

ATTITUDES TOWARDS ENVIRONMENTAL ISSUES: A CASE OF BOPHELONG TOWNSHIP

Ismael Maloma

North-West University, Vaal Triangle Campus, South Africa

E-mail: Ismael.maloma@nwu.ac.za

Mr

Mmapula Brendah Sekatane

North-West University, Vaal Triangle Campus, South Africa

E-mail: Brendah.sekatane@nwu.ac.za

Dr

—Abstract —

This paper examines the attitudes that the households of Bophelong Township have towards environmental issues in their area. Focus was placed on issues pertaining to air pollution and littering in the Township. The study investigated the attitudes of households as to the causes of pollution and littering in their area. Emphasis was also placed on their attitudes as to who should take the initiative and responsibility for the abatement of the pollution and the cleaning of the area. The results highlight the factors that should be considered when looking at household attitude towards pollution in a South African Township.

Keywords: Pollution, Bophelong, Environment

JEL Classification: Q53

1. INTRODUCTION

Pollution is defined as a condition in which man-made activities reduce the ambient quality of a particular environment (Stephen *et al.*, 2002). Kidd (1997) defines pollution as the introduction into the environment of substances or energy liable to cause hazards to human health, harm to living resources, and ecological systems, damage to structure or amenity, or interference with legitimate use of the environment. In addition, the National Environmental Management Act 39 of 2004 defines air-pollution as any change in the composition of air caused by smoke, soot, dust (including fly ash), cinders, solid particles of any kind, gases, fumes, aerosols and odorous substances. Human beings exist in an environmental space. The environment offers a great deal of services to mankind; firstly, the environment acts as a form of a consumption good by offering services to humankind in the form of air to breath and space; secondly, the environment supply resources such as water, sun and oil; thirdly, the environment is a recipient for waste through the atmosphere, land and water and lastly, the environment acts as a geographical location for economic activities (Bella, 2003:4).

Poverty and unemployment are major problems in the urban areas of developing countries particularly in low-income neighbourhoods. Residents in low income settlements tend to be the most vulnerable to environmental hazards. The poor often possess inadequate resources that can enable them to afford cleaner sources of energy; as a result they tend to resort to using dirty fuels such as biomass and fossils. These expose them to air-pollution particularly indoor air-pollution; it is as a result of their low incomes that the poor are more likely to be vulnerable to pollution than the affluent members of society. Poverty is often associated with pollution, there is substantial literature that highlights the adverse effects of pollution on the health and welfare of the poor (Beall *et al.*, 2000). The endeavour to improve human welfare and raise standards of living cannot be divorced from the state of the natural environment. A better understanding of the attitudes of the poor towards air quality will assist in successful participation by the community in programmes designed to alleviate pollution (Saksena, 2007).

One of the major factors that contribute to pollution in Bophelong is the continued combustion of bio-fuels, particularly coal. Despite the fact that almost 100 percent of the households have electricity in their houses, many still continue to use coal due to its affordability and multiple uses. Electricity on the other hand is considered more expensive and the situation is likely to continue for a long time in the future.

Whilst the Vaal Triangle area – in which Bophelong Township is located - is heavily industrialised, and industries contribute significantly to air pollution, the largest contribution in the area comes from domestic sources (Friedl *et al.*, 2008). In a study conducted by Friedl *et al.*, (2008), 94 percent of the respondents expressed a general concern about air pollution in the area, and the majority of the respondents felt that industries are the main culprits. The study by Friedl *et al.*, (2008), however, proved that domestic sources are by far the largest contributors, accounting for 69 percent of the health impact levels

A study conducted in the United States of America by Pope III *et al.* (2002) found that air pollution is an important environmental risk factor for the existence of cardiopulmonary illnesses for people residing in areas surrounding the polluting industries. Another study conducted by Oldewag-Theron *et al.* (2005) in an informal settlement in the Vaal Triangle found that 42 percent of the respondents suffer from chronic cough. The study further established that 72 percent of the respondents did not smoke; thereby suggesting that air pollution could be a leading cause of such ailments in the area.

The paper is organised in the following manner: Firstly, the methodology used in the study, discussion of the data and the results and then the conclusion thereof.

