatment facilities and systems are highly promoted, and more private sectors and local government units are slowly practicing the comprehensive SWM system due to the environmental and financial benefits they are reaping. Local government units are gradually working towards developing and implementing ordinances and small projects addressing environmental issues.

Housing Policy

The Philippine government implements the National Shelter Program (NSP) to make affordable housing packages accessible to the lowest 30 percent of the population through 1) resettlement 2) slum upgrading 3) sites and services development 4) core housing 5) mortgage programs.

- The *Urban Development and Housing Act of 1992* (UDHA) or Republic Act 7279 gives public and private agencies strategies and incentives to develop more socialized housing projects and ensures the proper implementation of resettlement of the affected households.

It mandates housing developers to ensure the inclusion of basic services in the resettlement sites they are developing. These include sources of potable water, adequate power distribution, sewerage facilities, primary roads, transportation system and efficient solid waste disposal system which is the main focus of this paper.

- The *Local Government Code* contains the provisions for the allocation and generation of funds and resources for implementing housing projects, the exercise of power of eminent domain and acquisition of land, and the reclassification of land uses for the residential use.
 - The *Batas Pambansa 220* (National Law) (BP220) is the act that sets the standards and technical requirements for the economic and the socialized housing in the urban and rural areas in the Philippines which was created in 1982. It also includes social, cultural, environmental and hygienic considerations. It states that

the local government units provide the housing sites with garbage disposal services. But in its absence, individual households should dispose wastes properly by their own means. Most local government units have practiced this system ever since.

Actors in Shelter Delivery and their Roles

- Local Government Units are given the primary responsibility of providing housing services. LGUs are mostly given the task of providing funds and provision of basic services such as solid waste collection.
- National Government Agencies such as the Housing and Urban Development and Coordinating Council (HUDCC) administratively supervises the National Housing Authority (NHA) in charge of the production of housing units, the Housing and Land Use Regulatory Board (HLURB) for the approval of plans, the Home Development Mutual Fund (HDMF or PAGIBIG) and the Social Housing Finance Corporation (SHFC) for housing financing schemes.
- Real estate developers dominate in the production of house and lot packages that are mostly available to the upper-middle and high income class earners. But they too are now partnering with the government in developing socialized housing in the condition of simpler requirements, and exemptions from selected project-related taxes.
- Non-government organizations, like community organizers, assist in organizing households and communities ensure the affected households' participation in negotiations and project implementation processes. Technical NGOs, such as TAO-Pilipinas, ensures that the beneficiaries understand the technicalities of the land, subdivision plans, house designs and construction. Other NGOs such Habitat for Humanity and Gawad Kalinga (to Give Care) are effective in constructing housing units by sourcing out sponsorships and donations and mobilization of volunteers and of the beneficiaries through sweat equity.
- Financial Institutions such as the Asian Development Bank assist in providing housing loans.
- Peoples Organizations (PO) and Community-Based Organizations (CBO) the beneficiaries that are empowered by the NGOs in land tenure and housing negotiations and self-help construction. These CBOs maybe formalized as Homeowners Associations (HOA) after applying in the Housing and Land Use Regulatory Board

- Universities and colleges with architectural, engineering and planning courses are building partnerships and are making their students work with NGO's housing projects through internships and volunteer work like mapping, planning, design and construction.

The National Housing Authority, the Non-Government Organizations and the HOA can work together in implementing post-resettlement activities.

Community-Based Solid Waste Management Policy and Programs

In 2001, the government enacted the Ecological Solid Waste Management Act of 2000 or Republic Act 9003 (RA 9003) to promote and mandate solid waste management (SWM) to local government units and to private sectors and to make the SWM practice more comprehensive than the simple collection and disposal practices before.

Through this law, the National Solid Waste Management Commission (NSWMC), the United Nations Development Program and the Government of Japan created a Community-based Solid Waste Management Programme (CBSWM) to build the capability of the local authorities in setting up of SWM system through bottom-up approach in planning, to assist in the formulation of policies and to get good SWM practices replicable to other communities. It promotes waste segregation, waste reduction, reuse and recycling at the community level.

The CBSWM program involves the set up of barangay (the smallest administrative unit) SWM committees that will draw up plans, promote the formulation and approval of ordinances, oversee the compliance to segregation at source, composting, garbage collections schedules, operations of materials recovery facilities for recyclables, and building linkages and trading with junk dealers.

