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BIDS OF HOUSEHOLDS FOR IMPROVEMENT IN ENVIRONMENTAL SANITATION IN SELECTED LAKESHORE COMMUNITIES SURROUNDING LAGUNA DE BAY

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Abstract

This paper estimated the bids of households for improvement in environmental sanitation in selected lakeshore communities surrounding Laguna de Bay.The study made use of primary data gathered from sample households through household surveys and focus group discussions. Key informant interviews with garbage collection personnel were also conducted.

Majority (85%) of the 577 sample respondents in the four lakeshore communities studied indicated that they were willing to pay for an improvement in environmental sanitation through a solid waste management program. The modal WTP bids in all communities ranged from P61 to P80 from the household survey and P41 to P60 from the FGD. Currently, no garbage collection fee is charged from households in all the sample lakeshore communities.

Based on the foregoing results of the study, the following recommendations are suggested: 1) the local government should devise better solid waste management systems in their localities; 2) organizers or other stakeholders concerned with promoting environmentalism should conduct trainings on proper solid waste management program; 3) the LGU's should collect a user charge from households for waste collection and disposal services to raise funds for the improvement of waste collection and disposal services; 4) the government should allocate more funds for the purchase of new trucks for waste collection and disposal services; 5) the municipal government should use more fitted vehicle for remote areas to prevent dumping of wastes into the lake; 6) further study should be conducted to quantify the cost of abatement measures as a basis for estimating the penalty that would deter households from dumping their wastes into the lake; and 7) the role of the LGUs not only in the collection of wastes but also in waste disposal should be strengthened.

Introduction

Laguna de Bay is the largest freshwater lake in Southeast Asia. It is situated near Metro Manila, Philippines, with an area of 900 square kilometers and an average depth of 2.8 meters. The lake is drained by the Pasig River, which has become badly polluted by domestic and industrial sewage from Metro Manila. During the dry season, the lake falls to a minimum elevation of about 10.5 meters and under natural conditions, the level is controlled by mean sea level in Manila Bay. At the end of the dry season, the lake may drop below the level of high tide in Manila Bay, resulting in the intrusion of seawater to the Pasig River. With this flow reversal, highly polluted rivers of the Pasig and Marikina rivers are carried into the lake (Francisco, 1990).

In Laguna de Bay, previous studies noted that water pollution comes from numerous sources. Community wastes, specifically domestic wastes are the dominant pollution source. These domestic wastes are in the form of sewage, human waste, and solid waste. In 1995, pollution load was estimated as follows: a) biological oxygen demand – 47,810 mt from domestic waste and 37,147 mt from industries; b) suspended solids – 37,857 mt from domestic sources, 79,001 mt from livestock and poultry, and 79,456 mt from industries; c) nitrogen – 8,535 mt from domestic sources and 4,473 mt from livestock and poultry; and d) phosphorous – 1,688 mt from domestic sources and 1,547 mt from livestock and poultry (Orbeta and Indab, 1994).

The main problem in solid waste management in the lakeshore municipalities around Laguna de Bay is the lack of ample attention posed by the local government in addressing the waste management problem. This study estimated the bids of households for improvement in environmental sanitation in selected lakeshore communitiies surrounding Laguna de Bay.

Methodology

Both primary and secondary data were utilized to achieve the objectivess of the study. Primary data were collected through personal interview of 577 sample households using a structured interview schedule in selected lakeshore municipalities of Laguna de Bay.

Relevant documents such as the solid waste mangement plans in the four lakeshore municipalities surrounding Laguna de Bay such as Los Banos, Sta Cruz, Binangonan, and Cardona were accessed and used as basis for comparing existing garbage collection and disposal practices and in determining improvements for an effective solid waste management program.

Focus group discussions (FGD) were also conducted in the study sites such as Bayog (Los Banos); Sto. Angel Norte (Sta Cruz); Calumpang (Binangonan); and Looc (Cardona) to validate or confirm the data supplied by the 577 survey respondents on their willingness to pay responses.

Descriptive information on the solid waste management practices in selected lakeshore municipalities surrounding Laguna de Bay were collected to identify existing patterns in refuse handling. Other information such as municipal ordinances related to solid waste disposal in the study areas were also obtained.

To determine the households' willingness to pay for an improvement in environmental sanitation in selected lakeshore municipalities surrounding Laguna de Bay, one municipality from each geographical location was chosen. Random sampling technique was used in selecting the sample municipalities in each geographical location.

The randomly selected municipalities are Binangonan (West Bay Location), Cardona

(Central Bay Location), Sta Cruz (East Bay Location), and Los Banos (South Bay Location). Purposive sampling was used in the selection of four sample barangays based on the number of households and the largest coastal area. One barangay with the highest number of households or largest coastal area in each selected municipality was chosen as sample barangay. The four lakeshore barangays are Calumpang (Binangonan), Looc (Cardona), Santo Angel Norte (Sta Cruz), and Bayog (Los Banos).

The number of households in each sample barangay was obtained from the Municipal Planning and Development Office in each sample municipality. The number of households in the four sample barangays was estimated. This totalled to 5,768 households. The total number of household respondents in this study was determined by getting 10% of the total number of households in the four sample barangays. Hence, 577 sample respondents comprised the total sample size. Proportional allocation method was utilized in determining the sample size or the number of sample households in each barangay, (i.e., Calumpang, 223; Looc, 136; Sto Angel Norte, 103; and Bayog, 115). The list of lakeshore households were obtained from the chairmen of the barangays covered. Random sampling technique was used in selecting the sample respondents in each barangay.

Descriptive statistics such as means, frequencies, and percentages were used in presenting the household profile, the type of wastes produced and the solid waste management practices in selected lakeshore municipalities surrounding Laguna de Bay. Weighted rank means of the solid wastes generated by barangay were estimated to determine the relative ranking of the most frequently generated domestic wastes.

The households' willingness to pay a certain percentage of their household income to have an improved environmental sanitation through solid waste management program was determined through the Contingent Valuation Method (CVM) with the willingness to pay format. The benefit valuaton technique relies on estimating the willingness to pay for an improvement in environmental sanitation. This was done by asking the respondents in each sample barangay how much they were willing to pay for an improvement in environmental sanitation during the household surveys and the focus group discussions. Mean and mode estimates of the willingness to pay were computed. The mode values are preferred to the mean values since the mean values might be affected by outlyers which might either pull up or pull down the mean. The estimated mode value could be used as the user charge that could be imposed to residents in lakeshore municipalities for waste collection and disposal services.

Results and Discussion

Majority (85%) of the 577 sample respondents in the four lakeshore communities studied indicated that they were willing to pay for an improvement in environmental sanitation through a solid waste management program. The modal WTP bids in all communities ranged from P61 to P80 from the household survey and P41 to P60 from the FGD. Currently, no garbage collection fee is charged from households in all the sample lakeshore communities.

Recommendations

Based on the foregoing results of the study, the following recommendations are suggested: 1) the local government should devise better solid waste management systems in their localities; 2) organizers or other stakeholders concerned with promoting environmentalism should conduct trainings on proper solid waste management program; 3) the LGU's should collect a user charge from households for waste collection and disposal services to raise funds for the improvement of waste collection and disposal services; 4) the government should allocate more funds for the purchase of new trucks for waste collection and disposal services; 5) the municipal government should use more fitted vehicle for remote areas to prevent dumping of wastes into the lake; 6) further study should be conducted to quantify the cost of abatement measures as a basis for estimating the penalty that would deter households from dumping their wastes into the lake; and 7) the role of the LGUs not only in the collection of wastes but also in waste disposal should be strengthened.

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