2. METHODOLOGY

2.1. SURVEY DESIGN

This paper is based on a survey that was conducted in Bophelong Township in 2012. Approximately 300 households were visited and personally interviewed by trained fieldworkers. Of the 300 households interviewed in the survey only 285 were analysed. Fifteen questionnaires were destroyed due to incompleteness, largely due to the reluctance of respondents to answer questions pertaining to income. The survey made use of probability sampling which is more statistically acceptable than convenience sampling. Face-to-face interviews were conducted at the homes of the respondents as home is the place where respondents are more likely to feel comfortable and are expected to provide well thought-out responses.

2.2 ANALYSIS

The paper begins by providing a statistical analysis of the socio-economic characteristics of the population of Bophelong. The socio.–economic analysis is divided into three broad categories, namely, the demographic profile, labour force and attitudes of respondents towards environmental issues. The demographic section analyses aspects of the population such as gender distribution and level of education. The labour force section analyses the characteristics of the population in terms of employment status. The environmental section profiles the characteristics of the population in terms of assessing the attitudes of inhabitants towards the environment, assessing their perception on the type of action required to address environmental concerns, and establishing inhabitants' perceptions regarding responsibility for clean air as well as establishing the residents willingness to pay (WTP) for an improved environment including reduction in air pollution.

3. DISCUSSION

3.1 Demographic profile of Bophelong

According to the survey data 56.5 percent of the sampled population was female whilst 43.5 percent was male. These figures are in line with other survey-based studies conducted in the area and also closely resemble the national figures. In the survey conducted by Slabbert and Sekhampu (2009) the gender distribution was estimated at 47 and 52 percent for males and females respectively. The national mid-year population estimates for Africans published by Stats SA (2011) shows a national gender distribution of 48.4 percent and 51.6 percent for males and females respectively.

Table 1 show that only 7.8% of the sample population possessed qualifications of Grade 11 and higher. This situation further entrenches poverty in the community of Bophelong. This is so because access to higher education affords an individual an opportunity to earn a higher income. Access to better paying jobs is also determined largely by a person's level of education (Todaro & Smith, 2011:377). Higher levels of education and higher income can have a positive influence on an individual's attitude towards the environment. Contingent valuation studies have shown that willingness to pay for an improved environment tends to increase with education and income (Carlsson & Johansson-Stenman, 2000).

Table 1: Relationship: Gender and Education

			EDUCATION GROUP				Total
			GRADE 1-4	GRADE 5-7	GRADE 8-10	GRADE 11 TO HIGHEST	
SEX	MAL	Count	45	27	43	6	121
	E	% within SEX	37.2%	22.3%	35.5%	5.0%	100.0%
	FEM	Count	31	35	79	16	161

ALE	% within SEX	19.3%	21.7%	49.1%	9.9%	100.0%
	Count	76	62	122	22	282
Total	% within SEX	27.0%	22.0%	43.3%	7.8%	100.0%

Source: Survey Data, 2012

Table 2 shows that a strong correlation exists between employment status and level of education. Those with higher levels of education were less likely to be unemployed. Only 4.5% of those with a qualification of Grade 11 and higher were unemployed. The unemployment rate in Bophelong was calculated at approximately 54 percent. Carlsson and Johansson-Stenman (2000) found a positive relationship between employment status and WTP for reduced air pollution. This means that employed heads of households were more likely to have a positive WTP for pollution in Bophelong Township, which implies a positive attitude towards environmental issues.

Table 2: Relationship between employment status and education

ES * EDUCATION GROUP							
			EDUCATION GROUP				Total
			GRADE 1 -4	GRADE 5- 7	GRADE 8- 10	GRADE 11 TO HIGHEST	
ES	UNEMPLOYED	Count	50	39	61	1	151
		% within ES	33.1%	25.8%	40.4%	0.7%	100.0%
		% within EDUCATION GROUP	67.6%	63.9%	51.7%	4.5%	54.9%
		% of Total	18.2%	14.2%	22.2%	0.4%	54.9%
	EMPLOYED	Count	24	22	57	21	124

D	% within ES	19.4%	17.7%	46.0%	16.9%	100.0%
	% within EDUCATION GROUP	32.4%	36.1%	48.3%	95.5%	45.1%
	% of Total	8.7%	8.0%	20.7%	7.6%	45.1%

Source: Survey Data, 2012

3.2 Environmental Issues: Relationship between perception and education

Bophelong Township is a low-income settlement afflicted by high levels of unemployment and poverty. The unemployment rate as calculated in the survey conducted in this study is 54 percent. Educational levels are also low with only 7.8 percent of the population out of school having qualifications of Grade 11 and higher. There is a positive correlation between poverty and environmental degradation. Beall *et al.* (2002) reflects on this positive correlation by stating that poor people are seen as villains as they tend to perpetuate environmental degradation. This section provides an environmental analysis for Bophelong Township. The profile covers aspects such as perceptions of the population about their living environment, the community's views regarding who should be responsible for a cleaner environment, the degree to which the population is affected by pollution related diseases, as well as evaluating the community's willingness to pay for a reduction in air pollution.