Actors in Solid Waste Management

- The National Solid Waste Management Commission (NSWMC) supported by the Environment Management Bureau recommend and oversee the implementation of SWM policies suitable at the national and local levels and it has developed programmes and training materials to disseminate the information on SWM.
- The local government units at the city/municipality level and especially the barangay levels are to operate collection systems and provide disposal facilities

that will provide employment especially for the unemployed and marginalized residents of the communities.

- Funding agencies like the Asian Development Bank provided assistance to local government units for the conduct of SWM studies and provided grants for equipment that will help barangays set-up their materials recovery facilities.
- Private sectors such as commercial establishments (malls) and informal market dealers such as junk dealers partner with the LGUs in buying and recycling the solid wastes
- Non-Government Organizations give their support by building the awareness at the grassroots or barangays levels. Through technical assistance, the NGOs build the capability and empower the community or the homeowners association to operate sustainable SWM system applicable to their areas
- Households are mandated to reuse, segregate their wastes and do household composting.

TAO-Pilipinas, Inc. (Technical Assistance Organization)

TAO-Pilipinas, Inc. (Technical Assistance Organization) is a women-led, non-stock, non-profit and non-government organization established in 2001. It is composed of architects-environmental/urban planners and engineers which supports community-based organizations, non-government organizations and local government units in their sustainable settlements and environment efforts, through direct technical assistance, multi-stakeholder partnerships, participatory community capability-building, bringing access to technical information and alternative housing solutions and providing the academe a venue for community exposures .

More than producing designs and plans, TAO-Pilipinas is process and result-oriented; valuing the full participation of different stakeholders, especially that of the housing beneficiaries in the identification of issues, in planning, designing, decision making and project implementation. It also values the application and the implementation of the trainings and plans developed by the community and their assisting organizations. These qualities set TAO-Pilipinas apart from the other technical assistance organizations in the public and the private sectors in the country.

TAO-Pilipinas has four programmes: the Human Settlements and Environment (HSE), Research and Publication (RP), Education and Training (ET) and the Young Professional's Programme (YP). The ET programme, where the proponent works for, developed and conducted Community-Based Solid Waste Management trainings and

workshop due to the demand of TAO-Pilipinas' partner communities to create cleaner environments upon their relocation to their resettlement site. Two community based organization from the Navotas City and Pasay City benefited from these series of workshops and trainings.

Poor Solid Waste Management in Resettlement Sites

Negligence of SWM and Dependence on the Local Government

It has been observed that in most socialized resettlement projects in the Philippines, technical assistance end in housing construction and site development. Most of the time, follow up activities focus on the collection of amortizations and sometimes on livelihood support. Often environmental management, particularly the implementation of solid waste management in the areas, is neglected. Government agencies or NGOs in partnership with the housing beneficiaries are able to keep the housing units clean. But the SWM system they implement is brought down to the level of regular garbage collection of the barangay instead of implementing RA 9003. The residents are not aware of their role and its importance in implementing a comprehensive SWM. Environmental ordinances or laws in other barangays are implemented without building the knowledge, attitude and skills of the residents. That is why trash still noticeably lies on roads, vacant spaces and waterways in or around the resettlement sites. Residents also depend on a selected few who are either hired by the local government or assigned by the groups assisting or leading the resettlers.

Mistaken View of Garbage and Limited Target of CBSWM

Most agencies/organizations assisting resettlement beneficiaries and even most of the regularly earning residents fail to see garbage as a resource. Instead they are seen as useless and disposable. But to most residents of socialized resettlement sites who are unemployed and are very low income earners, just like the members of Saint Hannibal Christian Community (SHaCC) who earn an average of PhP8,081 (\$202), selling recyclables become sources of supplementary income and jobs (GTZ, 2008).

The CBSWM program of the Department of Environment and Natural Resources (DENR) and even of some private organizations limit their the capability building and assistance to barangays wherein the learnings on the SWM system are confined to the barangay leaders and staff and are seldom disseminated. Though the entire

community benefit from the clean surroundings, some of the constituents are less appreciative of the SWM practice, and only the barangay and the hired operators of the materials recovery facility benefit from earnings from CBSWM.

A composition of a barangay also differs because it may be composed of thousands of households or clusters of community-based organizations living in areas that differ geographically or by income class. And the implementation of CBSWM must be adjusted to make it applicable and highly beneficial to the different types of residents.

