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The Economy and Environment Program for Southeast Asia (EEPSEA) was established in May 1993 to support training and research in environmental and resource economics across its 10 member countries: Cambodia, China, Indonesia, Laos, Malaysia, Papua New Guinea, the Philippines, Sri Lanka, Thailand, and Viet Nam. Its goal is to strengthen local capacity for the economic analysis of environmental problems so that researchers can provide sound advice to policymakers.

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Searching For A Solution To Solid Waste In The Philippines

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Waste disposal is a massive problem across Southeast Asia. In the Philippines, the central government legislated the R.A. 9003, also known as the Ecological Solid Waste Management Act, that authorizes local government units (LGUs) to take charge of the management of solid waste management programs in their respective area of responsibility – particularly requiring them to rely more on reuse and recycling. However, the practical aspects of implementing these changes and the costs local governments will have to bear have not been given much attention. →

A summary of EEPSEA Research Report 2005-RR1, *Implementation and Financing of Solid Waste Management in the Philippines* by Zenaida M. Sumalde. Department of Economics, College of Economics and Management, University of the Philippines, Los Baños, College, Laguna, 4031 Philippines. (Contact : zeny@laguna.net).

“there is generally a.

→ A new study has looked into the current state of the country's waste management program. It found a large shortfall between the amount of money needed for waste management and the amount of revenue that is obtained from providing waste management services. As a result, many local government authorities are unable to finance adequate solid waste management programs.

By looking at how different Local Government Units (LGUs) in the Philippines go about providing and financing their waste management services, the study highlighted a number of strategies that could be used to bridge this 'fiscal gap'. These included finding alternatives to expensive private contractors and looking into recycling as a revenue-generating activity.

The Challenge of Waste Management

The study was carried out by Dr. Zenaida M. Sumalde from the College of Economics and Management at the University of the Philippines Los Baños. Sumalde undertook her study in response to the current crisis in solid waste management in the Philippines. She was particularly keen to find answers to concerns about the implementation of the Philippine Ecological Solid Waste Management Act (ESWM). This law was passed in 2001 and sets guidelines and targets for solid waste avoidance and volume reduction through measures such as composting, recycling and re-use. Under this legislation, LGUs have the authority to collect fees and charges for the provision of solid waste management (SWM) services. However, they have not been provided with guidelines on

the fees or charges they should impose. This means that many LGUs do not have adequate financing mechanisms in place and consequently have to support waste management from their currently over-stretched general budgets.

Sumalde first asked LGUs about their concerns regarding the ESWM. Many were worried about lack of skills among their staff; inadequate financial and human resources; lack of waste disposal sites; and the strict requirements necessary to obtain environmental clearance certificates.

Down in the Dumps

To find out how LGUs should best finance their SWM plans, Sumalde analyzed the financial costs and benefits of the SWM activities of forty-one selected authorities. Fifteen of these LGUs were members of the Solid Waste Management

Waste generation and budget allocation for SWM by LGU income per capita, 2002.

LGU	CLASSIFICATION	LGU INCOME/ CAPITA (PHP/yr)	PER CAPITA WASTE GENERATION (kg/day)	BUDGET FOR SWM		CONDITION OF DISPOSAL SITE
				As % of LGU income	Per Capita (PHP/yr)	
Low Income LGUs						
Antipolo City	Big LGU	410	0.28	11	44	Controlled
Marilao	SWAPP-listed	625	0.30	10	63	Semi Controlled (private)
Pototan	Small LGU	658	1.39	2	16	Open (private)
Nabua	Small LGU	686	0.44	1	9	Open (private)
Calasiao	Small LGU	824	0.29	2	18	MRF cum controlled
Middle Income GUs						
Bauang	Small LGU	1,100	0.22	4	47	Open
Zarraga	Small LGU	1,133	0.54	1	11	Open
Amlan	SWAPP-listed	1,208	0.13	3	32	Open
Batac	Small LGU	1,319	0.48	1	8	Open
Sto Tomas	Small LGU	1,355	0.23	4	55	Open
High Income LGUs						
Dumaguete City	SWAPP-listed	1,991	0.50	2	35	Controlled
Las Piñas City	Big LGU	1,996	0.42	5	106	Open (private)
San Fernando, LU	SWAPP-listed	2,103	0.45	11	225	Semi Controlled (LGU)
Naga City	SWAPP-listed	2,249	0.45	5	102	Semi Controlled
Laoag City	SWAPP-listed	2,478	0.40	5	117	Controlled

substantial SWM 'fiscal gap' "

Association of the Philippines (SWAPP). This organization helps LGUs respond to the SWM challenge by highlighting and supporting the best solid waste management projects in the country.

The other LGUs studied were ten big, urbanized LGUs and sixteen small, rural LGUs. There were wide variations in the socio-economic and geographical profile of these LGUs; for example, land area ranged from 26 sq. kms. to 425 sq. kms. Sumalde also looked at the SWM infrastructure in each LGU. Her findings showed that a lot needs to be done to bring the country's waste dumps up to international standards. For example, only one LGU had a sanitary landfill, while only 40% of the SWAPP-listed LGUs had controlled dumpsites.