An average of 85 percent of the respondents were of the opinion that their environment is dirty as compared to an average of 11.45 percent who felt that the environment is clean. Level of education did not have any significant bearing on respondents' attitudes towards the environment. The survey questionnaire further asked respondents to express an opinion on whether they feel something should be done to improve the environment. Approximately 87.7 percent indicated that something should be done to improve the environment. Approximately 13 percent felt that the environment is clean and pleasant and as such should be left as it is. The education levels of respondents did not have any significant bearing on their opinion. These results compare favourably with the results of a survey conducted

in the area in 2009 in which 81 percent of respondents were of the opinion that the environment is littered and untidy whilst 18 percent felt that it is clean and pleasant (Slabbert & Sekhampu, 2009). In a survey conducted by Nova Institute (2009) in seven townships that fall under the jurisdiction of the Emfuleni Local Municipality (including Bophelong), 94 percent of the respondents indicated that they are concerned about pollution. The results above show that residents of Bophelong, in line with the residents of other townships in the area, are increasingly becoming aware of the importance of environmental amenities such as a clean environment.

Although the residents of Bophelong are aware that they stay in a polluted area as indicated above they seem to be unaware of the potential link between health and pollution. The survey revealed that of those suffering from pollution related ailments, approximately 85 percent suffered from pulmonary ailments thereby suggesting that air pollution is a major cause of sicknesses in the community. Many of the respondents who indicated that they suffer from pulmonary illnesses indicated that they were suffering from ailments such as tuberculosis (TB) asthma and pneumonia. These types of ailments can be linked to exposure to air pollution (Schrinding et al., 2002). Bickerstaff and Walker (1999) indicate that the link between air quality and health is generally unclear and people may ascribe symptoms of asthma, headaches, fatigue, irritability etc. to other causes. In addition, although people might be aware of the existence of excessive pollution in their area, they may be reluctant to accept the potential for adverse effects to themselves (Bickerstaff & Walker, 1999)

The environmental questions in this paper were part of a broader Contingent Valuation survey. The study made use of an open-ended type question to elicit respondent's willingness to pay for the reduction of air pollution in their area. Contingent valuation literature reveals that open-ended questions often lead to a conservative design as they tend to yield a lower mean willingness to pay (Arrow et al., 1993). In this survey 68 percent of the respondents indicated a zero willingness to pay whilst only 32 percent had a positive willingness to pay. The mean willingness to pay was also low at approximately R11 per month.

As is common in Contingent valuation surveys a follow-up question was asked to establish respondents' motives for a stated zero willingness to pay. About 32% of the respondents felt that the social cost of pollution should be borne by government, whilst 6% felt that the environment should be protected by law. Approximately 31% of the respondents were of the opinion that polluters should bear the costs of pollution. In their study of public perception on urban air pollution in Birmingham UK, Bickerstaff and Walker (2002) identified a cognitive response pattern in which individuals seek to move responsibility for air-quality on to other groups.

5. CONCLUSION

This paper has shown that awareness and concern for environmental quality in low-income neighbourhoods is not necessarily linked to socio-economic status. Environmental problems are a concern in both poor and wealthy communities and poor communities are as much concerned about environmental quality as their wealthy counterparts. Whilst residents are largely aware of environmental problems in their area, they still showed lack of understanding of the link between environmental issues and health. The majority of the respondents had a zero stated willingness to pay for the reduction of air pollution in their area. The high zero response rates could be ascribed to the respondents' low incomes as willingness to pay is a function of income. Addressing the poverty situation in Bophelong is the first step towards the eradication of environmental degradation. In developing countries, environmental degradation is associated more with poverty than with affluence. Economic literature shows that a very strong link exists between economic growth and environmental quality. Raising income of the poor would therefore relieve pressure on the environment. Literature findings reveal that domestic sources of pollution contribute more to health impacts than industrial emissions. It is advised that interventions should therefore target domestic sources of pollution.

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