Unsimplified and One-Time CBSWM Educational Programs

The existing CBSWM Educational and Training programmes offered by different organizations will be difficult to use and understand especially by TAO-Pilipinas' target clients at the grassroots level, who have limited educational attainment, foreign language comprehension and limited organizational or management skills. Examples are the use of series of lectures that use scientific terms and the "SWM Made Easy" handbook and fieldbook produced and freely disseminated by DENR (via internet) "Do-It-Yourself Guides" but are written in English.

Most of the time these trainings are conducted once and its participants are left to operate SWM with very minimal follow-up assistance, monitoring and evaluation making the practice unsustainable.

*Saint Hannibal Christian Community (SHaCC)
Pasay City, Philippines*

SHaCC is composed of 2,180 families from seven poor barangays located in highly congested areas and riversides. A religious organization called Saint Hannibal Empowerment Center (SHEC) united these families from different neighborhood/homeowners association in Pasay City to assist them to secure land tenure, to gain access to decent housing and to empower them in uplifting their own quality of life.

In 2005, the SHaCC Environmental Committee was established. Selected members underwent trainings in solid waste management and were exposed to community SWM practices to promote cleanliness and the practice of segregation and composting among its members and to earn from it. And they have successfully influenced a few.

In 2006, selected members of SHaCC were trained in creating new products from recyclable materials. They made beads for ladies' accessories and flowers made of rolled-paper, and vases made of cardboard. But several attempts to market it at a large scale did not push through despite the products' good quality.

When households began to transfer to the near-city resettlement site, SHaCC leaders

and SHEC became concerned in keeping their new housing site clean and in instilling discipline to the resettlers since most of them have become dependent on the local government's garbage collection and in throwing trash in open spaces (See Figures 2 and 3).

In June 2007, upon the request of SHEC, TAO-Pilipinas conducted the CB-SWM Orientation workshop with 26 SHaCC representatives including members of its environmental committee to deepen their understanding of SWM practices. Then through the initiative of SHEC and the environmental committee, SHaCC leaders began to require the 85 household resettlers to segregate and compost. At first these were difficult to implement. But after the SHaCC leaders, who underwent the first training, and TAO-Pilipinas conducted a second CB-SWM Orientation with the 85 household representatives, the resettlers had actively involved themselves in segregation, composting and gardening (See Figures 4-6). At present, the resettlers set up a small materials recovery area to collect the segregated garbage and to compost their wastes. The recyclables are sold and the earnings become part of SHaCC's funds for amortizations and projects. Each household is also growing a minimum of ten plants as per SHEC's requirement.

Several training participants have expressed their interest to learn how to recycle their garbage and create new products that can be sold and consumed by their family. Now that they have settled, they want to pursue the manufacturing and selling of new products from recyclable materials among its unemployed members.



Figure 2. Some SHaCC members used to live along the creek Source: www.shec.org



Figure 3 The near-city apartment type resettlement units built by SHaCC in cooperation with Habitat for Humanity. Source: TAO-Pilipinas files



Figure 4. TAO-Pilipinas conducted series of the CBSWM Orientation education and training to 85 SHaCC household representatives using participatory and creative processes. Source: TAO-Pilipinas files



Figure 5 These photos show the practices of segregation and urban ornamental gardens by SHaCC members. Further developments on their SWM operations still need to be improved. Source: TAO-Pilipinas files



Figure 6 These photos show the practices of urban vegetable gardens by SHaCC members. Source: TAO-Pilipinas files

TAO-Pilipinas CBSWM Orientation Training and Workshop

The demands of urban poor communities/community-based organizations, such as SHaCC, for a training on CBSWM drove the ET Program of TAO-Pilipinas to develop a flexible CBSWM Orientation Training and Workshop.

TAO-Pilipinas aimed for comprehensibility, retainability and replicability that is why the topics were simplified and translated into the national language--Filipino; visual aids and games were used, issues and plans were drawn out through small group discussion and presented through role plays, drawings and reportings. Based on the assessment of the trainings conducted with SHaCC, it helped them realize that human actions can badly affect or help the environment and even their own health. They appreciated the participatory processes because each participant got the chance to express himself/herself and it made the topics interesting. And because the

CBSWM Orientations were conducted by trained and practicing community members, the training participants were convinced that the SWM is applicable to them and they too can echo the trainings and the practice to other people.