Picking Through the Rubbish

To find out how much SWM was costing the LGUs to run, Sumalde looked at up-front costs (such as vehicles and equipment) and operating costs (such as salaries, fuel and maintenance costs).

Revenue from SWM activities came from two main sources: fee-based revenues and non fee-based revenues. Non fee-based revenues included proceeds to LGUs from sales of recyclables and compost. Fee-based revenue came from fees for garbage collection and other fees (such as sanitary permits, the selling of garbage bags and fines for littering).

Fiscal Gap (the difference between Total Cost and Total Revenue) in Providing SWM in Selected LGUs, 2002 (PHP)

CLASSIFICATION/ REGION	LGU	FISCAL GAP*		
		Total ('000)	Per Ton	Per HH Served
SWAPP-listed LGUs				
NCR	Caloocan City	344,273	2,010	1,230
NCR	Muntinlupa City	111,613	1,680	1,431
Region 1	Laoag City	11,691	854	592
Region 1	San Fernando, LU	14,367	818	957
Region 3	Marilao	8,294	625	364
Big Other LGUs				
NCR	Marikina City	96,983	1,063	1,121
NCR	Quezon City	1,653,331	2,996	3,440
CAR	Baguio City	16,344	192	395
Region 3	Angeles City	11,835	216	243
Region 3	Tarlac City	27,793	564	538
Small Other LGUs				
Region 1	Batac	1,937	965	794
Region 3	Moncada	2,372	2,954	2,326
Region 4	Los Baños	4,562	417	289
Region 4	Sto Tomas	1,727	223	1,109
Region 5	Iriga City	7,833	858	1,391

Information on these revenue streams was obtained from the income statements of the LGUs.

The researchers also investigated other direct economic benefits obtained from SWM. These included the earnings of private contractors and waste pickers from, for example, selling recyclables. Calculations were based on estimates from key people in the LGUs and the private sector. There was an element of uncertainty in the figures provided, since only a few LGUs had hard information on the value of recyclables taken by other parties.

Avoided landfill costs were also estimated. This was done by multiplying the overall amount of waste diverted by the cost of the operation and maintenance of landfill per unit of waste. The fiscal gap produced by the provision of SWM services was estimated by calculating the difference between the

total cost incurred and the total revenue generated by the SWM program of each LGU.

An Unbalanced Balance Sheet

Sumalde found that for all LGUs, the majority of their SWM costs were due to operating expenses. These costs accounted for greater than 86% of all the LGUs' costs. Average total SWM costs ranged from PHP 222 million for the big LGUs to PHP 3 million for the small ones.

In terms of revenue, on average, SWAPP-listed LGUs earned PHP 2.6 million from their SWM activities in 2002. This amount came mostly from fee-based revenues, especially garbage fees and other charges such as sanitary fees, citation tickets, anti-littering fines and proceeds from the sale of garbage bags to households. From this information, Sumalde deduced that a very small amount was

being earned from waste diversion activities

The other LGUs had even lower total revenues than the SWAPP-listed LGUs. In fact over 30% of these LGUs did not collect any fees for SWM collection.

On analysing these findings, Sumalde found that the LGUs all had a SWM fiscal gap. For the SWAPP-listed LGUs this was an average of PHP 43 million. For big LGUs, the average was PHP 221 million and for small LGUs PHP 2.8 million.

However, when the total economic benefits of the SWM were considered (these included the revenues obtained by LGUs, earnings made by other parties and savings from avoided landfill costs), it was found that there were LGUs that enjoyed positive net benefits. If LGUs could exploit as many potential revenue streams as possible, they could narrow their SWM fiscal gaps or even go 'into the black'.

Paying for Waste Management

Sumalde then analysed how each LGU undertook its waste management activities. By focusing on those areas where authorities either managed to

keep their costs low or recoup good levels of revenue, she was able to see how LGUs might be able to improve the financial profile of their SWM programs.

She found that, in general, the SWAPP-listed LGUs had relatively small fiscal gaps compared to the other large LGUs. Thus, the training and linkages provided by the SWAPP may be a crucial mechanism to help LGUs finance and comply with the government's waste management laws. She also found that those LGUs that collected garbage fees from households also had smaller fiscal gaps. Although supportive of the idea of garbage fees, Sumalde said LGUs should not go down this route without proper research since there were potential cost and practicality problems.

Sumalde found that one of the main potential sources of revenue was the re-channeling of garbage fees that are currently incorporated in the business permits and licences paid by commercial establishments. She also recommended that LGUs should investigate handling SW collection and disposal themselves since this could be cheaper than contracting such services out.

The research findings showed that good revenues could be obtained from selling recyclables and compost. However, many LGUs felt that the cost of undertaking these activities outweighed the benefits. Sumalde was of the opinion that more needs to be done to get a true picture of this situation through solid financial analysis. She also felt that LGUs were not fully capitalizing on the benefits of diverting waste from landfill.

Given the importance of improving SWM in the Philippines, it is hoped that the findings of this report will encourage those working in waste management to evaluate and implement some of the financing ideas and mechanisms proposed. Without them, SWM in the Philippines will continue to be poorly-implemented, under-funded and an unnecessarily large drain on the public purse.

56 PHP = 1 USD (January 2005)

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