The first module is a simple orientation that provided general overview of the topics on segregation, composting, urban gardening, RA9003, recycling and initial action planning on the SWM practice at the household and community level. TAO-Pilipinas observed that this initial training and a few post-training assessments or meetings cannot ensure the implementation of their plans and fully empower the community members to operate a SWM system on their own.

Demand for Deeper Learning

The participants still yearn for in-depth and hands-on training and application of the topics mentioned above topics. Their requests for follow-up assistance during the implementation stage provides TAO-Pilipinas the opportunity to make their SWM action plans and practice systematic, sustainable and comprehensive. Based on our learnings from the past experiences, there is a need to create a more comprehensive CBSWM programs.



Figure 7. A CBO from Tondo named SAPSPA produces baskets, vases & frames from paper rolls and decorative plastic softdrink bottles and straws find difficulties in costing their products. They have buyers. But they believe that the low cost do not compensate to their hard labor and do not encourage their members to get into the business. Source: TAO-Pilipinas



Figure 8. SHaCC members used to produce flowers and bags from paper rolls and vases from cardboard stopped producing them. They experienced problems with negotiations before and there is no market for the products. They want to learn how find the right, sellable products to produce, how to cost them, how to find the right market and conduct systematic trade to fully benefit from recycling.

Improvement of the CBSWM Education and Training Programme

Effective Environmental Education

Navarro (2003:31) stated that environmental education should make the people understand their role and responsibilities in implementing the SWM system. It must not only build knowledge but should include continuous application (skills) until it becomes a way of life especially in communities.

The Improved TAO-Pilipinas CBSWM Training Program

The proposed CBSWM Training Program of TAO-Pilipinas generally seeks to promote a sustainable practice of CBSWM by transforming the community's lifestyle in environmental management, to encourage the people to venture into activities that will help them reap the economic benefits of CBSWM and to provide a means to sustain TAO-Pilipinas as an organization.

The proposed program aims to 1) create training tools 2) build the knowledge, skills and attitudes of community members concerning the environment and its management 3) promote the application of their learnings and empower them to operate self-managed SWM system, and 4) provide venues for interaction, learning and promotion of SWM practices and products among different stakeholders. The CBSWM program shall be offered in packages wherein training shall be accompanied by follow up meetings and specific projects and outputs from the communities who will undertake the training program.

Additional researches and modules shall also be conducted to add topics to make the CBSWM Training Program comprehensive. The topics include: Set up of SWM Committee, Design and Set up Materials Recovery Facility⁶, Urban Organic Gardening, Urban Organic Gardening, Basic Inputs in Trading/Marketing Recyclables and Community Monitoring & Assessment.

The proposed plans, with respect to the specific objectives, are the following: 1.1) publication of the CBSWM Orientation module 1.2) Conduct researches and develop modules on the additional topics mentioned above, 1.3) training the SWM practicing members as facilitators and resource persons, 2) offer and conduct regular

⁶ Materials Recovery Facilities or MRF is an area for collecting, sorting and temporary storage of non-biodegradable wastes. Areas for composting and workshops for livelihood projects may also be designed within the facility.

CBSWM trainings, 3) carry out implementation assistance through meetings, monitoring and assessment, and 4) provide venue for CBSWM sharing through forum and exhibits.

Other considerations are the integration of methods of protecting the CBSWM implementers/operators from health hazards and the design of miniature materials recovery facility which may be incorporated in the layout of the socialized housing plots of limited space which may be used by a household or clusters of households.

The CBSWM Program will be a long-term process wherein TAO-Pilipinas and its partner community will need to be committedly involved. TAO-Pilipinas will build networks with organizations successful in the production and marketing of recyclable products, seek the assistance of more volunteers and interns, and more community trained facilitators to implement the project.

It is the author's hope that this Comprehensive CBSWM Programme will promote the inclusion of environmental management in housing processes especially at the post-construction phase or estate management. May this inspire and influence different homeowners associations, organizations at the grassroots level especially in socialized resettlement sites and even LGUs to operate and manage their own solid waste management system, earn more from these inexpensive resources, develop a clean and healthy environment and share their experience to other communities.

Conclusion

The negative effects and the benefits of CBSWM on the environment and the people's health and sources of livelihood can never be ignored nor taken lightly. The improvement of the Community-based Solid Waste Management Education and Training Programme may be effective in promoting the effective implementation of the Ecological SWM Act and in empowering people at the grassroots level.

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